

The Wiley Blackwell
Handbook of Mindfulness

The Wiley Blackwell Handbook of Mindfulness

Volume I

Edited by

**Amanda Ie
Christelle T. Ngnoumen
Ellen J. Langer**

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General Introduction

There currently exist two dominant mindfulness camps. The Western camp involves social psychological approaches to mindfulness, as exemplified by the work of Ellen Langer. Langer's approach is sometimes referred to as "mindfulness without meditation." The nature of its practices is highly psychological, and very little to no emphasis is placed on meditation. The Western camp contrasts with more Eastern approaches to mindfulness, which are rooted in Buddhist philosophy and are more contemplative and based on meditation. A dominant branch of the Eastern camp is approaches to mindfulness that incorporate both psychological and meditative elements. These Eastern-derived models borrow forms of meditation from the Eastern camp and empirically apply them in Western settings. The Western and Eastern models propose different and unique theoretical principles, but they also share significant similarities. Most important, both approaches aim to cultivate a present-oriented mind, thereby permitting individuals to increase health and well-being. This handbook compares and contrasts Western and Eastern mindfulness camps with the aim of transforming their seemingly oppositional relationship into a complementary one. The chapters included in this handbook have been specifically selected because they adequately represent the ways in which mindfulness has been applied in various fields and settings, including medicine, mental health, education, organizations, and sports. Mindfulness has also proved to have a powerful influence on cognition, attitudes, and interpersonal relationships.

Part I

Origins and Theory

The concept of mindfulness originates from ancient Buddhist, Hindu, and Chinese philosophies. These more Eastern approaches to mindfulness are meditative in their nature and emphasize nonreactive awareness and concentration of one's self and experiences (e.g., viewing the body in and of itself; feelings in and of themselves; mind in and of itself; and mental qualities in and of themselves; Thanissaro Bhikkhu, 2007). The role of such mindfulness practices is to keep the mind properly grounded in the present moment and to decrease reactivity to what happens in the moment. It is a way of relating to all experience—positive, negative, and neutral—such that overall levels of suffering are reduced, and sense of well-being increases (Germer, Siegel, & Fulton, 2005).

Today, there are a variety of definitions of mindfulness within both Eastern and Western approaches. The Eastern approach to mindfulness has undergone several transformations following its introduction into Western culture and contemporary psychology. Basic definitions of mindfulness include “moment-by-moment awareness” (Germer et al., 2005), “keeping one’s consciousness alive to the present reality” (Hanh, 1976), “attentional control” (Teasdale, Segal, & Williams, 1995), “a form of self-regulation of attention” (Hassed, 2013), “paying attention with purpose, non-judgmentally, and while in the present moment” (Kabat-Zinn, 1994, 2005), “the bringing of one’s awareness to current experiences through observing and attending to the changing field of thoughts, feelings, and sensations from moment to moment” (Bishop et al., 2004), and “complete attention to one’s experience on a moment-to-moment basis” (Marlatt & Kristeller, 1999).

Western conceptions of mindfulness emerged around the 1970s. The Western camp was heavily influenced by Ellen Langer’s pioneering work on mindlessness and choice (Alexander, Langer, Newman, Chandler, & Davies, 1989; Langer, 1992; Langer, Beck, Janoff-Bulman, & Timko, 1984; Langer, Blank, & Chanowitz, 1978; Langer & Moldoveanu, 2000). Langer’s work originated independently of any reference to

Eastern contemplative traditions. Her concept of mindfulness originates from a social psychological approach, and emphasizes actively drawing novel distinctions. Her early research focused on mindlessness and its prevalence in daily life, after which she began to explore the other side of the coin—mindfulness—and its potential benefits in areas such as aging, mental and physical health, behavioral regulation, interpersonal relationships, creativity, and the workplace.

Toward the 1980s, a unique conceptualization of mindfulness branched off the Eastern camp. This Eastern-derived approach to mindfulness integrates both psychological and meditative elements. Increasingly more empirical work examining the health outcomes of cultivating mindfulness through the practice of meditation has stemmed from this branch. Eastern-derived approaches to mindfulness were spearheaded by Jon Kabat-Zinn's work on the clinical applications of mindfulness (Kabat-Zinn, 2003, 1990, 1994; Ludwig & Kabat-Zinn, 2008). According to Kabat-Zinn (2005), mindfulness practice promotes full awareness of the present moment, with the intention of embodying an orientation of calmness and equanimity to the best of one's ability.

The role that meditation plays in the process of cultivating mindfulness differs in Langer's and Kabat-Zinn's conceptualizations of mindfulness and is perhaps a distinguishing factor for the two approaches. Langer characterizes mindfulness as a universal human capacity that need not be enhanced through the practice of meditation. Rather, mindfulness is gained by maintaining an orientation in the present, openness to novelty, alertness to distinctions, sensitivity to different contexts, and an awareness of multiple perspectives (Langer, 1990). In Langer's model, mindfulness is also enhanced through attending to the variability of one's mental and physical states.

Kabat-Zinn's conception of mindfulness is similar to Langer's in its focus on moment-to-moment awareness. The process by which mindfulness is attained, however, differs from Langer's in its emphasis on meditation. Kabat-Zinn addresses noticing new things in a manner more akin to many Eastern meditative practices. His mindfulness-based stress reduction (MBSR) program involves techniques designed to promote relaxation such as the following of one's breath, Hatha yoga, and breathing exercises to ameliorate various symptoms associated with chronic pain, stress, anxiety, depression, irritable bowel syndrome, psoriasis, eating disorders, and other chronic conditions.

Two other early contributors to the burgeoning of Eastern-derived, mindfulness-based approaches to medicine include Herbert Benson and Richard Davidson. Benson's greatest contribution is his demonstration of how meditation can ameliorate stress responses and thereby prevent the subsequent series of negative physiological reactions normally associated with stress. According to Benson (1975), the mind and body are one system, with the experiences of the latter capable of being regulated by the qualities of the former. Many Western and Eastern-derived approaches similarly subscribe to such mind–body monism. Langer's approach to improving physical and psychological health is guided by the perspective that the mind and body comprise a single system, and that every change in the human being is simultaneously a change at the level of the mind (e.g., cognitive changes) as well as the body (e.g., cellular, hormonal, neural changes).

Using modern techniques from neuroscience, Davidson demonstrated that the very qualities of the mind and its contents (e.g., happiness) can be learned, much in the same way that most skills are acquired. Some of Davidson's latest research suggests that meditation can be used to train minds into becoming happier and generally more positive (Davidson & Scherer, 2001). Langer et al. assessed the mindfulness levels of 300 people in China and discovered a positive association between mindfulness and happiness. These results are in line with Davidson's proposal and demonstrate how a mindful outlook (which can be trained and learned) could potentially contribute to increased positive qualities and experiences.

While Eastern (including Eastern-derived) and Western conceptions of mindfulness are similar in their health and quality-of-life outcomes, the processes by which these effects are obtained are qualitatively different. While the former emphasize practices rooted in meditation, the latter foster a heightened sense of awareness through maintaining an open awareness of novel information and forming new categories out of one's experience. While there surely are noticeable differences between Eastern and Western approaches to mindfulness, the degree of similarities between the two significantly outweighs their differences.

Eastern and Western conceptions of mindfulness are similar in their fundamental view of the relationship between the mind and the body as a dynamic one whereby human behavioral experiences and personal qualities can be moderated through systematic mental practice. Both camps have enriched the field, and generated greater awareness and appreciation for the wealth of benefits gained from the remarkably simple process of acknowledging novel experiences. Despite the multiple working definitions that exist for mindfulness, the element of appreciating novelty is reinforced in both Eastern and Western camps, perhaps highlighting its essentiality.

The first section of the handbook explores the historical origins of the mindfulness concept. Langer's chapter encapsulates over 35 years of her research on mindfulness. She develops the construct of mindfulness through putting it into practice across a variety of experimental and clinical settings and across a variety of populations. Her work demonstrates the powerful role of mindfulness in extending the limits of human functioning, and in improving health and promoting longevity.

Siegel and Siegel reveal the benefits associated with both contemplative and creative forms of mindfulness. More specifically, they present the positive changes associated with maintaining open awareness and learning from an open and engaged stance. They propose that "presence" is a state of mind that incorporates both contemplative and creative forms of mindfulness. Furthermore, it enables individuals to thrive amidst uncertainty.

Carmody explores the commonalities and differences between Western and Eastern (including both Eastern-derived) conceptions of mindfulness. All approaches similarly view experience as shaped by perception, particularly with regard to awareness. Additionally, they all foster improvements in well-being. While the Eastern approach focuses more on both the senses—unfiltered by any conceptual categories—and intellect, Western practices directly address cognitive realms.

Olendzki traces the progression of mindfulness from its early Buddhist origins through its integration into psychological science. According to Olendzki, mindfulness is a much-needed tool in today's externally oriented societies. Mindfulness's goal

of allowing individuals to access their emotions would likely provide them with a greater understanding of their internal experiences, which are often overlooked amidst preoccupations with the material world.

Muhr and Handberg review the main theorems that underlie traditional mindfulness training (e.g., the distinctions between mind–body and subject–object). Their chapter explores the Four Mindfulness practices and their relevance to personal development and psychological health. They also discuss the similarities and differences between traditional mindfulness meditation and the mindfulness techniques applied in modern therapeutic settings.

Fatemi discusses the nature of paradigmatic shifts in the field of psychology, and elaborates upon the kinds of conditions under which such shifts are either well received or faced with hesitations. He demonstrates how Langer's (2009) work on mindfulness questions mainstream psychology's reliance on positivism and rationality and challenges the certainty of knowing. More specifically, he argues that Langer's work advocates a tilt in mainstream psychology's position of positivist knowing towards a stance of not knowing, the latter stance being one that affords the exploration of an expansive array of epistemologies and unlocks the search for predetermined knowledge fostered by the positivist position.

Djikic highlights factors that distinguish Eastern and Western conceptions of mindfulness, including a cultural divide between being and doing, respectively. This divide is apparent in more Eastern approaches' emphases on internal attitudes and ways of being as the targets of self-development, while more Western approaches focus more on action as the fuel of transformation and developmental change. Djikic further elucidates on the distinctions between Eastern and Western approaches through a discussion of how they conceptualize the nature of problems, their causes, and their solutions.

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Mindfulness Forward and Back

Ellen J. Langer

During the 1970s, the cognitive revolution was well under way, and social psychologists were busy researching attribution theory, the dominant concern of the time (see Harvey, Ickes, & Kidd, 1978). Although I, too, was considered a social cognition researcher, I suggested that before we concern ourselves with what people were thinking, we should consider questioning whether they were thinking at all. In 1978, we conducted one of our first studies to explicitly suggest that much of the time, people were mindless (Langer, Blank, & Chanowitz, 1978). For example, in one of these studies, people were interrupted while about to use a Xerox machine with a request that made little sense. In one condition, the experimenter asked, “Can I use the Xerox machine *because I want to make copies?*” People were more likely to comply when a reason was given than when one was not, regardless of whether the reason was informative.

Several earlier studies we conducted already suggested the absence of deep processing. In one of these studies, a request for help was made where the words spoken were identical but were spoken in a different but still sensible order (Langer & Abelson, 1972). If subjects processed the whole request, there should not be a difference in compliance. The opening words (“My knee is killing me, would you do me a favor” vs. “Would you do me a favor, my knee is killing me”), however, primed a different behavioral response. Although it was years in coming, there is now a vast literature on priming, showing that much of our behavior is controlled by primes rather than under our immediate control. Before addressing some of this work, it may be useful to consider our other early priming studies.

Early Studies on Mindless Priming

Robert Abelson and I (Langer & Abelson, 1974) had therapists watch a video of a person being interviewed. Half of the time, the person was labeled “patient,” and half

of the time, he was called a “job applicant.” Despite the fact that these were highly educated therapists trained to be careful observers of behavior who watched the very same video, the label primed the way the person would be seen. The “patient” was in need of therapy while the “job applicant” was fairly well adjusted. This work demonstrated the illusory correlation effect and the pervasiveness of mindlessness. Study after study would eventually show that people engage in hypothesis confirming data searches, ignoring all other information (Chapman & Chapman, 1967; Hamilton & Gifford, 1976).

Also in the 1970s, I proposed a theory about the illusion of control (Langer, 1975). These studies can be understood as priming studies as well. When elements of a skill situation, such as choice, stimulus familiarity, practice, and competition, are introduced into a chance situation, they prime a skill orientation, and thus people respond in a way more sensible to situations where their behavior can affect the outcome. Choosing a lottery ticket, for example, makes the ticket more valuable to people. An extension of this finding later became known as the endowment effect (Thaler, 1980), another much researched topic suggesting once again that mindlessness is pervasive.

Social psychologists were now starting to question whether phenomena like attitude formation/change were as had been previously understood or whether they were instantiations of mindlessness. For example, Shelley Chaiken (1980) distinguished between heuristic and systematic processing, and Cacioppo and Petty (1979) discussed central and peripheral processing, where heuristic and peripheral were essentially mindless. When the source of the message was seen as credible, when the way the argument was presented was reasonable (familiar), when the source was attractive, or when the message was given in a catchy slogan, mindlessness prevailed.

When information is given by an authority, seems irrelevant, or is given in absolute language, people take in the information without questioning it and become trapped by the substantive implications of that information in the future should that information become relevant and where a deeper understanding would be helpful (Chanowitz & Langer, 1981). I would submit that most of what we learn, we learn in this absolute way. Most of our education, indeed, is geared to the giving of absolute facts, irrespective of context, and thus promotes mindlessness. How often have we been told to learn something so well that it becomes second nature? This, too, is an instruction that promotes mindlessness. We learn how to do the task and now don’t have to think about it when such thought could yield superior performance (see Langer, 1997).

The evidence that mindlessness is pervasive was mounting. Numerous studies showed that people respond passively to cues in the environment rather than actively make choices. For example, (1) affective priming asserts that affective reactions can be evoked with minimal stimulus input and virtually no cognitive processing (Zajonc, 1980); (2) intentions and goals can be activated nonconsciously by the environmental context (Bargh & Chartrand, 1999); (3) the chameleon effect (Chartrand & Bargh, 1999) demonstrates that people unwittingly mimic others so that their motor behavior unintentionally matches that of strangers with whom they worked together on a task; and (4) the vast literature on stereotyping shows that single cues like gender or race can overshadow an enormous amount of countervailing information and be

automatically activated (Blair & Banaji, 1996). Each of these and more speak to the mindlessness of everyday behavior.

In one study, for example, Bargh, Chen, and Burrows (1996) found that simply cuing old age led subjects to walk more slowly. In an extension of that work, we had people categorize photos by age, thereby priming old age for young subjects, or we had them categorize the same photos along several dimensions. This mindfulness treatment erased the mindless effect of priming (Djikic, Langer, & Stapleton, 2008).

Most recently we have studied the mindlessness that results from reliance on GPS systems. To do this, Jaewoo Chung and I (Chung & Langer, 2013) developed a mindful indoor navigation system that provides choice to users. Choice promotes mindfulness. It is through noticing differences among alternatives that one arrives at a decision. We found that the mindful GPS system increased perceived control; decreased travel time, errors, and confusion; and increased the number of landmarks noticed.

Even multitasking looks different through the mindlessness/mindfulness lens. The mindless use of so many electronic gadgets now available has been shown to result in decrements in performance. Nevertheless, we found that people with higher trait mindfulness scores on the Langer Mindfulness Scale (LMS; Langer, 2004) are better able to multitask (Ie, Haller, Langer, & Courvoisier, 2012).

From Mindlessness to Mindfulness

Some argue that there is a place for mindlessness. I believe mindlessness is reasonable only when two conditions are met: when we have found the very best way of doing something, and when nothing changes. Clearly, from Heisenberg forward we know that everything is always changing. I further have argued that not only is everything changing but also at any one time things look different from different perspectives. Most typically, we're unaware of subtle changes because we confuse the stability of our mindsets with the stability of the underlying phenomenon. By freezing our understanding, we forfeit the possibility of choosing to act differently. The counterargument is usually that mindfulness takes more time than mindlessness and is more effortful. I'm not sure that is so, but even if true, the difference is only milliseconds and rarely does that small time difference truly matter. In making this argument, someone once created the condition where a child is about to walk into oncoming traffic. The person thought that mindlessly pulling the child to safety would be best done mindlessly. I countered that if the adult had been mindful, the child wouldn't have gotten to the curb in the first place. Moreover, there may be some advantage in mindfully scanning the driver's behavior to see which way would actually be safest to take the child. When we are mindless, we give up the option to make that choice. To see mindfulness as being more effortful is to confuse it with controlled processing as discussed below.

My original research on mindlessness gave way to questions about the other side of the coin, mindfulness. My particular approach to mindfulness grew out of our early work on choice. In the illusion of control studies, it was clear that choice was important—so important that even in situations that were deemed chance-determined, choice mattered to people. The most telling study on the topic was the research Judith Rodin and I were to conduct with elderly nursing home adults

(Langer & Rodin, 1976; Rodin & Langer, 1977). The experimental group was given choices to make (e.g., a plant to take care of) and a pep talk encouraging them to make the choices they used to make when they were younger. To control for all of the content provided, comparison subjects were given tender loving care and were told the nurses would help them care for the plants. Our follow-up study revealed that twice as many people in the group given choices to make were still alive 18 months later, compared to the control group. What was it about making choices that produced such extreme effects?

To actively make a choice, we notice aspects of the alternatives. If these aspects are novel, we may be led to choose other than our habitual choice. To always select the same alternative may seem like a choice from the observer's perspective, but for the actor it may be a habitual response. As such, it requires very little from us and may seem almost a nonevent. If everyday I have orange juice without considering whether today I might prefer grapefruit juice, no choice is being made. To make a choice, there has to be a consideration of one or more of the options not taken. Thus, actively drawing novel distinctions was taken to be the crucial element of the nursing-home findings. To test this idea, we gave nursing-home residents instructions in mindful distinction drawing and replicated the longevity findings (Alexander, Langer, Newman, Chandler, & Davies, 1989; Langer, Beck, Janoff-Bulman, & Timko, 1984).

In one of these studies (Alexander et al., 1989) we compared mindful-noticing subjects and transcendental meditators to relaxation control subjects. The procedure was tailored to meditation (i.e., sitting still with one's eyes closed) so not the best way of testing mindfulness as we study it. Still, the results for the mindful-noticing group were clearly superior to the control group, as was the Transcendental Meditation treatment. Meditators and mindful-noticing subjects demonstrated improvements on measures of cognitive flexibility; paired associates learning; word fluency; mental health; systolic blood pressure; treatment efficacy; ratings of behavioral flexibility and perceived control; aging; and higher survival rate. The process of meditation helps loosen the grip of categories over us; meditation results in postmeditative mindfulness. Mindfully noticing different aspects of these categories similarly—and perhaps more directly—loosens their grip.

Over the last 40 years, in study after study, we increase novel distinction-drawing—mindfulness—and find significant improvements in psychological and physical functioning (see Langer, 1989, 1997, 2005, 2009, for reviews). It is not incompatible with meditation. It is a different way to get to essentially the same place. When we actively draw distinctions, we come to see that context and perspective matter, we see we didn't know it as well as we thought we did, and this uncertainty keeps our attention on the topic. We see that our evaluations change depending on the context, and thus we become less evaluative (e.g., rigid from one perspective is consistent from another). And all of these years of study suggest that mindfulness is literally and figuratively enlivening.

In a very different arena, we asked whether aspects of childbirth were mindless (Zilcha-Mano & Langer, 2013). In this instance, we operationalized mindfulness as attention to variability—the essence of which, again, is noticing novelty—to examine whether mindfulness would result in better health outcomes for mother and infant. At week 25–30 of pregnancy, participants were given instructions to attend to the

variability of their sensations (positive/negative). The LMS was used to assess trait mindfulness and to see its relationship with health outcomes (see Chapter 45). The mindfulness training resulted in better health for both mother and infant. In addition, trait mindfulness predicted the well-being of the expectant mother and better neonatal outcomes. Our newest work is aimed at testing the effects of attention to variability on disorders such as depression, multiple sclerosis, amyotrophic lateral sclerosis, and cancer.

There are numerous other findings regarding the LMS. Most recently, we found a strong correlation between the scale and measures of subjective well-being in participants in mainland China, replicating the work in the US. Indeed, in study after study, we've found that both trait and state mindfulness are strongly related to happiness.

Mindfulness: What It Is and What It Isn't

More formally, mindfulness is defined as an active state of mind characterized by novel distinction-drawing that results in being (1) situated in the present; (2) sensitive to context and perspective; and (3) guided (but not governed) by rules and routines. The phenomenological experience of mindfulness is the felt experience of engagement. Noticing/creating novelty reveals inherent uncertainty. When we recognize that we don't know the person, object, or situation as well as we thought we did, our attention naturally goes to the target. By attending to variability, the hallmark of mindfulness, eventually we stop confusing the stability of our mindsets with the stability of the underlying phenomena.

Mindlessness, by contrast, is defined as an inactive state of mind characterized by reliance on distinctions/categories drawn in the past. Here (1) the past overdetermines the present; (2) we are trapped in a single perspective but oblivious to that entrapment; (3) we're insensitive to context; and (4) rules and routines govern rather than guide our behavior. Moreover, mindlessness typically comes about by default not by design. When we accept information as if unconditionally true, we become trapped by the substantive implications of the information. Even if it is to our advantage in the future to question the information, if we mindlessly processed it, it will not occur to us to do so (Chanowitz & Langer, 1981). The same rigid relationship results from mindless repetition (Langer & Imber, 1979, 1980).

Because my work on mindfulness began during the “cognitive revolution,” it was cast in cognitive terms. It was never meant to describe a cold cognitive process. Indeed, as the mind/body discussion below makes clear, the dualism distinction is questionable at best. Nevertheless, we recently set out to test the effects of mindfulness without meditation on our senses. Participants were given instructions and practice in noticing novelty regarding vision or touch. Relative to control groups, these participants showed enhanced functioning. That is, mindful instructions improved both vision and kinesthetic senses (Langer, Reece, & Rood, 2013).

The many health-related experiments we have conducted make clear that our mindfulness treatments result in better health and increased longevity (Langer, 2009). For medical conditions in general, there is a mindless illusion of stability, where people often implicitly expect their condition to either stay the same or get worse if it is

chronic. Although nothing stays the same, minor positive fluctuations may be overlooked. It is in noticing these minor changes that control over the disease may lie. Several things follow from this attention to symptom variability: (1) we come to see that we don't have the problem all of the time; (2) if sometimes it is better than other times, we may ask why; (3) after asking why, we generate answers and may be able to solve the problem; and (4) even if we don't find a solution, the mindfulness that the search entails is good for our health. Thus, noticing novelty has a direct effect on health and an indirect effect (i.e., considering potential solutions); the more mindful we are, the more likely we will avert the health danger before it has arisen.

The Mind/Body “Problem” Reconsidered

The age-old mind/body problem (i.e., how can something nonmaterial, a thought, affect the material body?) continues to challenge philosophers and scientists alike. The implicit assumption—that mind and body are separate entities—may be the problem, however, that needs to be addressed. From Plotinus to Nagarjuna to Spinoza, a long line of thinkers through the ages have proposed that mind and body are but two sides of the same coin. That many such thinkers were often dwelling over concerns of philosophy or religion when they developed this idea may unfortunately have caused this insight to be met with suspicion, even outright derision, by the modern scientific academe. Current findings from fields as diverse as social psychology, neurobiology, and cognitive science, however, indicate that the tides of popular sentiment may once again be turning.

The Langer and Rodin (1976) study discussed above indicated that merely changing the content of one's thinking could indeed generate significant effects in the body and that mind and body were not as divorced from one another as the dominant scientific paradigm at that time had theretofore assumed. Now, it is more or less taken for granted that mind affects body, although the pathways are still unknown.

My newest work proposes a reworking of our understanding of the relationship between mind and body where the search for pathways from one to the other may be misguided, and do so from the perspective of mindfulness theory. It begins with the view that mind and body are just concepts. We have accepted them mindlessly as if they are more than a particular way to organize information.

Mindful Choice: Questioning the Basic Assumptions

Mindfulness allows for doubt and that allows for choice. When mindless, by contrast, our behavior is predetermined by the past, closing us off to choice and new possibilities. We live in a world governed by the principles of science. The precision with which we can now measure the world in and around us is, however, only as useful as the degree of mindfulness we employ to analyze it. Science becomes mindless when we automatically begin to conflate *precision* with *certainty*. Certainties lead to mindlessness; when we think we know, there is no reason to find out. Too often, scientists observe a phenomenon, create a theory to explain it, and then collect data to prove

their theory. Not surprisingly, confirmation is found. Theory is supposed to be understood as possibility, but at least in the social sciences, it most often is taken as absolute fact leaving little experienced difference between laws and theories. These theories build upon each other with the result of a series of concatenated probabilities making it harder and harder to question the basic assumptions of the original proposition. Scientific evidence can only yield probabilities, but science in use takes these probabilities and converts them into absolutes.

Take medicine, for example. Many diseases are labeled chronic. Chronic is understood as uncontrollable. If something is understood to be uncontrollable, we would be foolish to try and control it. Yet no science can prove uncontrollability. All science can prove is that something is possible, or it is indeterminate. Indeterminate is very different from uncontrollable. Moreover, by generalizing the findings to the population because of methodological considerations like random assignment without due regard to the subject population actually used (e.g., all of those people who self heal are missing from the medical database), we are discouraged from trying to self heal. In any experiment, the researcher has to make many hidden decisions regarding the parameters of the study (e.g., who the subjects actually are, the time and circumstances in which they'll be tested, the amount of the independent variable to administer). With these dimensions out of mind, findings seem more stable than they might otherwise seem. Couple this with the mistaken tendency of people to seek certainty and confuse the stability of their mindsets with the stability of the underlying phenomena, and we end up with an illusion of knowing and unnecessary limits to what we might otherwise find out.

This illusory sense of knowing is pervasive, extending even to the point where we misconstrue the nature of our own mental processes. What are we actually doing when we hold a certain concept in our mind's eye? Picture a car, for example. Now, start taking away individual elements that seem essential to the "car-ness" of it all, and ask yourself if you'd still know it's a car. A car without wheels? Still a car. Minus a steering wheel, or a bumper or an engine? Still seen as a car (albeit perhaps not one you'd want as yours). A Jeep and a station wagon and a Smartcar all somehow fit into this same category of "car," despite their clear diversity in features and appearance. Wittgenstein (Mora, 1953) famously performed a similar dissection of conceptual categories, effectively demonstrating (in his case, with the concept of "game") the inherent illusion that our mental categories for things are actually based upon some identifiable set of core features. So, what is it that makes a car a car? Not much, as it turns out.

Recent findings in the field of cognitive neuropsychology have begun to indicate that this assertion—that conceptual categories lack inherent unifying features—is backed by more than just sound logic. Barsalou (2009) and Wilson-Mendenhall, Barrett, Simmons, and Barsalou (2011) have established that the brain doesn't actually use a set of core concepts to define mental categories of objects and phenomena. Rather, our thought processes remain in a perpetual state of collection, assessment, and reaction to incoming information. It is only at the point of higher-level cognitive processes that we begin to grow lazy and assume that all examples of cars have some inherent "car-ness" about them. (Or, for that matter, that all instances of fear, or anger, or pride, must necessarily be connected by some unifying element.) In

reality, the idea of “car” (or “fear,” or any other concept) is actually represented in our brains as a loose amalgam of instances (this morning on the way to work in traffic, on a showroom floor, in a junkyard), specific examples (a Smartcar, a station wagon, a Jeep), functions (creating momentum, providing shelter, controlling climate), and other characteristics of certain objects that we learn at some point to clump together. In short, there’s no core element that makes a car a car every time, all of the time. Mindfulness requires that we engage the world with this same degree of dynamism and flexibility.

Reuniting the Mind and Body

No matter what we are doing, we are doing it mindlessly or mindfully, and the consequences of being in one state or the other are enormous. Research described in over 150 research papers and four books on the topic of mindfulness reveals that the simple process of creating/noticing novelty is literally and figuratively enlivening. We’ve found increases in well-being, health, competence, relationship satisfaction, effective leadership, and creativity to name a few of the many findings. Perhaps the most startling findings are the most recent. In one study (Langer, Russel, & Eisenkraft, 2009), we instructed symphony musicians to play a familiar piece of music and either make it new in very subtle ways that only each musician would individually know or recall a performance of the music that they were very pleased with and replicate it. We taped the performances and played them for audiences, blind to our instruction, and they overwhelmingly preferred the mindfully played piece. The musicians showed a similar preference. An interesting aspect to this work is that rather than cacophony, when each individual “did it their own way,” superior coordinated performance resulted. In other work we also showed that mindfulness seems to leave its imprint in the products of our labor (Langer, 2005).

More important to the present discussion is recent work that follows up on research originally conducted in 1981. The idea was and is deceptively simple. Mind and body are just words, concepts to which we rigidly adhere. What would happen, we asked, if we got rid of the distinction between mind and body? If we put the mind and body back together so to speak, then wherever the mind is, so too would be the body. Within this understanding, there is no reason to search for mediating mechanisms. Whatever is going on at the level of the brain is happening simultaneously with the thought and is just another level of analysis. With this view in mind, we conducted a series of investigations where we put minds in healthy places and took physical measurements.

In the first of these studies (see Langer et al., 1990), elderly men were taken to a timeless retreat retrofitted to 20 years earlier. To firmly anchor their minds in that earlier time, they would speak for the week in the present tense about the past for the full week they spent there. A comparison group of men lived the week at the retreat reminiscing about the past. For them, their minds were firmly in the present. The results were notable, especially considering that the study was conducted back in 1981 before there was any mind/body research and before 80 became the new 60. Despite

how enfeebled these men in their 80s were at the start of the study, both groups improved significantly from where they started. Hearing, vision, memory, and grip strength were significantly different after the week. The experimental group showed further improvement differing significantly from the comparison group with respect to manual dexterity; digit-symbol substitution scores (63% of the experimental group improved compared to 44% of the control group); height; gait; posture; joint flexibility; and diminished symptoms of arthritis. We photographed everyone before and after the week and found that all of the experimental participants looked noticeably younger at the end of the study.

In my view, it was the change in mindset, much the same way a placebo works, that accounted for the difference between the two groups. By priming a time when they were vital, their mindsets of old age as a time of debilitation became irrelevant. (Of course, over the week, many things could have varied that we couldn't possibly control in such an ambitious undertaking. We were, however, able to use tighter controls in more recent investigations.) Two things should be addressed regardless of the explanation for the findings one may choose. The first is the widespread belief that elders are not supposed to improve their hearing and vision—or indeed improve on any of the measures we took. Below I'll return to this in a discussion of science. The second issue to consider is that the idea of mind/body unity led to these findings, and thus at the least the theory serves a heuristic purpose.

Alia Crum and I (Crum and Langer, 2007) tested this mind/body hypothesis in a very different setting with chambermaids. We started by inquiring about how much exercise they thought they got in a typical week. Surprisingly, they thought they didn't get exercise, despite the fact that their work is exercise. Exercise, they thought, was what one did after work. If exercise is good for our health, and they get more than the surgeon general recommends, then we should expect that they would be healthier than socioeconomically equivalent others who do not exercise as much or as consistently. Interestingly, they were less healthy. While noteworthy, this was not the focus of the study. We randomly divided the participants into two groups and taught one group to change their mindset to view their work as exercise. We took as many measures as we could think of regarding food eaten in the course of the month between tests, exercise intensity at work, and exercise outside of work. We found no differences between the two groups on any of these measures. Nevertheless, the two groups significantly differed on measures of waist to hip ratio, weight loss, body mass index, and blood pressure. We attribute these improvements for the experimental group to the change in mindset.

We tested this mind/body hypothesis in another series of experiments (Langer, Djikic, Pirson, Madenci, & Donohue, 2010). Here we focused on vision. The standard Snellen eye chart has letters that get progressively smaller as one reads down the chart. Implicitly this creates the expectation that soon we will not be able to see. In one study, we reversed the eye chart so that the letters get progressively larger, thereby creating the mindset that soon we will be able to see. With the change in mindset, participants were able to see what they “couldn't” see before. With the standard eye chart, there is also an expectation that we will start to have difficulty around two-thirds of the way down the chart. Accordingly, we adapted the standard eye chart such that it began

a third of the way down the standard chart. Again, participants could see what they couldn't see before. In yet another study, we took advantage of the mindset that pilots have excellent vision. We had men don the clothes of air force pilots and fly a flight simulator. Control participants simulated flying the simulator. Vision improved for those embodying the mindset of pilot.

Finally, we wanted to see if we could condition improved vision (Pirson, Ie, & Langer, 2012). Participants in two experimental groups read a chapter of one of my books where the font of either the letter "a" or the letter "e" was much smaller than other letters (e.g., can, take, many) while participants in the control group read the chapter in a standard font size. Over time, those in the experimental groups would of course come to know what the smaller letter represented. After reading the chapter, participants' visual acuity was assessed. Regardless of the specific letter that was manipulated, results across three experiments showed that participants in the experimental groups scored higher on visual acuity than the control group, once again demonstrating the malleability of visual acuity.

Our accepted theories and mindsets tell us that vision is not supposed to improve. But from where do these mindsets come? We accept negative mindsets (e.g., vision will necessarily worsen over time) and we create theories of the eye to show why this must be. The expectation becomes self-fulfilling, further validating the original supposition. Yet with this simple understanding that our own minds create our seeming limitations, we may come to be more than alternative mind/body views currently enable.

Support for this view comes from recent work on embodied cognition. While our research has focused on measuring mind changes on the body, this work focuses on body changes affecting the mind. The idea is the same. Put the body in a particular position, and the entire individual is in that mode. For example, stand tall, and we become more confident (Carney, Cuddy, & Yap, 2010); think about the future or the past, and we lean forward or back (Miles, Nind, & Macrae, 2010); squeeze something soft/hard, and we perceive gender ambiguous faces as female/male (Slepian, Weisbuch, Rule, & Ambady, 2011).

As work on embodied cognition reveals, social psychologists are beginning to circumvent presumed limits that result from dualist thinking. I think the entire research enterprise would prosper from consideration that virtually all of our findings are only part of the picture. When, in a typical experiment, the researcher puts in some strong cue that people follow, yielding significant results, we might consider that our subjects do so mindlessly. As Helen Newman and I argued, the typical social psychological experiment might be an exercise in testing mindlessness. Those who do not give us what we expect are part of the variability. This variability, however, might be understood as mindful responses. In that study (Langer & Newman, 1979), we used the popular Kelley (1950) paradigm where participants were led to believe that the speaker they would soon hear was personally warm/cold. Those who confirmed the experimenter's hypothesis were reasonably oblivious to what was said.

Consider some of our field's most important research. Findings from research on "thin-slices" of behavior (Ambady & Rosenthal, 1993) may rely on mindlessness. If we were mindful, our tendency to make dispositional attributions might change since the situation would no longer be ignored, and so the effect might disappear. Similarly,

priming and the chameleon effect rely on mindlessness, so these findings would also look very different if mindfulness prevailed.

Conclusions

Is mindfulness more effortful? At least up to some point, mindfulness is energy begetting not consuming. Part of the reason people think of mindfulness as effortful is because it is confused with worry. It is not thinking novel thoughts about a problem that is effortful. It is worrying that the answer will be wrong that takes effort. In general, controlled processing is confused with mindfulness. Controlled processing is the operation of overlearned thought to a problem. Adding or multiplying numbers for example without regard to choosing different number systems on which to base one's answer is effortful. Moreover, play and enjoying humor are not effortful, and both rely on novelty. Recognizing that evaluations are in our minds and not in events leaves us less stressed and less reactive, both of which are energy consuming.

Because this work began with the cognitive revolution, it did not seem important then to stress that mindfulness—West or East—is not solely a cognitive process. Indeed, the idea of cognition as being separate from other ways of responding runs counter to my research but follows from mind/body dualism.

Just as psychologists are becoming increasingly aware of mind/body unity and what it promises for our well-being, the culture at large may also be in the midst of an evolution in consciousness. When we become mindful, either in our waking state by allowing and encouraging all of our senses to notice novelty or through meditation, the outcome is the same. These are two roads to the same place. They are neither mutually exclusive nor at odds with each other. There are contexts where one or the other may be preferable. Those who want a major life change, for example, may find meditation to be the path to take. Those who find meditation difficult or too unfamiliar, mindfulness as I study it may be more appropriate. Until schools and organizations provide opportunities or encourage students and employees to meditate, it may be worth while to recognize that mindfulness without meditation can be easily accommodated into present organizational structures. As all of us come to see that mindfulness is effortless and always available, and results in better health, effectiveness, and happiness, it is likely to become the preferred choice to the currently more normative version of being sealed in unlived mindless lives.

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Thriving With Uncertainty

Opening the Mind and Cultivating Inner Well-Being Through Contemplative and Creative Mindfulness

Daniel J. Siegel and Madeleine W. Siegel

Introduction

Recent studies of the state of “being present” for experience, being aware of what is happening moment by moment, suggests that “presence” is a key component to well-being (Parker, Nelson, Epel, & Siegel, *in press*). Presence is measured in research protocols by the absence of “mind-wandering” in which a personal present focus of attention is not including present activities (Hasenkamp, Wilson-Mendenhall, Duncan, & Barsalou, 2012; Kane et al., 2007; Killingsworth & Gilbert, 2010; Mrazek, Smallwood, & Schooler, 2012; Smallwood & O’Connor, 2011). This unintentional distraction from the moment, distinct from intentional free-associative explorations of active, purposeful imagination, has been associated with the negative health finding of decreased lengths of telomeres—the ends of chromosomes that are needed to maintain cellular life and health (Epel et al., *in press*). Negative life events are also associated with decreased telomere length (Tyrka et al., 2010), whereas positive life events are associated with enhanced telomere length (Carrol, Diez Roux, Fitzpatrick, & Seeman, 2012). Presence is associated with increases in the enzyme telomerase that maintains and even repairs telomeres (Blackburn & Epel, 2012; Epel et al., *in press*). Recent studies of contemplative mindfulness practice suggest that increasing the capacity to be aware of moment by moment experience with the suspension of judgment (Kabat-Zinn, 2006)—to be “mindful”—is associated with increases in telomerase as well (Epel, Daubenmier, Moskowitz, Folkman, & Blackburn, 2009; Jacobs et al., 2010).

Other studies of mindfulness training (Davidson et al., 2003; Davidson & Begley, 2012) reveal several health-promoting changes in the physiology and psychology of individuals learning to focus attention on what is happening in the present moment without being swept up by judgmental thinking and imprisoned by prior expectations. These enhancements of health include improved immune function, increased sense

of well-being, and a “left-shift” in baseline neural activity indicating the capacity to approach, rather than withdraw, from challenging internal or external stimuli.

Being “creatively mindful” has also been associated with positive changes in physiology and in psychological well-being (Langer, 1989, 2009; Langer & Moldoveanu, 2000). By experiencing learning from an open and engaged stance, being presented with material that does not prematurely close perception and understanding through constrictive categories and by involving the learner actively in the educational process, creative mindfulness can be viewed as also increasing the individual’s way of “bring present” with the learning experience (Siegel, 2007a).

In these ways, we can see that both creative and contemplative mindfulness produce positive effects on health and well-being and also enhance the general sense of presence in an individual’s life. What might be the underlying shared mechanisms of these two distinct approaches to being mindful that might explain their similar outcomes? To address this question, we will offer a fundamental proposal and discuss several possible shared mechanisms that might underlie their commonalities. Our goal is not to review the exciting and growing research on empirical studies of mindfulness, but rather to explore the important concepts and their interrelatedness in fundamental ways that may inform future investigations and the creations of practical applications.

Our proposal is that presence, the experience of open awareness we are suggesting is within both contemplative and creative forms of mindfulness, is a state of mind in which an individual learns to live with uncertainty. Beyond merely *tolerating* a state of not knowing the outcome of thought or action, we are proposing that *thriving* with uncertainty becomes a way of being for individuals who experience the different approaches to being mindful. While this hypothesis will need focused empirical research to support its possible validity, we hope that by offering this detailed conceptual discussion, future investigations may illuminate the core processes connecting contemplative and creative mindfulness with well-being.

To attempt to illuminate the possible mechanisms underlying how we cultivate a mental state in which we thrive with uncertainty, we need to first explore the concept of the mind itself.

Mind, Brain, and Relationships

To understand how being mindful creatively or contemplatively might influence our physiological, psychological, and relational well-being, we will first explore a way of defining what the mind is, and then discuss how it relates to health in the body as well as in our social lives. The fundamental question we begin with is, “What is the connection among body, mind, and relationships?” What might these three seemingly distinct aspects of human life share in common? What actually links them to one another?

The body is composed of molecules that are assembled into cells that form systems that are differentiated and linked to one another to enable physiological processes to emerge and life to be stabilized and maintained (homeostasis), changes across time to be adapted to (allostasis), and reproduction to be possible. Allostasis can be thought of as the way we maintain stability (homeostasis) through the experience of change

across time with an adjustment of multiple physiological regulatory systems to the demands posed by the environment (see McEwen, 2000; Sterling & Eyer, 1988). Within each cell is a nucleus with genetic material, surrounded by the cell body with various organelles subsuming a range of functions each helping subcomponents function together as a larger whole. Cells link within organs, organs interact within bodily systems, and the whole body maintains a coordination and balance of homeostasis in the moment, and of allostasis over changes occurring across time.

From the time of conception, cells form the basis of life. The single-celled conceptus differentiates into two, four, eight, 16, 32 cells, with more and more divisions of cells until trillions of cells differentiate to form our various systems. Of note is that the collection of cells that form the outer layer of the conceptus, the ectoderm that will form our skin, partly folds inwardly to create the origin of our nervous system. The neural tube is formed with the growth and migration of the basic cells, the neurons, extending our neural system from head to toe. It is this origin of the nervous system from the ectoderm, as it is with the skin itself, which makes our nervous system function to link the inner and outer worlds. Part of this migration of neurons is to the head where an extensive organization of neurons and their supportive glial cells, the astrocytes and oligodendrocytes, form our brainstem, cerebellum, limbic region, and neocortex. Part of neural differentiation is to the far reaches of our limbs and to the extensive innervation of our internal organs—our heart and intestines—that, like the brain in the head, are constructed into interconnecting spider-web-like systems.

The parallel distributed processing of our extensive neural networks forms a system in which it is believed that information can be processed (McClelland & Rogers, 2003; Raffone & Van Leeuwen, 2001; Rogers & McClelland, 2008). Examination of the fundamental ways in which neurons communicate with one another suggests that ion flow down the axonal length of the membrane, called the action potential, serves as a means of electrical transmission of the equivalent of the flow of current down to the end of the neuron. Chemical release at the junction between two neurons in the form of various neurotransmitters into the synaptic cleft produces changes in the downstream or postsynaptic neuron. These changes either facilitate or inhibit the instantiation of an action potential in this neuron. In sum, the process of “neural firing” involves the *electrochemical flow of energy* between and among neurons distributed both in the head and throughout the body.

Recent explorations of how the brain functions reveal the profoundly social nature of our neural lives. As vertebrates, we have an extensive central nervous system that helps regulate our bodily physiology, to create allostasis. As mammals, we are creatures that live and regulate ourselves through interactions with others of our species, key interactions that enable us to maintain our bodily equilibrium. As humans, we have an extensive set of social interactions, beginning at birth, that influence both how the nervous system develops and how it functions in the moment and across the lifespan. These early social interactions shape not only neural connections, but even the epigenetic molecules that control gene expression in neural regions that regulate our internal state (Roth & Sweatt, 2011). It may be for this reason that the most robust predictor of medical health, mental health, longevity, and even “happiness” is the presence of supportive and close relationships in a person’s life (see Barnes, Brown,

Krusemark, Campbell, & Rogge, 2007; Fagundes, Bennett, Derry, & Kiecolt-Glaser, 2011; see also Rakel et al., 2009; Siegel, 2012a; Tronick, 2004). If relationships are so important in our health, what exactly defines a relationship?

A relationship can be defined as the patterns of how energy and information are shared between two or more people. Energy is the capacity to do something; information is a pattern of energy that has symbolic value or meaning beyond simply the pattern of neural firing. Flow is the change of something across time. And so the basic unit of a relationship is the flow of energy and information, and how this flow is shared between two or more people and the environment. Whether we examine the close attachment between infant and caregiver, the intimate communication of romance, the emotional connections in friendship, or the larger ways in which we live within families, affiliate with groups, or live within communities and embedded in our larger culture, our relationships interact with our nervous systems to shape who we are (see Siegel, 2012a). Naturally, our genetics shape how we develop as well, including how the epigenetic regulation of gene expression is shaped by experience, but we are “hard-wired”—that is, we have inherited the need—to connect with each other in ways that promote health and longevity.

So, we have defined one aspect of the body, the nervous system, as an *embodied mechanism* of energy and information flow. We have further defined relationships as the *sharing* of energy and information flow between and among people. What, then, is the “mind”?

Though mind is rarely defined and even called a “vague term” in the *Oxford Companion to the Mind* (Gregory, 2004), there is some general consensus that components of the mind, the many elements that comprise our mental life, include our feelings, thoughts, memories, perceptions, hopes, dreams, beliefs, and attitudes. Mental life also includes, but is not limited to, awareness, or the experience of being conscious. And mind also refers to our subjective experience, the felt texture of our inner lives, the mental “sea inside.” We can also have a mind, but not have “theory of mind” or “mentalization” that would allow us to know that we have a mind—in ourselves or in others.

In the interdisciplinary field called *interpersonal neurobiology* (Siegel, 2012b) we attempt to combine a wide range of sciences into one consilient (Wilson, 1998) approach that suggests that we can offer not just a description of what comprises mind, but actually a working definition. In this definition, we see the fundamental process of energy and information flow as our unit of analysis: Energy and information are the “stuff” of the system we are examining. The “embodied nervous system” we are calling simply the brain is the *bodily mechanism* of that flow; relationships are the *sharing* of that flow; and mind is defined as an emergent self-organizing, embodied, and relational process that arises from and also regulates the flow of energy and information. In simple terms, beyond awareness and subjective experience, this third aspect of the mind can be defined as *an embodied and relational process that regulates the flow of energy and information*.

Within this definition, we can see that what occurs experientially within an individual’s flow of energy and information and how that flow occurs between people gives rise to mental life. This embodied mechanism and this sharing of energy and information can occur within us, between ourselves and another individual, and among

several people in a family or classroom or group, or among widely distributed clusters of people within communities, societies, and the larger culture (see Kitayama & Uskul, 2011; LeVine, 2010; Szyf, McGowan, Turecki, & Meaney, 2010). In this way, disciplines from neuroscience and psychology to sociology and anthropology can find a way of communicating with one another using this proposed definition illuminating one aspect of mind. From this window, we can see how patterns of energy and information flow are shaped by neural structure and by the many forms of relationships we have in our lives.

We can also see that this definition of mind helps us to step into the question of how mindfulness changes our relational and our bodily well-being. How we focus attention within the experience of creative or contemplative mindfulness can now be viewed in terms of how we regulate the flow of energy and information. Attention is a term used to designate the process of how information flow is directed, and information is created and transformed by way of the change in energy patterns across time. Certain swirls of energy, like sounds or sights, contain patterns with symbolic value that we call information. And attention directs this movement of energy and information across time, but within us (our nervous system) and between us (our relationships).

With this definition, we are not attempting to explain what subjective experience is, nor are we offering to step into the exciting but complex set of discussions about what consciousness is, or how it may arise from neural firing patterns, if it indeed does in such a simple, unidirectional way as we'll discuss later in the chapter. Here we are suggesting that this third aspect of mind—its regulatory function as an emergent, embodied and relational self-organizing process—will be of potential help in illuminating the nature of the various forms of mindfulness. Self-organization is an innate property of complex systems—collections of elements that are open to influences outside of themselves and that are capable of becoming chaotic. As an emergent process, self-organization both arises from and also regulates the interactions of elements of the complex system (Kröger, 2007; Kauffman, 1996). In this case, the complex system in question is energy and information flow within an individual and between an individual and the environment, including our social environment. Our minds are both embodied and socially embedded. Our proposal is that both creative and contemplative approaches to being mindful involve our minds, and how the mind regulates energy and information flow in a specific manner. We will turn know to how relationships and the embodied brain interact to shape the experience of mindfulness in its contemplative and creative forms.

Four Hunches

Four different avenues of explanation will be offered here to invite further explorations of how the mind, brain, and relationships contribute to the health-promoting aspects of being present within contemplative and creative ways of being mindful. These avenues may at first be considered metaphors, stories that reveal possible mechanisms that may, or may not, shed some new light on this topic. These metaphoric stories are inspired by scientific studies of actual mechanisms, but we are not claiming that there is enough empirically derived, objective data at this point to assert these

Layer	Top-down	Top-down dominance	Top-down
1	↓	↓↓↓	↓
2	↓	↓↓↓	↓
3	↓	↓↓↓	↓
Awareness	⇒→⇒→	→⇒⇒⇒	⇒→→→→→
4	↑	↑	↑↑↑↑↑
5	↑	↑	↑↑↑↑↑
6	↑	↑	↑↑↑↑↑
	Bottom-up	Bottom-up	Bottom-up dominance

Figure 2.1 A metaphoric map or schematic proposal of top-down and bottom-up processing and the six-layered cortical columns. The information from sensation flows “bottom-up” from the lower layers of the column streaming from layers 6 to 5 to 4. Information from prior learning, called “top-down,” streams from layers 1 to 2 to 3. Awareness is thought to emerge by the commingling of these two streams. In the first condition, bottom-up and top-down are balanced, and the resultant awareness blends the two streams. In the second condition, top-down input is dominant, and prior expectations and categorizations overshadow incoming sensory streams within awareness. In the third condition, sensory input in the here and now is dominant and awareness reflects a predominance of input from this sensory flow. Mindfulness may enable layers 3 and 4 to be disentangled by at first practicing enhancement of the bottom-up flow of present sensory experience. Used with permission. Copyright © 2010 by Mind Your Brain, Inc. Daniel J. Siegel, M.D., *The Mindful Therapist* (2010).

ideas as proven, but rather as valid notions, as possibly helpful concepts. With this in mind, we invite you to have “the willing suspension of disbelief” and consider if these metaphors work for your own interests and understanding. If they meet this first criterion, of their potential heuristic usefulness from the personal, subjective reality of your own experience, then perhaps further investigation may be warranted to move from proposed metaphoric hunch to a mechanistic hypothesis inspiring possible future study and the development of potential application.

Hunch 1: Cortical columns and top-down versus bottom-up processing

Our first hunch relates to the architecture of the neocortex. The cortex is generally structured as six cellular layers, or cortical columns. Columns are associated with one another within regions that function to mediate a given modality, such as hearing or sight. Although controversial, one idea is that information is created by patterns of neural firing that has a proposed bidirectional flow (Lubke & Feldmeyer, 2007; Sporns, 2011; Supp, Schlägl, Trujillo-Barreto, Müller, & Gruber, 2007). As revealed in the schematic of Figure 2.1, one way of conceptualizing this bidirectional flow is to view how neural firing patterns that are initiated by stimuli coming into the cortex (such as sight, sound, or bodily sensation) move from “bottom-up” as they pass first to the lowest layers of the column (layers six, five, and four) and up to the highest layers (three, two, and one). In contrast, *prior learning* shapes how the higher layers

will respond following the initial input of a bottom-up flow. In other words, prior experience, embedded in synaptic connections that help shape memory storage, will serve as a “filter” that makes incoming streams of bottom-up data shaped, molded, and categorized. This can be called “top-down,” using this term specifically to refer to how prior learning shapes the processing of information (patterns of energy flow) emerging from the bottom-up input to that cortical column. Simply put, there is no such thing as “immaculate perception”—we are structured to filter present experience through the lens of past events and how we have processed them.

For example, if I observe a flower with my eyes, the photons stimulating my retina will send streams of energy flow (neural firing patterns) through my optical nerve and then through my thalamus and on to the back of my cortex where the columns in the occipital lobe will become active. If I’ve seen that kind of flower before—and if I use a linguistic symbol, a word, to name it—then that top-down process will alter how I ultimately receive the bottom-up input into awareness. Across a possible range of interacting columns (not necessarily within a single column), top-down flow will “crash” into and mingle with bottom-up flow, and the result will influence my subjective experience within awareness of the flower in that moment. In other words, prior learning will shape present perception.

This first hunch is about the idea that the brain is an anticipation machine, shaping what it experiences now by what it experienced before in order to get ready for what might happen in the immediate next of now. In getting ready for the horizon of the present moment, we are actively constructing an anticipated map of what is likely to happen next. This mapping of reality is simply what the cortex does, and it is, in some way not yet understood, how our mental experience of both awareness and inner, subjective experience is shaped. This anticipatory quality of cortical mapping has been called dynamic representations (Freyd, 1987). Patterns learned from the past shape perceptions in the present.

Here is the proposal: Mindfulness may involve a suspension or minimization of the influence of top-down on bottom-up experience. Within creative mindfulness, this would involve letting go of fixed categories and names. Within contemplative mindfulness, this would be seen as the route to being curious, open, and accepting of whatever is present in the moment. Letting go of judgments and expectations would occur by inhibiting top-down flow from imprisoning the presence that emerges with bottom-up. In both creative and contemplative mindfulness, enhancing bottom-up and downregulating top-down would be the shared mechanism that permits a form of “presence” to arise for the individual, a presence that promotes a clarity of awareness and physiological as well as interpersonal benefits.

Hunch 2: Experiencing versus observing

Our second hunch may be related in part to the first proposal. Recent neuroimaging studies affirm the neural nature of what contemplative mindfulness practitioners have described for centuries: There is a distinct experiencing mode and a distinct observing mode in how we experience perception and awareness. In the brain, the regions with activities that correlate with these mental experiences are an observing circuit

that has been identified as more midline, whereas the experiencing circuits are more lateralized (see Farb et al., 2007). We can observe experience from afar, noting things within a “witnessing” observer function or experience this directly. Even the way we remember autobiographical events can be through this “experiencer” (through our own glasses) or “witnessing” lens (from a corner of the ceiling). In many ways, contemplative mindfulness can be seen as a way of differentiating and then linking these two circuits of the brain (see Siegel, 2007a, 2007b).

Observational processing offers a witness function, one that is not directly in the experience but takes note, observes, and even narrates ongoing experience. In this way, observational circuitry overlaps with the notion of mental time travel (Tulving, 2005) and a default mode of resting cortical processing (see Zhang & Raichle, 2010) in which the prefrontal cortex mediates the ability to link present experience with events from the past and plans for the future. It is important to note that this planning for the future is different from anticipating the “immediate next of now” that happens automatically (without effort or intention), apparently throughout the cortex, as a function of our cortical columnar architecture.

The brain is an anticipation machine as a whole; the midline observing prefrontal cortex specifically involves itself with, among many other executive functions, planning for the future and a sense of self. Basic learning involves the top-down influence on present perception so that action can be the most adaptive to the environmental demands. This is the inherent anticipatory quality of neural learning. Our first hunch addresses this function and how it may shape—that is, inhibit—the ability to be “fully present” for what is unfolding as it is happening. This second hunch extends this temporal challenge to being mindful into a broader time frame, revealing how the midline observing circuitry (involving but not limited to the prefrontal regions) is creating autobiographical and factual accounts of the past, actively relating them to the present, and then helping either document events in constructed historical accounting or actively creating the unfolding narrative of a person’s life.

This narrative function (see Bruner, 2003) makes our experience within awareness shaped by an “inner voice” or “inner observer” that may comment on ongoing events, make suggestions about what is going on, and actively alter what we do and how we interpret the meaning of present, past, and anticipated future events. Because such a narrative process is greatly aided by language, some authors suggest (see Gazzaniga, 1998) that our narrative observing function is dominant on the left side of the brain. Iain McGilchrist (2009) furthers this notion by noting the left hemisphere’s use of denotative and abstract language versus the right’s more contextual and metaphoric use of language.

Before we take on in more depth our third hunch, which will address laterality issues, here let us say that both contemplative and creative mindfulness would emphasize honoring the primary sensory data of the experiencing circuit and urge (create the conditions enabling) the observing circuit to take a break from its at times incessant narrating activity that distances an individual from primary sensation and being fully present for what is happening as it is happening.

In fact, recent studies of the default mode of brain function, the resting state of the brain when not given a specific task to carry out, reveals a robust set of midline firing patterns that we have that have been indicative of states of wellness or states of

nonwellness. When not integrated well, such default mode processes correlate with mental illness (Zhang & Raichle, 2010). Studies of contemplative mindfulness have even revealed that mindfulness training increases the integrative capacity of the default mode circuits, overlapping with the midline observational regions.

Creative mindfulness might ingeniously be setting up learners and teachers alike to let go of fixed ideas and constricting language that could be considered aspects of the processes for the observing circuit. In contrast, the experiencing circuit is a bottom-up dominant passage of energy and information that is about being with what is, as it is happening, without narrative distortions. It would be a possible research project to explore how mindful learning might enhance the integrative default mode state.

Narrative and observation have an important role to play in how we approach and appreciate life. Narrative enables us to reflect on what has happened, connect this to what is happening now in our experience, and then plan for the future. This mental time travel ability is both beautiful and a burden. The beauty of narration is that it gives us a four-dimensional (across space, across time) sense of ourselves, empowers us to actively take our reflective awareness and shape our ongoing lives in narrative enactment, and offers us the opportunity to articulate and experience a deep gratitude for our lives. Pennebaker's studies of narration reveal its health-promoting effects (Ramirez-Esparza & Pennebaker, 2006). The burden of narration is that it can distance us from the vitality of lived, primary experience. The benefits of narration are that they integrate memory and emotion, helping us make sense of our lives across time and contexts. But excessive narrativizing in life can give us a dulling of the fresh, spontaneous emergence of living in which we are simply categorizing all events into clusters related to prior experience. Our narrative themes may also distort what we experience to conform to what we know so that we gain a sense of mastery in our lives. Narratives can make us feel certain in the face of the anxiety that may emerge in the face of uncertainty. And so narration is a mixed blessing. When it is integrated with direct experience, the outcome can be health promoting. And as we'll see in our future discussions, integration is the coordination and balance of aspects of a system created by way of the linkage of differentiated parts. Integration can be seen as the fundamental mechanism of well-being—and here we can see the differentiation of observation from experience and their appropriate coordination and balancing in life would be at the heart of both creative and contemplative mindfulness.

Coordinating and balancing both the bottom-up and top-down (Hunch 1) cortical layers' streaming and the activity of the experiencing and observing circuits (Hunch 2) are two proposed ways in which mindfulness is mediated in the brain. Top-down and observation are both aspects of neural functioning that may be involved in how our mental life wrestles with unfolding experience to achieve a sense of predictability, of finding certainty in a world filled with uncertainty.

And so, with these first two hunches, we come to address how uncertainty, for the brain, is a two-edged sword. For a brain that needs to anticipate the immediate next of now so that it can avoid danger and be prepared to act effectively and efficiently, uncertainty is not welcome. Certainty enhances survival. This is the value of top-down and observation—they allow us to anticipate and to plan for experience, and therefore to control uncertainty, or at least prepare for it. And for a narrating brain, too, making sense of the world brings a comfort with knowing and a top-down framework

into which one can enfold all perceived, lived events. Narrating allows us to plan for the future, to deal with uncertainty by making a schedule, by organizing our mental calendar, so that we know now what will happen in the future and that we can actually enact that plan to literally shape our present based on our plans—our narrative themes that then mutually reinforce themselves.

When we experience life, present events can be immediately placed within our narrative schemata—the mental models that shape our narrative themes. We then continue with our self-reinforcing, antiuncertainty life by continually re-enacting these themes and categorizing experience into thematic chapters over and over again. Our perceptions of the world are folded into narrative perspectives as we filter what we see based on what we expect, discarding what does not fit in a form of selective perceptual neglect. Trauma, in fact, can be defined by how an experience cannot be neatly placed into the structure of our life narrative (see Siegel, 2010). In many ways, traumatic events assault our drive for certainty.

And so we can see that uncertainty is a threat both from the bottom-up/top-down cortical column perspective and from the experiencing/observing sensed versus narrating life domain. With top-down, we handle uncertainty with learned filters of anticipation. With observation, we deal with uncertainty with thematic filters, narrative enactments, and planning.

But uncertainty is not always a source of anxiety or danger. In fact, learning to live comfortably with uncertainty can be a source of emergent vitality in these arenas. Sensing the aroma of a flower can be immensely rewarding, before and beneath any words that might name that plant a “rose” or narrate that event as “just another walk in the park to get exercise.” When we see with fresh eyes, we are honoring the novelty of bottom-up and the purity of the experiencer. When we expand our narrative stance to embrace uncertainty, we come to open our minds to new and enriching ways of being. Uncertainty does not need to be an enemy. But active efforts to release the pull of certainty to enhance survival within top-down and observation in the forms of creative and contemplative mindfulness approaches may be necessary as we grow past childhood into the adolescent and adult years as life unfolds and the brain matures. What Hunches 1 and 2 suggest is that there is a vulnerability in our survival-oriented evolved neural systems that make the drive for certainty innate. Mindfulness approaches may be a direct educational approach and training of the mind to liberate the vigilance and perceptual filtering controls that such certainty circuits create. With such integration of the fullness of bottom-up and direct experience, the mind can feel the freedom to be fully present for life.

Hunch 3: Cortical asymmetry and neural integration

Our third hunch builds on the finding that the two sides of the brain, especially in the limbic areas and the higher cortical regions, are asymmetric in both function and structure (see McGilchrist, 2009). Modern neuroscientists often downplay the significance of this “laterality,” but it is clear from an enormous amount of carefully collected studies in our and other species that the nervous system has been asymmetric for millions of years. One basic idea about this asymmetry is that when areas are differentiated

and then they become linked, we can achieve more complex functions. But how is the right side of the brain different from the left? Colwyn Trevarthen (2009) and Iain McGilchrist's (2009) reviews of the extensive science exploring this issue suggest the following notions. Streams of information within the form of neural electrochemical energy flow within the embryonic brain travel upward from the right and left limbic area in distinct streams. This differentiated flow upward stimulates the growth of the right and the left cortex in distinct ways. In general, the right is more active after birth and grows more in the first few years than the left. The cortical columns in the right hemisphere have more intercolumn connections than the left, making the information created by these connections more cross-modal. In other words, the differentiated regions of the right are more interconnected to one another enabling the neural clustering of information processing to be more "contextual" and involving a range of modalities within a given information flow. In contrast, the left is thought to have more closely associated columns that are more isolated in their distinct clusters, enabling a deeply focused form of information processing. On the left, then, information processing is more "in-depth" and specialized for a given modality, and so it can be thought of as "decontextualized" and "analytic" as it "breaks down" elements into isolated components rather than "seeing the whole" within the accumulation of parts as the right may be more likely to do (see McGilchrist, 2009, for a thorough review).

The two hemispheres often work together, and each contributes to many of the processes that have been popularly thought of as distinct: reasoning and language, for example, have processes on both sides of the brain. Yet inhibition is also a dominant process, with activity in one hemisphere downregulating the activity in the other. Anatomically, the right hemisphere has a more prominent size of its prefrontal area, whereas the left is more expanded in the back, in the occipital region. The right hemisphere receives more direct input from, and sends more direct output to, the lower regions of the brain and the body itself, and hence some have called the right a more "emotional" and "somatic" side of the brain (see Devinsky, 2000).

The two sides of the brain focus attention in distinct ways. The right side mediates a form of sustained, broad, open, and vigilant attention, whereas the left side processes more of a sharply focused attention that narrowly directs the flow of energy and information. Not only are the ways of focusing attention distinct, but also the way we sense the world is different on each side. The ways of being mediated by each side, rather than actually what they "do," is perhaps a more accurate way of sensing their differences. McGilchrist's (2009) analysis of these distinctions urges us to consider the right as a mediator of an individualistic, sensory, living, context-perceiving and relational way of experiencing the world. For the right hemisphere, things are seen as unique, and we sense the living nature of our ways of belonging and connecting. The world is seen within a relational whole. The right, then, embeds a sense of being within a part of a larger, interconnected whole. Even the right's way of knowing is within an acknowledged limited perspective, with an awareness that there is a larger context into which the self as a part may fit.

The left, in contrast, uses denotative language and abstraction to create a definitive vision of the world that is known, fixed, decontextualized, static, and disembodied. The left creates a sense of the conceptual and generalized but is "ultimately lifeless" and not even aware of its own limited way of perceiving reality. The argument that

McGilchrist makes is that the challenge is that modern culture drives an overemphasis on left-sided ways of perceiving and being in the world. The cultural processes of rules and digital abstractions, of the virtual realities that fill our technical involvements, reinforce the left hemisphere.

The challenges to finding integration across the hemispheres are that the left hemisphere has a logical, linguistic “voice” that cogently argues its own point of view, while the right hemisphere’s contribution to reasoning and language is not as forthright. In fact, we can simply state that the logical use of linguistic language to assert its own view of reality makes the left side often more persuasive in the reality of its ways of being and perceiving the world. For the left, the right-sided way of being is invalid; for the right, the left side’s particular patterns are possible in that it is open to the limitations of its own perceptions and beliefs. Furthermore, much of the interaction between the two sides of the brain is based on inhibition—activity in the right shuts down activity on the left, and vice versa. And so how can the two sides of the brain come to coordinate and balance their differentiated functions into a linked and integrated system?

Our suggestion is that both creative and contemplative mindfulness may promote integration across the hemispheres. How does mindfulness relate to this asymmetry across the hemispheres? One could correctly infer that right-sided functions may be seen to facilitate our embracing of the unknown, enabling uncertainty to be a part of the world-view of that form of “right-sided” consciousness. However, contemplative mindfulness studies (Davidson et al., 2003) reveal the empirical finding of a “left shift” in which there is an increase in left frontal activity supportive of an “approach-mode” of neural functioning. In other words, contemplative mindfulness training enables a person to be more likely to approach, rather than withdraw, from challenging stimuli (Urry et al., 2004). This finding does not mean that other aspects of right-hemisphere processes are not actively at work, but imaging studies do not provide empirical support for the view that contemplative mindfulness is a “right-sided function.”

However, contemplative mindfulness does involve the fundamental process of interoception—the awareness of the sensory input of the body. This process is dominant on the right side of the brain, involving right anterior insula and right anterior cingulate regions of the brain (Craig, 2009; Critchley, 2009). These interoceptive inputs are in turn followed by right medial prefrontal and right orbitofrontal cortical activations that are associated with both insight and empathy. As contemplative mindfulness studies support improvements in both self-awareness and empathy, associated also with improved self- and other-directed compassion, we can see that these right-sided dominant processes do in fact support the intuitive notion that mindfulness may involve, in part, the activation of right-sided functions.

Research not only studies the practice of contemplative mindfulness, as in meditation effects, but also investigates innate traits of being mindful. For mindfulness personality traits, Baer, Smith, Hopkins, Krietemeyer and Toney (2006) have determined these five factors with the propensity to: be aware of what is happening as it is happening; be nonjudgmental (letting go of expectations and criticisms); be nonreactive (coming back to emotional equilibrium readily after perturbations); be able to name and describe the internal world; and be able to have self-observation (observing the self from a bit of a mental distance).

Here are some theoretical notions about the hunch that the brain's asymmetry may play a role in the differentiated aspects of being mindful—as general traits of our personality or as states of mind created in the moment. Given our earlier discussions, we can see how an observing self may have somewhat of a left-sided dominance when narrative language use is involved, as would the capacity to use words to label the internal world. In contrast, emotional regulation (being nonreactive) may have a right-sided dominance, with right prefrontal areas playing a more direct role in effortful control of emotion (Lewis & Stieben, 2004; Wager et al., 2008).

One might also propose that being nonjudgmental would involve some right-sided inhibition of left-sided, language-dominant categorical expectations. Relevant here, the left hemisphere is sometimes called “the digital processor” in which it tends to categorize things into binary clusters: black or white, right or wrong, up or down, left or right, correct or incorrect, good or bad. In contrast, the right side is sometimes called the “analogic processor” in that it sees the shades of gray between black and white, assesses the context between right and wrong, and sees from many points of view. Words in the right can be used within metaphors, embracing the multiplicity of meanings rather than a strict adherence to a limiting, singular definition of a term. In this way, the right is said to see between the lines, the left reads the lines. The right senses the spirit of the law, whereas the left is the letter of the law. Right views context, whereas left reads text. With this background, where would being aware of what is happening as it is happening fit in? How would creative mindful approaches of “if” within the languaging of learning fit into this asymmetry?

Some everyday impressions about mindfulness and laterality might suggest that the right is about “being in the world” whereas the left is about “doing things in the world.” This overly simplistic view may seem quite limiting, yet it may not only be empirically supported, but also have some merit worth exploring in mindfulness studies. Is there a “doing” versus “being” set of circuits? However and wherever such ways of being versus doing may or may not be ultimately discovered, in everyday life there does seem to be a subjective distinction between entering a “being-mode” versus engaging a “doing-mode” in our inner lives and in our relationships. Imagine times when you want a friend to “just listen” to what you are saying, to just bear witness to your story, rather than having you “do something” to solve the problem.

If this is true, then perhaps both creative mindfulness, with its focus on expanding a sense of understanding beyond categories and a sense of “right or wrong,” is engaging our “being with” the material mode rather than a “doing mode of getting it right.” Creative mindful learning would invite a way of being with the material, of empowering the student to make this new knowledge their own, rather than simply to memorize a “to-do” specific languaging of prescribed action. Being with the educational experience makes the internal subjective texture of learning quite distinct from the constraints of conventional educational dialogue. And within contemplative mindfulness, the curiosity, openness, and acceptance that are the core of being mindful are in their essence ways of being, not so much ways of doing. And so for each form of mindfulness, being rather than specific doing may be the key to what “being mindful” entails.

If left-sided cortical columns are more top-down in their clustered processing than the right’s (a possibility needing more empirical validation), then we can see that just

“being with” experience might have a right-sided dominance. Michael Gazzaniga once stated that the “purpose of the right side of the brain is to simply see things as they are” (Gazzaniga, February 1996, Keynote Address, American Association of Directors of Psychiatry Residency Training Programs, San Francisco), whereas the left functions to conceptualize and categorize experience. These latter top-down processes, perhaps dominant on the left, can then keep us from just “being with” experience as it is happening. We “do” something with our moment-by-moment experience within the categorizing, analyzing columns of the left side of the brain. Such processing may be the root of the narrative functions being dominant on the left side, as suggested by Gazzaniga (1998). We move into cortically created representations distant from direct experience, make abstractions, and replace the right side’s broad, open, vigilant attention with the sharply focused attention of the left. Here is the proposal we are making: The left constructs its perceptions of the world with a “doing mode” that is an active top-down, narrating process.

But this is only part of the story. Further in opposition to the intuitive sense that many have that mindfulness may be more of a right-sided dominant affair, we can also argue elements of a different, counterintuitive strategy for laterality: that mindfulness does not involve a favoring of one side over the other but rather cultivates an integration across the hemispheres.

Integration is the linkage of differentiated parts. And integration can be proposed to cultivate harmonious functioning, as it is based on the coordination and balance of different aspects of a system (Siegel, 2012b). So, we now move to this fundamental idea explored in the field of interpersonal neurobiology: *mindfulness may create well-being by promoting integration*. This proposal is supported by a collection of recent studies that reveal that the integrative fibers of the brain are those that are both activated and apparently stimulated to grow in contemplative mindfulness training (Luders, Toga, Lepore, & Gaser, 2009; Lazar et al., 2005). Such fibers include regions of the prefrontal cortex and hippocampus that link widely separated areas to each other. Such permits the coordination and balance of functions in the body as a whole. This is internal, neural integration. And mindfulness supports closer and more rewarding interpersonal relationships; enabling people to be present with one another as they honor each other’s differences while promoting compassionate linkages (see Parker, Nelson, Epel, & Siegel, in press). This is interpersonal integration.

Internal and interpersonal integration may be the fundamental ways in which mindfulness and presence promote well-being (Siegel, 2009). And so here is the summary of our third hunch. Both contemplative and creative mindfulness promote bilateral integration in the brain, supporting internal and interpersonal integration and health in a person’s life.

Hunch 4: Energy and information as transformations of probability between uncertainty and certainty

In both creative and contemplative forms of mindfulness, we can propose that awareness in these states involves a way of channeling energy and information flow—of paying attention in the present—in a particular manner. Mindful awareness is at the heart

of being mindful, of mindfully paying attention. But what exactly is “awareness”? And what does “attention” really involve? How does being mindful shape our thoughts and feelings—and what is a thought or a feeling, really? To explore these essential and fundamental questions, we will now come to our fourth hunch and attempt to address directly what it means to say that the mind is “an embodied and relational process that regulates the flow of energy and information.” This hunch states that mindfulness involves a unique and specific way of shaping how energy is transformed in our brains and in our relationships.

Though descriptions of mental life exist within a range of fields from psychology to anthropology, a formal definition of “mind” is not available, even in the field of “mental health” (Siegel, 2012a, 2012b). In interpersonal neurobiology, as discussed above, we take a consilient view, drawing on a wide range of disciplines to try to identify a universal set of principles shared across these separate fields of study. In this interdisciplinary approach, a definition of mind is offered that states that one aspect of mind is the embodied and relational process that regulates the flow of energy and information. This view of mind sees energy and information flow as the essence of the complex system that gives rise to the emergent, self-organizing process we are defining as “mind.” Energy does not just flow within the skull, but is within the whole body. And so we can use the term “embodied brain” to indicate the extended nervous system that is a part of the whole body through which electrochemical energy flows. Certain patterns of flow contain symbolic value, and we call this “information.” All information rides along changes in energy movement across time. Flow means changes across time. And so we have the first part of the origin of mind emerging from this embodied mechanism. This is the embodied mind, and it is an emergent property that arises from and also regulates the electrochemical energy transformations in the body. We are not separating mind from brain, but rather seeing these as aspects of one system, the system of energy and information flow within us and between us.

And so fundamental to our definition is that the mind is not only embodied but also relational. This is a part of the definition that often gets the most heated discussion and debate. “Don’t I own my own mind?” is often the concerned question, and this stance is quite understandable. But as any social psychologist, sociologist, anthropologist, teacher, parent, or friend knows, our relationships directly shape how we feel and think. Our beliefs, hopes, dreams, memories, and life stories are directly shaped by our relationships. And so the life of the mind is deeply influenced, indeed created by, our communication and connections with others. And so what are a commonly held set of features that describe the life of the mind—from feelings and thoughts to memories and beliefs—are directly shaped by how we relate to one another. How can this be if we “own” our own mind? If the mind is our own, doesn’t it just reflect the activity of the brain? Here we see that viewing the mind as relational, not only embodied, opens our field of study to embrace the powerful findings of social psychology, sociology, and anthropology. Relationships and culture each shape mind as much as physiology and synaptic connections. We can see mind from synapse to society because our unit of study is energy and information flow. And this flow occurs as much within us as it does between us.

Our relationships themselves are characterized by the patterns of how we share energy and information flow. Whether we are studying parent–child relationships,

romance, friendships, schools, communities, and societies, we are examining the ways in which energy and information are exchanged. These patterns of communication, within culture and within homes, among many people or between two individuals, are always mediated by a flow of information that rides upon shifts in energy. Even the study of one's relationship within oneself, the inner nature of our subjective lives and how we focus attention, how our observing self accepts our experiencing self, can be seen as a pattern of energy flow that enables information to be created. And so a first impression is that contemplative mindfulness may evoke an "integrated relationship" internally—one that is based on internal attunement that enables an observing self and an experiencing self to be differentiated and linked, to be integrated. And creative mindfulness may be created interpersonally as the teacher provides an educational experience that promotes the integration of bottom-up and top-down, of experiencing and observing. The student can have a relationship with the material that is integrative as it arises from mindful instruction that sets the stage for such integration as discussed in our earlier hunches.

As we've stated, information can be seen as a pattern of energy that has symbolic value or meaning. Some energy, like a blast of sound, may be "pure energy" without symbolic value. This pattern of sound just is what it is. In contrast, if we hear the sound "Golden Gate Bridge" we are having energy waves (air molecules' movement creating pressure on our ear drum) induce electrochemical changes in our acoustic nerve. Ensuing cascades of electrochemical transformations in the head streaming through the brain somehow, in ways no one knows, become associated with the subjective sense of that phrase, and the subjective experience of seeing that bridge over the San Francisco Bay in our "mind's eye."

This is an important point: No one knows how subjective experience (as in the internal seeing of the bridge in one's memory or imagination) and neural firing (ions flowing in and out of membranes and the release of neurotransmitters within the synapse linking neurons to each other) mutually create each other. It is simple, and quite common, to say that neural firing creates subjective experience. When certain regions of the brain become active, as in the occipital cortex for visual imagination, memory, or perception, we "see something." But we also know that imagining something, like playing the piano keys of a scale, can also make changes in the brain's firing and ultimately the very structures that are associated with that process (Pascual-Leone, Amedi, Fregni, & Merabet, 2005; also see Doidge, 2007, for an overview). In fact, mindfulness meditation is the use of subjective experience and the focus of attention to intentionally create a mindful state that shapes neural firing and creates long-lasting neural growth (Davidson & Begley, 2012; Lazar et al., 2005; Luders et al., 2009). Naturally, we could approach this in a simple and unidirectional way and state that we are simply making parts of the brain fire and that brain activity always "creates the mind." And this indeed may be true. But let's take a more open-minded position at first and see where this goes. Let's in fact be creatively mindful and avoid the premature closure of possibility, the premature hardening of the categories (Cozolino, 2003).

Descriptions of mental functions exist, naturally. But amazingly we do not have a straightforward statement of what the "mind" actually is beyond some views that state mind is "simply brain firing." While action potentials and chemical release (brain firing) is one aspect of the story, it is not the "same aspect" as having a thought or

feeling. Just as an apple has skin and seeds, the whole apple is not one or the other. We don't say the skin is the seed. They are two aspects of one thing—of the whole apple. Similarly, mind and brain are not the same. They are two aspects of one thing, and that thing we are suggesting is energy and information flow.

We actually don't know what a thought or a feeling really "is." We simply do not know what awareness or consciousness and subjective mental experience actually "are." And so to say that our inner mental lives are "simply a product of brain firing" is actually not founded in science. After all, neural firing is not the same as being aware or having the subjective experience of, say, feeling curiosity or love or fear or joy. Yes, brain injuries in specific regions can impair specific mental functions. But this longstanding finding demonstrates an association, not necessarily causality. The skin and the seed are both part of the same apple, but they are two distinct but inter-dependent aspects of the whole. When certain parts of the brain are damaged, certain mental functions cannot occur. With a stroke, for example, we may lose the ability to feel fear or think empathically or see visually. Our mental processes may depend completely upon neural processes, just as the survival of the apple's seeds may depend on the intactness of the skin. The mind does need the brain to create itself. But, thinking mindfully, perhaps the mind uses the brain to create itself. And when certain neural or certain relational processes do not occur, the mind also may be constrained. The mind uses both the brain and relationships to create itself. We are stating that the mind is not limited to the boundaries of the skin, and that as a self-organizing process, it arises from that which it will also regulate. This recursive property is simply the mathematics of complex systems. Complex systems have emergent properties that are recursive. And this emergence, we are proposing, is a process of both our embodied brains and of our interactions with other. The mind is both embodied and relational.

To understand how the mind becomes mindful, creatively or contemplatively, taking on these issues straight on is important, if not essential. We will move beyond these very controversial issues to a proposal that comes from direct observation of inner mental life, from the first-person accounts reported by hundreds of individuals in a wide variety of cultures to one of us (DJS). While they cannot be quantified as statistical analysis requires, science also emerges from careful observation. And when it comes to the mind, to our subjective inner life, careful observation may be essential to explore, systematically, what "mind" actually is. We will combine these observational narrative reports with an interpretation of the science of energy from the field of physics.

Knowing that for many in academic psychology and psychiatry, attempting to link the findings of physics to the study of the mind is often discouraged, we nevertheless will explore this fourth hunch about our discussion of mind and how this may pertain to the various aspects of mindfulness. We feel that inviting ourselves to link this working definition of mind as an embodied and relational process that regulates energy and information flow to the field of mindful awareness can reveal possibilities that may be of value for both future research and direct practical applications. We ask you to consider choosing to be open to the possibility that what follows may be useful, even if it is quite unconventional.

Energy is the focus of study of the field of physics. In classical physics, a Newtonian view of the world examines forces that operate on large-scale clusters of matter, studying motion and gravity. When subatomic particles are studied, however,

classical laws of physics do not generally apply. Instead, modern physics (from the last 100 years) has examined the study of quantum mechanics in order to help make sense of empirical findings. In the study of light, for example, photons have been revealed to have both wave and particle properties, and as movement of energy across time, light offers a fundamental way of studying how aspects of our universe works. In quantum physics, what has been discovered are a set of principles that appear to apply not only to the microscopic world, where they can be measured readily because of their small dimensions, but also to all of matter, no matter the size. In a quantum view, energy is measured as degrees of probability along a spectrum from open possibility to fixed certainty. There are many fascinating aspects of this field of study, including the finding that measuring a photon, for example, makes it collapse its wave function (across a spectrum of possible values) and be measured with certainty as a particle (with a certainty of its location at a point in time). There is also the intriguing “entanglement” implication of quantum mechanics suggesting that movements of particles, their spins and probabilities, have influences from particles not in physical proximity to them. Quantum equations that are created to explain empirical findings require these “at a distance” factors. Recent discoveries of the Higgs boson, the theoretical but empirically predicted particle that could explain the nature of matter as accumulations of particles to create mass, reveal how deep quantum analysis may offer new insights into the mysteries of our universe.

Why would our mental lives live in a different plane of reality than the rest of the world as some assert (Wallace, 2010)? We are suggesting that judicial explorations of the nature of energy may offer us at least empirically inspired though theoretically constructed ideas that might help us to see mental life in a new light. We understand that the following interpretation of the lessons from physics needs empirical validation and may not be initially embraced, but attempting to find a link between possible meanings of energy principles with observations of mental life may prove fruitful. These quantum ideas have intriguing possibilities about the universe, and about our own mental lives. While there may be many aspects of quantum physics that ultimately shed some new light on our mental explorations, here we will focus on the fundamental view that energy is measured in degrees of probabilities.

When spending a week with over 100 physicists, one of us (DJS) was able to informally ask innumerable academicians to define what energy is. The overall statements from these dedicated scientists was that while we really don’t know what these various forms of energy “are,” the physicists uniformly stated that “energy” is a term generally signifying the capacity to do something. As one professor stated it, energy is the “capacity to do stuff.” Energy takes many forms, from kinetic energy of the movement of particles of matter to light energy. But as a general aspect of our physical universe, this capacity to do something is measured as degrees of probability. Energy moves along “an energy-probability curve” that spans from certainty (100% probability) to uncertainty (near 0% probability). If a state of energy is highly likely, it moves toward 100% probability. If a state of energy is highly unlikely, it moves toward 0% probability. This range of the energy-probability curve from uncertainty to certainty will be the focus of our discussion.

We are presuming that there is one domain of reality and that it is logical inference, then, to assume that mind lives within that reality. If this is indeed true, the natural

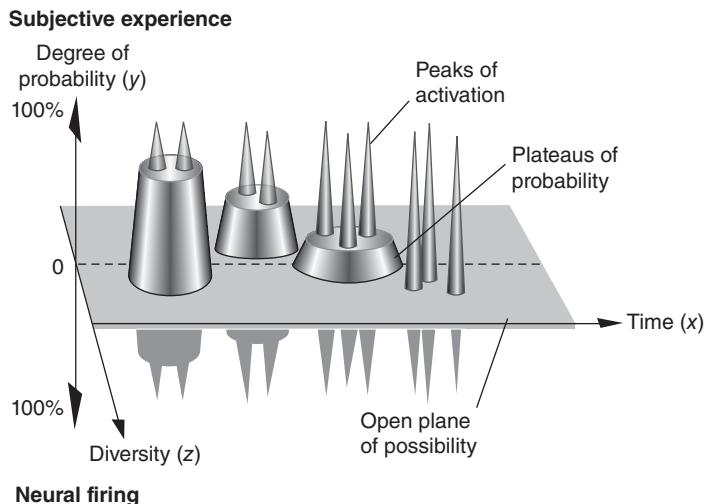


Figure 2.2 The plane of possibility. Used with permission. Copyright © 2010 by Mind Your Brain, Inc. Daniel J. Siegel, M.D., *The Mindful Therapist* (2010).

extension of this thinking is to state that if the mind is a process that regulates energy flow within and between us, that it is embodied and relational, then applying the laws of quantum physics—our most thorough and contemporary study of energy—is a natural, logical next step to deepening our understanding of mind.

And so here is our unconventional proposal. We are suggesting that the term, “energy flow,” means that “probability shifting” is how energy changes “across time” (flow). Notice that flow does not require movement across space. As we explore mental life, we may come to see that our subjective experience does not reside in a particular three-dimensional spatial location, but it does exist within a certain “probability space”—where a degree of certainty exists at a given moment of time. Figure 2.2 is a drawing offering one metaphoric way of illustrating what this probability space might look like. At the top of the graph is our mental life; at the bottom is our neural firing. Note that these may be completely overlapping across time, cosynchronous, so that neural firing and mental life happen at the same time. But this may not always be true. One process may slightly precede the other, and “drag the other forward.” This is highly controversial but in fact may explain certain subjective ways we use the mind to actually change the function and structure of the brain. The seed can influence the skin just as the skin can influence the seed of the apple. The key is to be open-minded about which process drives the other forward.

The next aspect of Figure 2.2 to focus upon is what gives this figure its name, “The Plane of Possibility.” Here, let’s focus on the top part of this graph, our mental life. The range of probability, from zero to 100, is depicted on the y (vertical) axis. Time is mapped out on the x (horizontal) axis. As time moves forward, the probability value can shift from within the plane (near a zero probability), where open possibility is present, to other values along the energy-probability curve. Above the plane, the probability curve shifts from near zero toward 100% certainty.

For the mind, we can propose this idea: Awareness is a state of energy probability near zero. Awareness has at least two components: A sense of knowing, and that which is known. The sense-of-knowing aspect of awareness arises from an energy-probability curve of uncertainty. What is the “known” of awareness under usual circumstances is the focus on the energy curve above uncertainty—toward higher degrees of probability. A sampling process, akin to the 40 cycle per second oscillations of the thalamocortical circuits in the brain (see Llinas, 2008), may occur whereby the subjective experience of awareness oscillates between the open plane (the sense of knowing) and the plateaus and peaks of elevated probability (that which is known).

With some exercises, individuals can actually focus a spoke of attention of the “wheel of awareness” practice linking the hub (sense of knowing) with the rim (that which is known). The findings from this practice correspond to the spatial plane of possibility in that the rim comprises peaks and plateaus, the spoke is attention (shaping the direction of energy and information flow), and the hub is the metaphoric symbol for open awareness, a sense of knowing found in the plane of possibility. In some practices, individuals are given the opportunity to “bend the spoke around” and focus attention directly on awareness itself. People describe this aspect of the exercise of focusing directly on this plane of possibility as “openness; wide-as-the-sky; deep as the ocean; at home; expansiveness; and having a sense of deep peace.” As this exercise of “the wheel of awareness” unfolds, they experience the plateaus of elevated probability and the peaks of certainty as feelings or moods or intentions, and then as specific thoughts, images or emotions, respectively. In this proposal, the sense of knowing within awareness is an energy curve that has moved to the open plane, a mood or intention is a plateau of elevated probability, and a specific thought, image, memory, or emotion is a peak of certainty.

In this hunch, we are offering the idea that if the mind is indeed a process that regulates energy, then it can be seen as an active way of modulating energy-probability curves that define what “energy flow” really means. Mindfulness, we are suggesting, strengthens the ability of the mind to move the energy-probability curve more fully into the plane of possibility. The oscillatory sampling would then have a fuller representation with this end of the curve. So, rather than being swept up in a specific term (a restrictive peak), mindful learning would create more dominance of the plane of possibility in the representation of that learned element. Mindful learning, then, we propose involves enhancement of the plane of possibility. From the wheel terminology, mindful learning would harness the hub. Creative mindfulness uses relationships of an individual to others and to their environment to foster this movement into the open plane.

We further suggest that contemplative mindfulness uses inner attention to train the mind to move energy curves toward the open plane by way of focusing attention on intention and placing awareness on awareness. These processes build on the executive, integrative circuits in the brain that permit neural processing to achieve more flexibility, to pause before enacting impulses or engrained, habitual patterns of response. From the plane of possibility perspective, contemplative mindfulness can be seen to build the capacity of the individual’s mind to move the energy curve into the open plane and loosen the grip of the top-down influences of previously engrained expectations and judgments, represented in high peaks and restrictive plateaus.

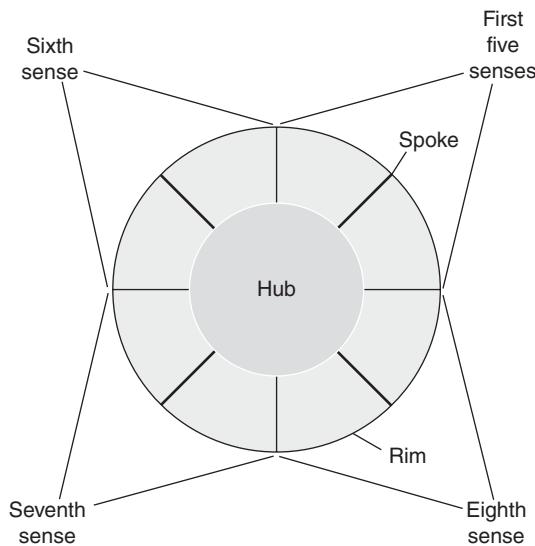


Figure 2.3 The wheel of awareness. The hub represents the experience of knowing within awareness; the spokes are focused attention; the rim is the known of awareness including our sensations and other mental processes. The sectors of the rim are as follows: first five (outer world), sixth (body), seventh (mental activity), and eighth (relationships) senses. Used with permission. Copyright © 2007 by Mind Your Brain, Inc. Daniel J. Siegel, M.D., *The Mindful Brain* (2007).

In creative mindfulness, we can further suggest, presenting educational material with words that have broad rather than highly constrained meaning (Langer, 1989, 1997, and this volume) can be seen to pull the peaks of certain definitions down to plateaus and ultimately into the plane that enables alternative meanings of the word to be considered. In the mind, this would be experienced as a feeling of inner freedom and vitality. In the brain, we can suggest, this might be revealed as more widely distributed neural activation patterns that would deepen memory profiles and make access to encoded experience more robust and connections among learned items more intricate and therefore activating a more widely distributed set of neural representations.

Contemplative mindfulness enables the practitioner to repeatedly enter a state of being aware of awareness. While the wheel of awareness exercise was developed as a technique to integrate consciousness (Siegel, 2007a, 2012b), differentiating the known from the sense of knowing, it also meets the criteria for a mindfulness practice. The visual image of a wheel helps to focus attention as a moving spoke along the rim which represents anything one might be aware of, from sights and sounds to thoughts and feelings (see Figure 2.3). Awareness can be seen as composed of the known (the rim) and the knowing (the hub). Here, the hub represents what it means to “know” within awareness itself. Within the wheel of awareness practice, the subjective texture of pure awareness is experienced directly as a way of sensing the feeling of directing attention to the hub itself. The participant in the exercise does not focus the spoke on

the rim, as in the prior part of the practice, but now bends the spoke to focus attention on awareness itself.

Across cultures and across educational backgrounds, the descriptions have been universally similar, as described above. The awareness of awareness (“the hub on hub” part of the wheel practice) is experienced as the state of deep openness. The plane of possibility diagram offers one possible mechanism to explain the subjective mental experience descriptions. The hub correlates with the plane, and the rim includes the plateaus and peaks. The process that can move the energy curves is attention, represented by the spoke in the wheel of awareness practice. The mind is that process which “regulates energy flow” by means of altering the energy-probability curve in a range from certainty (as in a thought or an emotion or a memory), to less certain but to various degrees of probability (thinking, feeling, remembering), and then to the sense of knowing within the plane of possibility, the energy curve at the point of uncertainty. This model offers one possible view that links mental processes—such as thought and emotion and memory—with the experience of consciousness (see Siegel, 2012b, for an in-depth discussion of this proposal).

In this perspective, mindfulness strengthens the capacity of an individual to move into the plane of possibility with more ease. If an oscillating sampling process is involved in everyday experience of being aware, one in which we dip from plane to plateau and peak in order to be aware of our five senses, our bodies, and our mental activities such as thoughts and feelings, then we can propose that mindfulness might increase the frequency of “being in the plane” during that sampling process. Such a sampling appears to be a fundamental part of the neural correlates of consciousness (see Llinas, 2008; Edelman & Tononi, 2000a, 2000b). We can be aware of a thought, but not mindfully aware of it. We can learn a fact, but not mindfully learn that fact. These would be how we can go “on automatic pilot” and become imprisoned by top-down patterns of restrictive language, perceptual distortions, and even emotional response. Being in the plane would be seen in the wheel of awareness practice as “strengthening our hub” so that we experience life from a place of openness to new possibilities.

Our fourth hunch proposes that both creative mindfulness and contemplative mindfulness strengthen the hub of the mind, enhancing the ability of the individual to use attention to move the energy curves that arise in everyday life and learning toward the open plane of possibility. It is from this hub of the mind, this plane of possibility, that the capacity to be present arises.

Conclusion: A Possible Way of Putting the Pieces Together

Creative and contemplative mindfulness may share in common the strengthening of the ability of an individual to be present in life, to be aware of what is happening in a direct and vital way. This presence could enable individuals to thrive with uncertainty: To live fuller and more robust lives because they are able to be present with what is. We have suggested that this ability to live well with uncertainty may occur by way of four possible but interacting mechanisms in need of further empirical study. Our first hunch is that mindfulness enables the enhancement of bottom-up ways of perceiving

the world. The release from top-down constraints that create anticipatory states of mind based on what has been learned in the past would provide a direct way of “seeing life clearly” by minimizing these automatic restrictions on living.

Second, we’ve explored the possibility that mindfulness enhances our experiencing circuitry so that we balance our tendency as we age to observe and narrate with a renaissance of our capacity to live life directly. We come to see with child’s eyes, making the ordinary once again extraordinary. Mindfulness would not only be about “being in the flow” without narration but also involve a balance in the two and permit choice of which circuits to engage in particular lived moments.

Third, we are suggesting that an integration of the two hemispheres may be how mindfulness creates an openness to both be with and understand experience as the right and left hemispheres come to coordinate and balance their differentiated functions. Such bilateral integration may permit a more flexible and adaptive way of being in the world than either hemisphere alone could create.

Finally, we’ve stepped gingerly into the world of physics and energy studies to propose that mindfulness strengthens our mental and physiological lives by creating a stronger capacity of the mind to create the openness of possibility contained within mindful awareness. This openness can be seen as the movement of an energy-probability curve from restricted but important zones of certainty and probability down into an “open plane of possibility” in which awareness emerges. Both contemplative and creative approaches to mindfulness may cultivate their health-mediating effects by strengthening the capacity to move more freely among these zones of the probability curve from certainty to openness. In this view, thriving with uncertainty is created by this strengthening of the mind’s ability to regulate energy and move it freely into this plane of open possibility.

Mindfulness in its creative and contemplative forms enables us individually to create more vital and open states of mind, ways of being, ways of living. Mindfulness collectively can help us sense the ways in which we are profoundly interconnected to one another, and to our home, this planet we call Earth. By underscoring the ways in which mindfulness enables us to thrive with uncertainty, our hope is that as we approach the uncertainties of life on our planet, we will perhaps become better able to help one another develop the resilience that will support our approaching, rather than withdrawing from, the challenges we face in our very fragile and rapidly changing world.

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3

Eastern and Western Approaches to Mindfulness

Similarities, Differences, and Clinical Implications

James Carmody

As the efficacy of mindfulness training in reducing distress and increasing quality of life (QOL) has been demonstrated through well-controlled trials, an increasing number of mindfulness-based programs have sprung up designed for specific populations and circumstances. Summaries of their positive effects are covered in a number of reviews (Chiesa & Serretti, 2011; Hofmann, Sawyer, Witt, & Oh, 2010; Irving, Dobkin, & Park, 2009). While each of these programs has as its goal the reduction of mental suffering, descriptions of their training protocols reveal important divisions and variations between them in their conceptions of the construct of mindfulness and how it is best learned and taught.

The most widely studied programs are as follows:

- 1 The Buddhist-derived approach popularized by Kabat-Zinn in which the experience of mindfulness is to be found in the experience of meditation practice. This has found its most popular expression in mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT).
- 2 The conception described by Hayes in acceptance and commitment therapy (ACT) and dialectical behavior therapy (DBT) in which the approach to mindfulness is based upon the psychological processes involved in the domination of the literal and evaluative functions of human language and cognition (Fletcher & Hayes, 2005). These programs also draw upon cognitive behavioral therapy but have removed mindfulness from a meditation foundation and freely adapted their training protocols to suit the circumstances of their clinical populations.
- 3 The approach described by Langer, which derives from social psychological principles, implicitly draws upon elements of each, but approaches mindfulness as the desired end-result of an open and curious orientation to the environment. Its training protocols, described below, focus directly upon encouraging the cultivation of such a stance to experience.

Despite the apparent differences in their understanding and approach to mindfulness, each of these programs has been shown to improve one or more QOL-related variable. So, are these different conceptions and practices primarily semantic and merely ones of emphasis, or do they represent fundamentally different approaches to something they each call mindfulness that somehow arrive at a similar experiential end (Langer & Moldoveanu, 2000)?

The question of commonality is not without controversy. In the meeting of these approaches, discussions of mindfulness and mind-body medicine more generally become a confused and confusing interface between the parsimonious approach of science, and the narratives of religious/spiritual aspiration and meaning. For some clinicians and researchers, the clinical mindfulness training programs are an extension of their own personal commitment and identification as dharma practitioners. They would claim that the Buddhist view brings a unique and “paradigm-changing” approach to the cultivation of well-being. From this perspective, approaches to mindfulness that do not derive their foundation from Buddhist principles and trainings would be seen as superficial and, at worst, denying patients the opportunity for a richer and more penetrating experience. This belief persists despite wide differences in approach and trainings within Buddhist traditions, and debate as to whether any of these clinical approaches can be said to exemplify the construct described in the Buddhist texts (Rapgay & Bystrisky, 2009). Such particular views stand in contrast with Langer’s more embracing contention that all mindfulness programs simply employ different means to get to a “there” that is the same for each (Langer, 2009). Since no universally agreed-upon criterion is on the horizon, it is unlikely that views on the “true” nature of mindfulness will be reconciled.

But focusing on the parochial question of what mindfulness is and which program most accurately reflects it does not get very far with the more essential question of how best to reduce mental suffering. Each of these programs focuses on qualities of the attending-to-experience that result in improvements in well-being. Therefore, it may be helpful to scrutinize the perceptual skills trainees are asked to cultivate in the training exercises. What is it that people are actually asked to do in the training? Comparisons of the training protocols may provide a more general knowledge of the qualities of attending to experience that facilitate well-being; knowledge that can only improve clinical efficacy, adaptability, and accessibility.

In this chapter, I discuss some issues that bear upon these qualities of attending, as well as similarities and differences between the “there” for the programs and, finally, the means by which they support getting “there.” I follow Langer’s lead in referring to the Buddhist-derived conceptions of mindfulness as Eastern, and the psychological understandings as Western. To provide a foundation for comparing and contrasting the approaches, I first summarize the fundamental features of the Eastern use of the term, and follow this with a description of Langer’s conception, since it is the most conceptually divergent in its approach to cultivating mindfulness. I then discuss the apparent similarities and distinctions between the two approaches and suggest that the clinical goal of both approaches would be better served by shifting the focus to the generalizable attending skills developed through each. Since both conceptions of mindfulness use a phenomenological approach, I use a psychological conceptual framework throughout.

The Eastern Conception and Approach to Mindfulness

The Eastern conception of mindfulness emerges out of the primarily introspective approaches to knowledge extant in India at the time of the Buddha that had the goal of reducing mental suffering. In this view, the root problem preventing mental peace is ignorance of the momentary construction of the sense of self and ownership in the mind, and the associated craving and aversion. The term mindfulness has come to be the accepted English translation of the Pali word “sati” (sometimes translated as awareness), which is one of the mental qualities whose cultivation is considered important in a larger systematic path to dispel that ignorance and the development of mental peace. But since Pali is no longer a spoken language, and the teachings have undergone adaptations in each of the countries to which Buddhism spread, there is considerable variation in the ways different traditions approach and understand the construct described in the original texts.

As Eastern mindfulness is once again adapted, this time to Western clinical settings, the definitions and terms used to describe it have been cobbled together from traditional and contemporary constructs (Bishop et al., 2004; Brown & Ryan, 2004). And as might be expected, given its religious roots, there is ongoing debate as to where its “true” understanding is to be found (Grossman, 2011). That the word “mindful” had a pre-existing meaning in English has extended the confusion. Nevertheless, programs such as MBSR and MBCT were developed to reflect a spirit of mindfulness as it is generally taught in traditional Buddhist monastic settings. And even as they vary in detail, most definitions of mindfulness in the clinical literature center around that of Kabat-Zinn of “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994; Shapiro, Carlson, Astin, & Freedman, 2006). A long list of additional descriptive expressions has also been used such as: beginner’s mind, being in the moment, present-centered awareness, embodiment, being rather than doing mode, etc.

Most programs adhering to the Eastern conception first ask the beginner to cultivate the capacity to deliberately redirect attention to an arousal-neutral mind object; most often the sensations associated with breathing. Not only does this exercise develop facility in the use of attention, but directing it to this arousal-neutral object creates a relatively calm mental state that can be accessed anywhere and at all times. This mental calm can be cultivated both as an end in itself and as a mental state conducive to the process of further experiential discovery.

Beginning instruction with the realm of sensation in this way has a couple of other advantages. First, it is the realm of experience most easily recognized and perceptually distinguished from the thoughts and feelings that comprise the two other components of everyday experience (Carmody, 2009). As such, it is readily accessible to the beginner. It is also the realm in which delight is most acutely experienced. Second, it redirects attention away from the ongoing internal monologue with its judgments and their accompanying unpleasant affect and to which attention repeatedly defaults. The capacity to distinguish between sensations and cognitions in this way opens the possibility of being able to remain longer in the sensory realm before attention

is once again overtaken by the cognition-based internal monologue categorizing (even in novel ways), judging and comparing the experience with imagined or remembered others.

These principles are exemplified in the use of the body scan as an initial mindfulness training exercise. Having established some facility in bringing attention to the sensations of the breathing, attention is moved in a systematic way through the entire body with the instruction to notice whatever sensations happen to be present in each part, and noticing the difference between the sensations, their associated feeling tone, and any cognitive commentary that is present. The instructions also ask participants not to try to change the sensation/thought/affect during the exercise, but simply to acknowledge and accept its presence. This process of perceptual differentiation and re-cognition of the components of experience is sometimes further supported by giving cognitive labels to them as they are noticed, such as “this is a thought,” “this is a sensation,” etc., or “this sensation has an unpleasant feeling associated with it . . . ,” or “this emotion is associated with these sensations, thoughts,” etc. As facility develops, recognition of the components as such becomes increasingly immediate, and some psychological distance from the content of cognitions is cultivated.

The Western Conception of Mindfulness

The approach extensively described and studied by Langer is probably the most radical departure from the Eastern approach in that it focuses upon the lived end-point of being more mindful. This is a mode of functioning that actively engages in reconstructing the environment by continually creating new categories or distinctions and thus directing attention to new contextual cues that may be controlled or manipulated as appropriate (Langer & Moldoveanu, 2000). Mindfulness is contrasted with the mindlessness characterized by processing environmental cues in an automatic and inflexible manner, and where cognition relies on preformed environments determined by automatic categories no longer consciously available for consideration. Approaching situations with curiosity and cognitive flexibility, on the other hand, reveals their novelty, keeping us in the present and open to new information. This mindful perspective-taking increases creativity and more fruitful behavioral responses to situations and problems. The whole individual is said to be involved in this process, and the felt sense of this is one of heightened wakefulness (Carson, Shih, & Langer, 2001).

Langer and colleagues have demonstrated that interventions manipulating the environment to increase awareness of these automatic mindsets, and stimulating new more fruitful perspectives (Langer, Bashner, & Chanowitz, 1985) result in remarkable increases in creativity, attending, and learning. In a widely cited study of longevity in nursing-home residents (Alexander, Chandler, Langer, Newman, & Davies, 1989), the mindfulness intervention required them to engage in both a structured word-production task and an unstructured creative mental activity task. Subjects were required to think of a word, take its last letter, and find a new word beginning with that letter. They were not permitted to use any word more than once per session, and the level of demand of the program was continually increased to keep it novel

and so more mindfulness inducing. Subjects were then instructed to produce words relating to specific categories such as animals, springtime, foods, places, etc. This task did not specify rules for thinking or particular target thoughts. Rather, the individual was asked to think about any topic in new and creative ways. Illustrations were provided such as thinking of unusual uses for common objects, or picking a controversial topic and arguing the side contrary to one's established opinion. Subjects were asked not to lapse into daydreaming but to actively direct their thinking during the process. They produced words for approximately 6 min, engaged in creative mental activity for 6 min and closed with another 6 min of word production followed by 2 min of rest.

Commonalities and Differences in These Approaches to Mindfulness

The most readily apparent principle the approaches have in common is the foundational idea that our experience of the world is shaped in large part by the way we perceive it. In the Western understanding of mindfulness, this principle emerges out of ideas from attribution theory in social psychology in which our experience of the world is reconstructed in the mind by attributing to the objects of the world those qualities detected through our senses. But Langer's work challenged the notion that people act only rationally on their beliefs, and are instead often guided by unconsciously processed information. Her mindfulness interventions encourage recognition of unconscious processes shaping inappropriate responding, replacing them with more appropriate ones. In the Eastern conception, the attribution principle is stated explicitly and radically in the Rohitassa sutra, a paraphrase of which reports the Buddha as having said: in this [fathom-long] body, with its senses and intellect, the entire cosmos is created along with the opportunity for its cessation. In this understanding, we are ignorant (unconscious) of the most fundamental processes shaping perception, and the training exercises are geared toward bringing them into awareness.

At this level, then, the two approaches have a good deal in common. In the Western conception, human suffering is created, or at least exacerbated, by people unconsciously employing outdated and inappropriate categories and mindsets in responding to everyday life situations (Langer et al., 1985). This results in lack of spontaneity and reduced awareness of the social and physical world and prevents the possibility of creative change. The training exercises to reduce this mindlessness such as the word "production" exercise or being challenged to think about a topic in a new and creative way by, for example, arguing the side contrary to one's usual opinion on a controversial topic, are designed to counteract this tendency. By intellectually challenging people to develop fresh, creative perspectives and explanations more appropriate to the situation at hand, the exercises make more apparent the automatic/unconscious categories that have been shaping responses. The language of these mindfulness instructions also reveals the influence of the classical Greek method of enquiry that it shares with cognitive therapy where solutions are sought through exposing conceptual flaws, and

knowledge and happiness are furthered by creating a more rational and appropriate path. This is a training that is dynamic and values perspective taking as a way of better understanding the world.

The intellect-centered exercises, such as the word-production challenges, have features in common with exercises used in some Eastern approaches to mindfulness training. For example, one of the functions of the koans, used in some Zen traditions, is to foster curiosity about rational cognitive processes, albeit by frustrating their attempts to find a solution. Challenging the primacy they typically hold on attention exposes the perceptual filtering preventing more immediate experience of the world. The attribution principle is exemplified also in the “nine dots” puzzle, an exercise included in the MBSR class handbook and in management classes, to illustrate how the usual ways of thinking and perceiving can prevent us from recognizing that solutions to some problems emerge only when we “think outside of the box.” Many MBSR programs also use the old/young woman trompe l’oeil picture from Gestalt psychology figure/ground experiments as a way of helping participants recognize the unconscious and automatic processes at work in shaping the way we typically perceive the world. Similarly, the compassion generating exercises commonly included in MBSR, MBCT, and DBT (Birnie, Speca, & Carlson, 2010; Shapiro, Brown, & Biegel, 2007; Van Dam, Sheppard, Forsyth, & Earleywine, 2011) are another way of exposing, for some, the unrecognized judgment-related categories and negative affect they may hold toward their own self, or others.

In these ways, then, the training for both approaches can be said to promote a mode of functioning characterized by curiosity, recognition of preformed categories, appreciation of the novelty of every situation, and actively engaging in reconstructing the environment and stimulating new perspectives.

However, while the Western approach is said to involve the whole individual in the process of enquiry, the training focuses primarily on constructions of the intellect; fostering an intellectual curiosity about concepts being used and whether they are appropriate to the situation and challenging trainees to create new ones. The senses are employed in the service of stimulating the intellect. In the Eastern approach, trainees are similarly encouraged to be curious about old habits of attending and aware of the concepts shaping their perception, but the training exercises are more perceptually granular and direct attention to the sensory realm as an end in itself. Cultivating awareness of bodily sensations is foundational in the Eastern approach, including physical sensations unfiltered by conceptual categories. The body scan, for example, directs curiosity and attention toward bodily sensations, as sensations, throughout the body, especially those usually missed because of their subtlety or as a result of inattention to the body parts in which they are occurring. And even though both approaches encourage trainees not to lapse into daydreaming, the Western approach to training does not appear to give particular attention to cultivating awareness of when this has occurred.

Eastern instructions for developing the capacity to become aware of bodily sensations also include facility in redirecting attention to the sensations of breathing as an effective way of reducing arousal. In this respect, it is interesting to note that in the study of the nursing-home population referred to above, no differences were

found in anxiety, depression, or appreciation of self and the environment following an intervention using the Western training exercises. Reductions in anxiety and depression are, however, a usual outcome following Eastern training and are related to the emotion regulation that is associated with attentional regulation.

Mindfulness training instructions in each of the approaches can be said to provide both encouragement and the means to recognize and discern one or more of three features of everyday mental activity, and how they impact well-being (Carmody, 2009): first, by supporting recognition that the apparent seamlessness of everyday experience comprises three experiential components (thoughts/images, sensations, and their pleasant/unpleasant/neutral feeling tone) that can be perceptually discriminated and that these components form conditioned cycles of association. Second, facility in attention regulation provides the trainee the opportunity to notice which component of experience the attention is on at any moment and, if they so choose, to redirect it to a more neutral or positively valenced object. This experientially reveals to the person the principle that arousal levels follow the affective valence of the object of attention. The other option, of refraining from attempting to change what is noticed, gives the person an opportunity to develop tolerance for intense experience and emotion regulation. Third, in the process of this learning, the trainee recognizes that the three components comprising experience are events occurring in the field of awareness, bringing about a decentering or meta-awareness that creates a psychological distance from the components' content.

How recognition of these three features is best internalized so as to obtain the gains in well-being resulting from them differs in the Eastern and Western approaches. The Eastern tradition emphasizes the necessity of the meditation practice characteristic of those programs, and reductions in distress are indeed related to practice (Carmody & Baer, 2008). And there is evidence that the learning results in a lasting increase in well-being (Pbert et al., 2012). Just how much practice is required remains an open question. In contrast, the Western approach relies upon exercises that intellectually challenge existing categories or immersion in a structured environment that exposes them, and the derived benefits appear to be immediate. Proponents of meditation, however, would contend that it provides deeper insight into the process by which all mental life is constructed from moment to moment, both the functional and less than optimal; and that this is a quite different approach to change than considering just the appropriateness of a category's content, or continually coming up with new, albeit creative and novel, cognitive categories and processing solutions to an ongoing and changing situation or problem. Whether the more perceptually detailed training of the Eastern approach, and the time spent in meditation practice, results in additional benefits not immediately apparent is an empirical question deserving of study. This is important because the amount of time required to complete these programs is a significant barrier to many people, not to mention the exotic associations meditation has in many people's minds.

Perhaps, however, the most important source of misunderstanding in the "there" between Eastern and Western approaches is in the Rohitassa sutra phrase that states not only is the entire cosmos created in the body, but also it contains the *opportunity for cessation of the entire cosmos*. As the Buddhist-derived practices have been integrated into Western programs, this radical notion of cessation often stands unstated in the

background of discussions of clinical mindfulness. Cessation is the ultimate goal in the Buddhist system and comes through experiential recognition of the illusion of a permanent and unchanging self—the coalescing of experiential components comprising it are recognized as occurring in a more fundamental and unchanging field. This insight results from adherence to the prescribed eightfold system in which formal mindfulness practice plays an important role linking back to the “clear seeing” referred to in the traditional roots of mindfulness (Thera, 1992).

This cessation is, however, rarely the goal of trainees in clinical settings where mindfulness is introduced. Most patients are more interested in obtaining the situational relief from anxiety and depression that comes with the relatively limited amount of mindfulness practice recommended in the programs. This is illustrated in one of the few MBSR long-term follow-up studies (Kabat-Zinn, Lipworth, Burney, & Sellers, 1987) that found that the majority of participants did not maintain a regular meditation practice; the learned technique they used most frequently and found most helpful was the simple act of redirecting attention to the sensations of breathing at times of stress.

It may be that patients of certain temperaments will find one approach more attractive than the other. No doubt some people experience delight when engaging in challenging mental/conceptual activities characterized by Langer's and colleagues' training exercises, and through them learn to increase the opportunity for greater well-being. Such people may flee from an exercise like the body scan, finding it exquisitely uncomfortable or boring. For others, it is the realm of sensation that holds most delight; a realm that often becomes neglected in the process of socialization. For them, this rediscovery is a revelation and a comfort. They may find conceptualizations boring and diminishing of their delight, and fear becoming “lost in their heads.” The different types do not often understand or appreciate the other, and although they can learn to appreciate the other better, and it sometimes becomes a source of enrichment, the fundamental difference remains.

In Conclusion

Eastern and Western approaches to clinical mindfulness programs appear to vary in their understandings of the construct. Training in each, however, results in improvements in well-being. Proponents of the Western approach contend that all mindfulness programs simply employ different means to get to a “there” that is the same for each. But without an agreed-upon criterion reference, the question of the conceptual independence of each, and which is the more “true” understanding of mindfulness, is unlikely to be resolved. The more general and clinically profitable question to ask is what if any are the therapeutic properties they may have in common. And since programs ask participants to attend to their experience in particular ways, this question can be approached by examining the instructions trainees are asked to follow in their everyday lives, delineating the qualities of attending the programs share, and considering the ways each approach can complement the other. This approach can result also in a better understanding of processes that are common across many mind–body training programs.

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4

From Early Buddhist Traditions to Western Psychological Science

Andrew Olendzki

From earliest times, human beings have inhabited two worlds, one external and material, the other internal and experiential. The first is well known, as our capacity for engaging with and changing the material world is everywhere evident, while a good accounting of the evolution of our inward-facing world is less apparent. It is written in the language of the arts: storytelling, poetry, music, dance, drama, myth, and all the many ways people have expressed what they see and think and feel inside. The history of mindfulness is one thread in this account of the human exploration of the subjective and experiential realm. Originating in the distant past as part of the contemplative practices of early Indian religiosity, mindfulness was developed by the Buddha and his followers into an effective tool for accessing, describing, understanding, and ultimately transforming the landscape of inner experience. In recent times it is having a profound impact on an array of modern and postmodern fields of inquiry, and in particular is contributing to a series of innovations in the fields of learning, health, and therapeutic psychology. At a time when our capacity for impacting our outer world is reaching unprecedented heights, mindfulness is emerging as an important tool for exploring our inner life with greater clarity and immediacy.

Ancient Origins

Consciousness itself, the ability to know or be aware of an object, is as old as the hills, in so far as the basic ability to process information can be accomplished by quite simple neural networks. Even relatively small bundles of neurons, connected to rudimentary sense receptors, are capable of “knowing” to avoid an object in one’s path, that a particular sound is associated with a predator, or that a certain odor can be followed to locate food. To be conscious of that knowing, however, that is to have a sense of knowing that one knows and being able to take one’s own inner experience as

a deliberate object of awareness, is a matter of much greater complexity and may not have fully developed until the emergence of *Homo sapiens*. All early human cultures may be presumed to have explored deeply the interior dimensions of experience, for all describe rich mythic realms traveled by the shaman to gain knowledge from the inner reaches of the psyche. And while some sort of mental training would have been involved in the mastery of hunting skills, the systematic training of the mind in attention enhancement and concentration seems to have been of particular interest to the early inhabitants of the Indus and Ganges river valleys of North India.

Of the three major early civilizations that flourished 5000 years ago, along the Nile, Tigris/Euphrates, and Indus river systems, the Egyptian culture demonstrates a strong outward-facing focus. The sheer mass of stonework found in monuments, statuary, temples, and tombs is staggering, reflecting an apparent obsession with transforming and leaving a lasting mark upon the material environment. In remarkable contrast to this, the archeological remains of the Harappa civilization of the Indus watershed show very little concern for such outer changes, with uniform, utilitarian brickwork and almost no monumental structures, a corpus of terracotta goddess figurines that appear to be cobbled together for short-term use and then discarded, and an apparent lack of weaponry offset by a preponderance of toys and beads. What might account for such an apparent difference in cultural orientation? Humans appear to be equally capable worldwide, but different cultures define differently what matters are of greatest importance by inclining their attention and energy in particular ways. One hypothesis that can be offered to explain the striking differences between the material remains of these two civilizations is that perhaps early Indian culture was oriented more toward the inner dimension of human experience.

Hints that this might be the case come from both the archeological record and from a study of the unique elements of early Indian religious belief and practice. Small clay seals depict a human form seated in what to a modern observer seems a pose of yogic meditation; a lack of tombs or burial sites is consistent with a view of life recycling rather than of long-term survival after death; and the temporary nature of the goddess figurines suggests an emphasis on the experiential process of ritual rather than upon the sanctity of its representative objects. As we gain access to early Indian thought through the rich oral literature of the sixth and fifth centuries BCE, we find a whole complex of religious ideas and practices that are entirely different from what we are accustomed to seeing in the West, in so far as they emphasize the careful exploration of interior experience rather than populating the cosmos with gods. Consciousness itself is the sacred mystery, as it is directly experienced here and now. It is to be tamed by yogic disciplines, experimented upon using ascetic austerities, and observed empirically with meditation. Since none of these practices appear to have cognates from the same period in the West, it is not unwarranted to surmise they have their origins deep in the pre-Vedic indigenous Indian past (Reat, 1990).

Contemplative Practices

The Buddha, living squarely in the fifth century BCE, was already heir to a long tradition of meditation and mental training. Many of the *Upanishads* predate Buddhism,

and although extant manuscripts of Yoga, Sāmkya, and Jain teachings are later, they clearly have their roots in this earlier era as well. These indigenous traditions all diverge from the Vedic orthodoxy, itself imported from the West with the Aryan migration into North India in the late second millennium BCE, in several important ways. They are more concerned with the exploration of inner landscapes than of outer realms, and thus place greater emphasis on direct experience than on ritual communication with external deities. The stress is on phenomenology rather than ontology, that is to say exploring the textures of “that which appears” in experience is more significant than discerning “the reality” of what lies behind appearances. The goal is not communication with a greater other and transcendence of the human condition but rather the integration and optimization of experience in this world, this body, this moment. The question is not “How can I escape this world for something better?” but rather “How can I attain profound well-being right here and now, regardless of the conditions I encounter in this world?” The approach to religious practice is more empirical and experimental than mythical, and in the earlier stages of all these Indian traditions, there is very little mythical content amid the rich set of experiential practices.

Foundational among these practices was *yoga*, a word meaning “discipline” or the yoking of the mind and body to the will. Quite different from its popular modern forms, early yoga involved an integrated teaching around the purification of the mind from its numerous defilements and toxins. The mind is capable of great clarity and happiness but is occluded by mental and emotional habits that obstruct access to a natural font of well-being. Training involves ethical restraint, physical disciplines such as bodily postures, breath regulation, and bodily purification, and mental disciplines such as control of the senses, the cultivation of contentment, and the development of healthy psychological habits (Eliade, 1958/1990). Pre-eminently, yogic practice involved calming, unifying, and focusing the mind. Related spiritual practices centered on many different forms of asceticism, which were seen as a way of experimenting with consciousness. Activities such as holding the breath, retaining a single posture for great lengths of time, going without food, and even the voluntary exploration of pain all served to enable the first-hand observation of cause and effect. How is the manifestation of consciousness altered in each of these circumstances? What can be learned about the conditions supporting the arising and passing away of pleasure and pain? Just as a material substance can be investigated by heating it in a crucible and observing how it breaks apart into its constituent components, so too can consciousness be empirically investigated by bringing heat (*tapas*—the Sanskrit word for both heat and asceticism) to bear upon the mind and body and watching closely what happens.

Meditation is part of this religious movement, consisting of a disciplined and repeatable protocol for the systematic exploration of consciousness. By removing oneself from the everyday duties of secular life, simplifying the elements of one’s daily routine, and sitting quietly in isolation for long periods of time, the ancient yogis (those whose minds are yoked to the examination of experience) learned how to substantially amplify the power of their minds. As we have discovered independently today, by simply keeping the mind focused on a single object, for example by repeating a single word without distraction, for as little as 20 min at a time, one is able to activate the parasympathetic nervous system and elicit a profound mental and physical

relaxation response that, among other things, enhances the functioning of the immune system (Benson, 1975/2001). The *shramanas*, or wanderers, of ancient India took this phenomenon a good deal further, describing extraordinary altered states of consciousness and a nuanced understanding of the moment-to-moment construction of psycho-physical experience (Hartranft, 2003).

Of particular interest was the exploration of the six different modalities of consciousness, the seeing, hearing, smelling, tasting, and touching that emerged from the interaction of the five sense organs with their corresponding sense objects, along with the experience that seemed to be independent of the senses taking place in the mind itself. They were also intrigued with the pleasure/pain reflex, and closely regarded the textures of these sensations and the conditions under which they arose or passed away. Another matter of great interest was an exploration of the range of human emotional responses, from primitive and hurtful emotions such as hatred and cruelty, to the most sublime expressions of loving kindness, compassion, and empathic joy. One important discovery was that if one is able to separate temporarily from the range of unwholesome or unhealthy emotions (i.e., those that lead to suffering), while at the same time practicing the inner technologies of concentration and single-pointed focus, the mind is capable of getting “absorbed” into concentrated states of ever-increasing levels of attenuation. These states are characterized as particularly blissful, with their pleasures getting gradually more rarefied until the pleasure evolves into a profound and imperturbable state of equanimity. Concentrating the mind even further, one is able to attain extraordinary states of awareness, experiencing such phenomena as infinite space, infinite consciousness, an apparent nothingness, and a state so subtle as to seem uncertain whether any perception whatsoever remained (Ñānamoli & Bodhi, 1995, pp. 257–259). Such attenuated states of consciousness yielded access to unusual mental and psychic abilities, were thought by many to lead after death to rebirth in heaven, and resulted in a tremendous settling of the mind and focusing of its power.

The Buddha

All this took place in the centuries before the Buddha, who was heir to the rich contemplative practices and psychological models of this tradition. The Buddha himself learned these techniques of meditation and asceticism from other teachers, having given up a comfortable life as a prince to join the movement of wandering *shramanas* and take up the quest for awakening. According to tradition he mastered both practices quickly and took each to its ultimate stage of development, but found both to be lacking in some important respect. Having learned all his meditation teachers had to offer, he turned down an invitation to lead their groups and took up a period of intensive ascetic practices. Having starved himself to within an inch of his life, he renounced asceticism too as unproductive (Ñānamoli & Bodhi, 1995, p. 336–40). Indeed, one of the unique character traits of the Buddha appears to be his ability to master things quickly, but then to turn away from them if they are not working.

The awakening experience the Buddha had under a tree in his 35th year appears to constitute a radical psychological transformation, a fundamental reordering of his psyche. As it is most simply described in the early texts, the fires of greed, hatred, and

delusion were quenched (*nirvāna*) within him, and his mind attained a state of profound peace and well-being that was independent of external conditions. The event is depicted with ever-increasing mythic elaboration as the tradition matures, but underneath all the legendary material the earliest textual strata seems to speak of awakening in more modest terms, as the overcoming of inner obstacles, the purification of the mind from its psychological toxins, the healing of an illness, or the waking (*Buddha*) from slumber. More importantly, this awakening is said to be accessible to anyone in this lifetime who is willing and able to engage with a very demanding path of moral behavior, mental training, and deepening understanding. The Buddha spent the remaining 45 years of his life walking the breadth of the Ganges plain, sharing his understanding of how suffering manifests in human experience, how it may be healed through the cultivation of nonattachment, and inspiring a community of monks, nuns, and laypeople along a path leading to the cessation of suffering.

There are many ways the Buddha innovated the meditation traditions he inherited, and these have much to do with how mindfulness is understood and practiced today. To begin with, he seems to have augmented, if not invented, the meaning of mindfulness (*sati*), to the extent it became the centerpiece of his contemplative training. The term *sati*, which is based on a word for memory, may originally have referred to the state of mind needed to recall from memory vast tracts of oral literature when chanting. The mind must be concentrated, surely, but also open to the flow-through of information. Unlike the one-pointed focus of the earlier yogic meditations, mindfulness meditation involves being attentive to the stream of consciousness as it naturally arises and passes away in the mind. The emphasis shifts from the imperturbable depths of concentration to the agility of attending to one thing after another without getting distracted by, absorbed into, or attached to the objects of experience. While the ancient yogis were trying to attain altered states of mind through the attenuation of consciousness, Buddhist monks and nuns were trying to notice everything that was happening naturally throughout the day with a heightened acuity of awareness. At its root, mindfulness means keeping things in mind, staying present to what is happening, being able to know or be aware of one's experience with great clarity as it is happening. This requires a good deal of concentration but goes further by putting this focus into motion, as it were, to observe everything very carefully as it occurs.

Another way Buddha added to what he received from previous tradition was to situate mental training of all kinds between the pillars of two parallel enterprises: moral integrity on one hand and penetrative wisdom on the other. Meditation, in the Buddha's view, is never meant to be practiced in isolation or as an end in itself, but is imbedded in a foundation of ethical behavior and culminates with insight into knowing and seeing for oneself things as they actually are.

Mindfulness and Integrity

Early contemplative practices investigated the nature of consciousness directly and derived their knowledge primarily from empirical observation. This being the case, it is a remarkable insight that moral integrity is seen to be a natural property of the mind,

rather than something ancillary. The Western religious and philosophical traditions are inclined to apply the laws of nature only to the material world, and have considered questions of value and normative behavior to be best addressed in the realms of religion, where it is the free choice of an agent outside the matrix of cause and effect, or of civic culture, where it becomes a matter of personal responsibility or social duty. In Buddhism, moral quality is seen as an essential quality of every episode of consciousness, in so far as each moment of awareness is shaped by an emotional response that can be known to be either wholesome, unwholesome, or ethically neutral. The moral value of a mind moment is defined by its effect, not only upon the outer world and others, but upon one's own stream of consciousness. It is unwholesome or unhealthy when it contributes to suffering and obscures wisdom, it is wholesome or healthy when it leads away from suffering and enhances wisdom, and in some cases neither occurs, and it is merely functional. Moral value is measured at three phases of experience: in states, behaviors, and traits: *states* of mind are those volitional emotional responses that are presently arisen and active in the mind, and constitute the phenomenological content of experience; *behaviors* are how these states are acted out in thought, word, or deed; and *traits* are the more abiding underlying patterns of character and personality that have been laid down by habit, learning, or conditioning as a residue of each volitional action. These three are all inter-related aspects of the same process, called *sankhāra* in Pali, and together account for the idiosyncratic construction of personality in a psychological model that is ultimately without a self. Another word for this process in ancient India was *karma*.

One tangible effect of this ethical component of experience is that moral integrity is a precondition for the efficacy of meditation. According to the early Buddhist teachings, the mind is simply unable to become concentrated if it is permeated with such unwholesome states as sensual desire, ill-will, restlessness, sluggishness, or doubt. These act as obstacles to mental tranquility, hindering the mind's ability to become focused and alert. The mind is not a neutral tool that can be used to regard inner emotional states from an objective viewpoint, but is itself permeated by and molded by the very states it is trying to observe. Using the mind to see itself is like using a telescope or microscope—if the lenses are obscured by dust or debris, agitated by vibration, incapable of adjustment, or if there is insufficient light, then it is impossible to see accurately what is present. So, too, the mind must be cleared of its hindrances, at least temporarily, before one can hope to use it to see into itself with any clarity.

The ethical valence of states, behaviors, and traits also allows some forms of meditation to become an activity of mental hygiene. Just as one might clean off a blotch on the face before stepping into public view, one might also choose to abandon a toxic emotion that has arisen in the mind. And just as one might take care not to soil oneself anew, a person can bring a mental scrupulousness to all they think, do, and say throughout the day, guarding against the sorts of situations known to provoke or sustain unwholesome states. The same works for wholesome factors, and learning to cultivate good qualities that have not yet arisen in the mind and reinforce those that have can also be an important way of wielding the power of mindfulness to help bring about psychological transformation. There are two simple but insightful principles at work here: (1) whatever one thinks or ponders upon will become the inclination of one's

mind; and (2) only one state can manifest in the stream of consciousness at a time, so when a wholesome state is present, an unwholesome state is excluded (and vice versa; Nānamoli & Bodhi, 1995, p. 208). In pointing out this way in which our minds work, the Buddha emphasizes the extent to which we all have a good deal of influence over what sort of person we become, by choosing ethically wholesome options at every opportunity and allowing unwholesome states to atrophy. This, too, is a significant expansion of mindfulness to cover all aspects of daily life, for the householder as well as the monastic.

Mindfulness and Wisdom

Just as mindfulness is rooted in mental integrity, so also it is meant to lead the way to wisdom. While the early yogis aspired to higher states of consciousness, the Buddhist meditator was after seeing directly into (*vipassanā*) the nature of experience and understanding its characteristics. Mindfulness is a tool for seeing things with enhanced presence and steadiness of gaze, but the work done by this tool is gaining insight into the way things are. It was understood that the mind is naturally beset with a distorted view of reality, in so far as meaning is constructed internally from the importation and interpretation of a vast array of data delivered to the mind by the senses, but the elements of the construction process can be seen directly, with wisdom, as they operate. As consciousness cognizes a sensory or mental object, perception interprets it, feeling assigns a corresponding hedonic valance to it, and volitional formations respond emotionally to it based upon existing behavioral traits and learned responses. Since all this happens again and again in moments of cognition that arise and pass away in rapid succession, it is customary and adaptive for the mind to conjure up and project onto experience such things as object constancy, narrative cohesion, and a more or less coherent sense of personal identity. The world of lived experience is a virtual world, in other words, and the early Buddhists recognized this by considering much of what we know to be under the influence of delusion.

Wisdom, which counteracts this delusion, involves overcoming the habitual misinterpretations that get us through the day, allowing our gaze to penetrate constructed appearances and see more subtle truths underlying common assumptions about ourselves and the world we inhabit. The first of these insights is into impermanence, the fact that nothing is stable, and all is fabricated. This is not questioning the stability of the external world, but refers to our own experience of the world. We are accustomed to using the word *world* to refer to what is “really out there,” but Buddhists use it in the sense of us all living in the *world* of our own constructed experience, our own virtual reality. It is not an ontological question about what really exists, but an epistemological issue of how our knowledge is synthesized. Through consistent practice of mindfulness meditation, one gets beyond the mere idea that everything changes and gradually develops a direct, visceral appreciation of the radical contingency of all phenomena. This insight into experience, a sort of “phenomenological intelligence,” serves to loosen attachment to what is wanted or not wanted and allows the mind to rest with equanimity in awareness of whatever is happening in the moment.

A second major breakthrough in understanding has to do with realizing the nature of suffering. Opening to what is uncomfortable, both physically and mentally, is an important first step away from the natural reflex to resist or ignore what is unpleasant and toward the acceptance without judgment of what is actually occurring in experience. With steady mindfulness, one can discern that all suffering is rooted, not in the nature of the object itself, but in our own response to the object. Just as stress is not an inherent property of anything existing in the outer world but is defined as an unhealthy internal response to an external influence (Kabat-Zinn, 1990), so also the Buddhists discriminate between pain, which is just a sensation of discomfort, and suffering as an emotional reaction to the pain. Suffering is thus something created in the mind and consists of an unskillful craving for pain to cease or for pleasure to persist. When one sees directly in one's own experience the way favoring and opposing all that is happening is itself the cause of suffering, one learns, too, that shifting or recontextualizing one's relationship to the objects of experience can result in the reduction and even cessation of suffering.

The signature Buddhist insight to which mindfulness practice leads is nonself. This is not to say that a self does not exist, but rather that it is as impermanent as everything else in nature and that its construction is rooted in the craving that causes suffering. The doctrine of nonself was a challenge to the Hindu sense of self (*ātman*), which was said to be ultimately real (*sat*), to consist of pure consciousness that needs no object (*cit*), and to be intrinsically blissful (*ānanda*). Each of these characterizations is undermined in the direct experience of moment-to-moment mindful awareness of the stream of consciousness as it unfolds in human experience. First, the substantiality of consciousness is refuted by seeing the relentless rise and fall of one moment of consciousness after another, each involving its own instantaneous birth and death. Permanence and constancy are ideas constructed as mental fictions to help bring some stability to experience, but do not hold up under direct phenomenological observation. Second, similarly, since consciousness is an emergent property dependent upon the senses and their objects rather than an independently existing entity, it is thoroughly contingent. Every moment of consciousness can be seen empirically as an event requiring the interaction of an organ (eye, ear, nose, tongue, body, mind) and a corresponding object (sights, sounds, smells, tastes, touches, thoughts). One is always aware of something (an object) *by means of* something (an organ), which renders consciousness itself, the six ways of knowing (seeing, hearing, smelling, tasting, touching, thinking), a naturally caused event rather than a transcendent reality. Third, the final claim of blissfulness is also more an idea than an experience, in so far as the feeling tones of pleasure and pain can be observed to arise dependent on conditions, and cease when those conditions change. When two sticks are rubbed together, heat is produced, but when the contact ceases the corresponding heat no longer occurs (Bodhi, 2000, p. 597). Sustained mindfulness practice will reveal that there is indeed a sense of self produced every moment when craving takes place, such that one has the sense of being a person who likes or does not like what is happening. But that self will vanish as soon as the moment passes away, is conditioned like everything else in the natural world, and will experience pleasure and pain in more or less equal proportions. This is a far cry from the transcendent spiritual essence the self is often assumed to be.

What Is Mindfulness?

Now that we have seen that the Buddha was heir to a rich contemplative tradition extending back centuries, and that he redirected the concentration practices of his era to be rooted in ethical integrity and to lead toward understanding experience in transformative ways, it remains to address the question of mindfulness itself. What exactly is happening in the mind of those meditators sitting immobile with legs crossed, back straight, and eyes hooded, with perhaps the hint of a smile on their faces? The Buddhist tradition possesses a sophisticated model of mind and body, and can actually answer this question with some precision (Olendzki, 2010, 2011). There are five different levels or modes of mental operation, each somewhat more complex than the previous as additional mental functions come in to play.

- 1 To begin with, all instances of coherent experience involve the interaction of many different systems and processes that co-occur in complex interdependence with one another. This is a model not of interconnected parts but of inter-related events. At its most basic level, all human experience is a flow of occurrences unfolding one after another with such rapidity that we normally engage with it at much higher levels of interpretation. A well-concentrated mind serves as a tool capable of zooming in below the threshold of ordinary awareness to reveal mental functioning more precisely. From this perspective, as we have seen, every moment of consciousness emerges from the interaction of a sense organ and a sense object, and involves an act of interpretive perception, a feeling tone on a spectrum between pleasure and pain, and some form of emotional and volitional response. In its simplest configuration, therefore, experience always consists of a single-pointed focus upon one of the six points of contact (five senses and the mind as sixth), along with the basic and universal mental functions of feeling, perception, intention, and attention. At this most rudimentary level of mental function, one is generally so embedded in experience that there is little or no metacognition. Although we are conscious enough to walk across a room without bumping in to anything, we are not really consciously aware of what we are doing much of the time—we just do it. This characterization of experience may well correlate with what has been identified as the default mode network of the brain (Raichle et al., 2001).
- 2 The sense of being consciously aware arises when additional mental systems become engaged, such as choosing where attention will be directed (as opposed to it merely responding to environmental stimuli) and choosing to hold the attention on a particular object. The ability to direct and sustain awareness on a chosen object contributes substantially to the sense of agency, and is our primary tool for problem solving and narrative construction. Conscious awareness is also augmented by qualities such as confidence, heightened energy, enthusiasm, and the initiation of bodily, verbal, or mental action. These more intentional mental functions come and go in experience depending on circumstances, interweaving with the less intentional default states, to yield a continuity of consciousness with both active and passive components. The second mode of mental functioning is this more active form when we have the sense of doing what we do deliberately, on purpose, or with conscious attention.

- 3 All this dynamic mental functioning is ethically neutral, but now moral valence enters the picture. According to Buddhist psychology, these mental factors are regularly augmented and modulated by either wholesome or unwholesome states of mind. When angry, hateful or greedy, for example, consciousness is colored by the additional factors of delusion and restlessness, and its inherent moral compass of conscience and respect for others is inhibited. Similar unwholesome emotional states such as conceit, avarice, envy, and cruelty take over the direction of the basic mental processes, and factors such as intention and attention are put to work causing suffering and creating harmful causes and effects (*karma*). These unhealthy states not only harm others by being enacted in behavior, but also lay down character traits in ourselves that cause difficulties downstream in the stream of consciousness as we inherit their detrimental effects in subsequent mind moments. Much of the difficulty we face as human beings, say the Buddhists, comes from this third mode of mental function, when the mind's activity is hijacked by toxic emotional patterns rooted in greed, hatred, and delusion. This is the cause of all suffering, from minor episodes of individual psychological discomfort to massive collective behaviors that destroy life and the living systems that support it. Although one can still direct attention deliberately, and one is capable of heightened concentration, there can be no true mindfulness when the mind is immersed in unwholesome states.
- 4 Fortunately, these unhealthy mental events are as episodic as everything else, and every ensuing mind moment holds an opportunity for change. The basic functions of the mind may also be pervaded and guided by wholesome emotional states, foremost of which is mindfulness, but loving kindness, compassion, and empathic joy are also examples of wholesome states. As an object is cognized by consciousness, it may also be regarded mindfully, which brings with it such states as confidence, equanimity, benevolence, and nonattachment, and which also preserves the full engagement with the innate ethical restraints of conscience and respect. Such moments are considered to be healthy, in the sense they contribute to clarity and point away from suffering, and skillful, in so far as they can be practiced and developed. Mindfulness is thus a mental *state* arising in the mind as a volitional attitude toward an object of experience that can be extended into *behavior* through acting, speaking, or thinking with equanimity, and can strengthen and develop as a personality *trait* through systematic practice. The reason mindfulness practice is considered so beneficial is that whenever mindfulness manifests in the mind as a state, unwholesome states are excluded from the mind stream, healthy behaviors are enacted, and wholesome traits are laid down and reinforced. The equanimity inherent in mindfulness avoids the twin errors of either reinforcing unwholesome states by embracing them and acting them out, or suppressing them with an aversive response, which may have a short-term benefit but will result in long-term difficulty. Mindfulness is a wholesome response that simply sees things as they are, without favoring or opposing, which allows for a radical nonattachment to all experience. Since craving and grasping are the primary causes of suffering, in the Buddhist analysis, learning to hold oneself in the midst of all experience with an attitude on nongrasping is inherently healing.

- 5 The culminating and thus optimal state of mental functioning involves the active manifestation of wisdom, by means of which one is capable of *understanding* experience rather than merely experiencing it, directing it, wielding it unskillfully, or even seeing it clearly with mindfulness. It is this fifth stage that is most transformative, in so far as the unhealthy emotions are seen to be impermanent, the cause of suffering, and ultimately without self. Seeing things in this way leads to what the Buddhists call disenchantment, emergence from the thrall of attachment and aversion, and dispassion, being able to relate to all experience with equanimity and understanding rather than with conditioned compulsion. In such states the psychological toxins find no footing and gradually dissipate, resulting in a person who not only has an ever-clearer mind and breaks the habit of taking everything personally but also acts with increasing integrity as an expression of their wisdom.

Mindfulness and the West

Twenty-five centuries lie between the time of the Buddha and the current age, centuries filled with remarkable twists and turns of Buddhist tradition. Moving northwest from their homeland in Northern India, the teachings gradually worked their way overland through Central Asia to China, Korea, Japan, and Tibet, changing and adapting to new civilizations, new languages, and new ideas as they went. More conservative traditions tried to maintain the early teachings as the movement spread southeast to Sri Lanka, Cambodia, Burma, Thailand, and the islands off the Asian mainland. The teachings on mindfulness were woven into every iteration of Buddhist thought and practice, even as the tradition diversified by incorporating new forms of philosophy, devotion, monasticism, social engagement, and the arts. Somehow the simple teaching of how to stay present to the inner life, how to be aware of what is arising and passing in immediate experience, remained at the heart of all forms of Buddhism. Whether one is chanting, studying, meditating, debating, or engaging in daily affairs, mindfulness is a crucial ingredient to the practices of a Buddhist in any of its manifestations.

Buddhist teachings entered Western experience through three main channels. First, it was transplanted by immigrant communities, primarily Chinese and Japanese workers coming to California in the 19th century, and Tibetan and Southeast Asian population displacements in the 20th century. Second, Buddhist thought gradually became known through the work of academics and intellectuals as the languages and literatures of the colonies became known to their civic administrators, as the museums of Europe filled with exotic artifacts, and as the fields of ethnography and comparative religion took shape in Western universities. Finally, mostly in the 20th century, a number of Eastern teachers came West, and Western students went East to engage directly with the practice of meditation and the experiential investigation of ancient doctrines. The early phases of this encounter were of course fraught with misunderstandings and shallow caricatures, but the depth and sophistication of mutual understanding have grown steadily. The postwar countercultural generation in particular became intrigued with the arts and sciences exploring the inner rather than outer dimensions of human experience, and meditation was found at the heart of an array of new approaches to spirituality.

Among the historical factors that helped make meditation practices accessible in the West, in addition to the dislodging of Buddhist teachers from their indigenous settings by war and invasion, were reform movements within Burma, Thailand, and Sri Lanka. In Burma, Mahāsi Sayadaw and U Ba Khin led movements to make intensive meditation retreats, which were largely the province of monks, accessible to lay householders in great numbers. Retreat centers flourished, first in Burma and then in India and other countries, and lay in the path of wandering Western youths who learned the practices of insight meditation in Bodhgaya and elsewhere in Asia and brought them back to their homelands. In Thailand, a forest practice tradition developed alongside the mainstream state religion, and teachers like Ajahn Chah and Buddhadāsa were particularly welcoming of the foreigners who were making the rounds on their spiritual journeys. Sri Lanka became home to a whole generation of British and German scholar monks such as Bhikkhus Nānamoli and Nānaponika, and nuns such as Ayya Khema, who turned away from the conflicts of Europe in the middle of the century and found refuge in southern monasteries. So it is that mindfulness, which is present in all Buddhist schools but is most explicitly emphasized in the Theravada Buddhism of these countries, was poised by the end of the twentieth century to have a major impact upon the mainstream cultures of North America, Europe, and Australia.

Throughout its history, as Buddhism moved from country to country, it adapted to local custom in the short run and transformed local culture in the long run. When transferred from a more developed to a less developed civilization, the importation and embrace of the tradition by the receiving culture were near total; such is the case as Buddhism moved into Sri Lanka and Tibet from India and into Korea and Japan from China. When the transition is between more equal partners, as from India to China and, one might argue, from Asia in general to the West in general, it is a more gradual process that takes much longer to have a significant impact. It was centuries before Buddhism was well understood in China, and its influence on the West is only now being strongly felt, 200 years after first significant contact. A tipping point was reached when well-educated native Chinese understood that Buddhism offered something quite different from Taoism and Confucianism, and this is when uniquely Chinese forms such as Ch'an and Pure Land Buddhism emerged and took root. We may be reaching a similar point of quickening influence in the early years of the 21st century, as Buddhism gradually comes into view as preserving a unique and valuable perspective—an inner perspective—that has little counterpart in Indo-European or Judeo-Christian tradition. The emerging global civilization is unlikely to be converted to Buddhism, but almost surely will become significantly transformed by Buddhism.

While Buddhist ideas encountered and syncretized with Bon in Tibet, Shinto in Japan, and various forms of animism throughout Southeast Asian, the native traditions it engages with in America and the West include such things as science, materialism, psychology, romanticism, commercialism, and New Age thinking. It is inevitable that contemporary Buddhist understanding would be molded by these perspectives and that it would go through various stages of development in the process. Who knows how far along we are on this continuum, but it seems significant that the traditional Buddhist notion of mindfulness is entering mainstream discourse in at least two places. One is among the scientific community, which is engaged in an important new research agenda to study and understand consciousness. The other is among psychologists,

who are drawing upon the introspective practices of ancient India in their treatment of emotional suffering.

Mindfulness and Healing

Western psychology grew out of the field of natural philosophy, which only recently began incorporating Eastern perspectives into its theoretical frameworks. Early psychologists (Wundt, Titchener) used introspection as an approach to learning about the mind and behavior, but this approach was soon abandoned and replaced by behaviorism, which appeared a much more objective way of studying the mind scientifically. Behaviorists (Watson, Skinner) were famously uninterested in consciousness itself, preferring to measure input stimuli and output responses but treating the mind itself like a black box, which should not, and perhaps could not, be penetrated. Attitudes toward consciousness as a legitimate field of inquiry began to loosen up midcentury as computers came online and were used as a model for human intelligence, and changed more dramatically with the maturing of the cognitive revolution and with new directions in neuroscience around the turn of the millennium. As consciousness itself became an acceptable topic of investigation, mindfulness emerged from monasteries and spiritual retreat centers and moved into the laboratory as a tool for accessing internal states. The new scanner technologies that allowed access to mapping brain activity from a third-person perspective needed to be integrated with first-person reporting of the subject, and meditation training proved a valuable way of accessing this. Researchers were also interested in gaining a better understanding of the states of mind exhibited by all forms of meditation, and looked carefully at what neuronal mechanisms are associated with various nonordinary states of consciousness. The collaboration between traditional Buddhist meditation practices and cutting edge scientific research techniques is perhaps best symbolized by images of Buddhist monks wired up with electrodes or emerging from fMRI machines. While traditional religious views subordinated materiality to spirit, and conventional scientific assumptions reduce consciousness to materiality, there is some indication that new models for understanding the mind as a “middle way” between these two alternatives are emerging from this cooperation, promising a true integration of both objective and subjective perspectives (Thompson, 2007).

An appreciation of the value of mindfulness as a contributor to both physical and mental health has also developed over the last few decades as modern psychology, increasingly influenced by medical paradigms, concerns itself with repairing damage inflicted by trauma and restoring health compromised by illness. Buddhist sages have always been represented as profoundly peaceful and healthy, for reasons rooted in their own mental skills rather than in divine grace, and researchers became interested in investigating whether the practices of mindfulness, meditation, and inner transformation might be somehow quantifiable, repeatable, and applicable to anyone. Early projects looked at the physiological effects of Transcendental Meditation and Zen meditation, and were encouraging. The field gained momentum when Herbert Benson identified a “relaxation response” that can be induced by anyone repeating any word consistently to induce a state of concentration, and when Jon

Kabat-Zinn began introducing meditation practices into medical settings in what has come to be known as mindfulness-based stress reduction. In both cases, the calming of the mind could be seen to have a direct influence on calming the body, which measurably increased the effectiveness of the immune system and contributed to other healthy effects. Now, it seems as if there is almost no field of human endeavor that would not benefit from meditation. Mindfulness training is being introduced to a host of secular settings such as hospitals, schools, and prisons, and is being applied to a wide array of activities such as caregiving, recovery, conflict resolution, sports, and performance enhancement generally. Mindfulness also seems to be a key component in the many forms of positive psychology that are steering the field away from its medical roots and extending into an open-ended exploration of human flourishing.

As a tool for psychological healing, mindfulness has been having an impact on a number of new treatment modalities that have emerged in recent decades, such as cognitive-behavioral therapies, acceptance and commitment therapy, dialectical-behavioral therapy, and others (Germer, Siegel, & Fulton, 2005). What these approaches have in common is a tendency to view the mind as a series of interdependent processes rather than as the interaction of structures, and a belief that mental health is augmented by allowing the flow-through of experience rather than trying to inhibit, resist, or mold it in a particular way. Traditional Buddhist insights that stem from mindfulness practice, such as seeing the impermanence, the interdependence, and the impersonality of mental events, can be brought to bear on dysfunctional mental habits and disorders. For example, learning to trust that various mental states will naturally arise under certain conditions, but that they will just as naturally pass away when those conditions change, can be of immense help to those struggling with anxieties, compulsions, addictions, or related uncomfortable and unwelcome mind states. Similarly, learning to see arisen mental states as not belonging to or defining a particular construction of self can help one who is caught in identifying with their depression, is afflicted by past trauma, or is learning to cope with a new disability. Learning to face mindfully the textures of chronic pain or emotional distress rather than avoid them with fear can help one see that while pain might be an inevitable component of human existence, the suffering it gives rise to can be modulated by a range of more skillful emotional responses. In particular, understanding the self to be a contingent fabrication that takes different forms under changing circumstances, rather than being a fixed entity with fixed characteristics, can help anyone gain comfort and empowerment in any difficult situation. Mindfulness helps us release our grasp on conceptual definitions of ourselves that may have been built up over years from habit and conditioning, and open to the freedom of recreating ourselves anew each moment.

With its roots in ancient India and its branches now spreading their leaves throughout our world, it remains to be seen what fruits will ripen on this tree of mindfulness. It is remarkable that we even have access to the contemplative arts of our distant ancestors, and we owe a debt of gratitude to the many generations who have kept this lore alive over so many centuries. The inner knowledge accessed by the investigation of our own experience promises to complete us as human beings, uniting the interior and exterior aspects of our nature in ways that have not been possible until now. Our future well-being may well depend upon our ability to understand and transform ourselves at least as well as we do the world around us.

Mindfulness and Mindlessness

All that has been said so far has focused upon mindfulness as an element of the Buddhist meditation tradition. The term mindfulness has also been applied to a field of psychological and social science research that studies the beneficial effects of attention in general, and to heightened attention in particular, and applies these benefits to fields such as education. Ellen Langer has been a pioneer in this field who began by studying various forms of what she has called mindlessness (Langer, 1989). It was illuminating to reveal the extent to which normal human functioning takes place with little deliberate attention, and how much of what people do each day is governed by unconscious decision-making and the passive response to cues. A considerable body of research has documented the scope of this lack of conscious attention in numerous contexts, and points to its detrimental effects upon a range of endeavors. The reversal of this phenomenon calls for mindfulness, used in this context to indicate a state of greater consciousness, heightened awareness, and more developed powers of attention and creativity. This maps on to the five-part model described above as primarily emphasizing the differences between the first and second level of functioning, namely when we are not paying attention and when we are. When functioning within the rudimentary default mode network, much of what we think is habitual and unexamined, and most of what we do is automatic and reflexive. While calling this mindlessness might be an overstatement, we are certainly working with less than our full complement of mental faculties. When attention is deliberately aroused, directed, placed, and sustained, things are very different, and Langer and colleagues have done much to dramatically demonstrate this contrast and present the benefits of heightened awareness.

Mindfulness as a concept in social psychology differs from Buddhist mindfulness in several ways. One difference is that social scientists stay firmly in the realm of conceptual thinking, using the term mindfulness to refer to ways of sharpening and even augmenting the use of what in Buddhism are called “mental objects,” while in more traditional Buddhist practices mindfulness training is more apt to pull attention away from the “mind door” and place it more fully on the data presenting at the “sense doors.” While Buddhists are largely trying to neutralize the symbolic narrative of the mind, social scientists are often trying to augment and improve it. Another contrast is the ethically neutral stance of so much scientific inquiry, compared to the fundamental role of ethics in early Buddhist mental training. Mindfulness in Buddhist practice is not meant to increase the efficiency of the mind as much as to help transform its quality, and that quality is measured on a scale of ethical wholesomeness and unwholesomeness. Learning to see how much harm comes from mindless behavior is indeed beneficial, but issues of ethical integrity do not lie at the heart of the social scientific study of mindfulness as they do in the Buddhist tradition.

A third difference between the two uses of the word mindfulness has to do with the role of equanimity. As the term is defined above in the Buddhist context, the presence of equanimity as a mental state in the mind at the moment of cognizing an object is a crucial part of the definition of mindfulness. One is always attentive to something, when consciously directed attention is heightened and intentionally wielded, but it is only when coupled with equanimity—neither favoring nor opposing what one sees, hears, touches, or thinks—that attention evolves into mindfulness. This

distinction is entirely lacking in the social scientific sense of the word, although the benefits of keeping an open mind and the nonattachment to pre-existing views are clearly recognized.

Despite these distinctions, there are also similarities. Both senses of the term share the goal of steering human experience in healthier directions, and both are involved with enhancing bottom-up processing in the brain. Part of what we experience comes into the mind from the senses, but this is heavily mediated and interpreted by top-down processes that impose assumptions upon incoming data and modify experience in ways that are comfortable and familiar. As Langer has demonstrated well, a person's established views and assumptions, called by her their "mindset," impose themselves upon incoming data and greatly narrow the possible range of interpretation and response. Recognizing that this is happening, and working to soften the pre-existing contexts and strengthen the freshness of new information, is something that both forms of mindfulness have in common. Both approaches, too, are working to enhance human flourishing, and thus share a natural affinity. It is likely that the two fields will continue to inform and expand one another as interest in mindfulness continues to grow.

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5

Mindfulness Meditation from the Eastern Inner Science Tradition

Carin Muhr and Lene Handberg

Introduction

Based on the work of Buddhist scholars from Nalanda University such as Vasubandhu (fifth century AD), Kamalaśīla, (c. AD 740–796) and Atīśa (c. AD 982–1054) traditional Mindfulness training is presented herein from the point of view of the interrelatedness of phenomenal reality called *Pratītyasamutpāda* (Sanskrit), *tendrel* (Tibetan), or “unity in duality” (UD),¹ as taught by the Tibetan scholar, Tarab Tulku (1935–2004).² This view examines the interrelated nature of reality using a polar framework of “subject–object,” “body–mind,” and “energy–matter” that will be expounded below together with an analysis and investigation of perception on gross as well as subtle levels.

Mindfulness, as used above and when capitalized herein, refers to the Nalanda University related traditional Buddhist spiritual discipline of “the four mindfulness meditations”³ (of body, feeling, mind, and phenomena), which is a meditative investigation into the nature of reality that helps the practitioner to realize the nature of reality and the attainment of spiritual goals. In this work, we briefly explain these traditional practices, aims, and viewpoint, and explore ways in which these methods can be applied in ordinary circumstances to improve psychological and general health.

In the first part of this chapter, we will discuss some of the main theorems underlying Eastern inner science⁴ (EIS) and traditional Mindfulness training in particular. We will also define terms and discuss the distinctions made between the gross material body and the subtle body, the body–mind and subject–object poles in the context of traditional Mindfulness meditation and UD. UD, as a term used herein, is synonymous with the term “tendrel,” as defined in note 1, and refers to the general view (and established education based on this view) that despite the appearance of separation, all phenomenal existents are interrelated and interdependent, and as such exist in both unity and duality.

In the second part, we will outline the meditative practices of Śamatha and Vipassanā, which are the foundational practices for the “four mindfulness meditations,” and in a secular context discuss the relevance of all these practices to personal development and general psychological health. The discussion will continue to elucidate the underlying theoretical and analytical framework of EIS as an approach to understanding, working with, and developing the mind. However, while monastics and serious lay practitioners who engage with these spiritual practices have as their ultimate goal the attainment of a fully realized mind, this work is much more limited in its scope, discussion, and application of these methods. This is in accord with the intentions of Tarab Tulku, who studied and compiled the universalities of ancient Eastern traditions and created UD, and whose view is well represented in this work. He encouraged the use of these traditionally spiritual investigative practices, which require a high degree of meditative discipline and accomplishment, but from a less elevated level for practical applications in personal development, art-of-relating,⁵ psychological health, and general well-being.

In the third part, we will discuss some of the similarities and differences between traditional Mindfulness practice and the mindfulness practices used in modern therapeutic psychology and in UD. We will also discuss the usefulness of the EIS theoretical framework in explaining the positive effects that have been demonstrated with modern mindfulness practice.

Basic Tenets, Terms, and Prerequisites for Traditional Mindfulness and UD

In this part, we review some basic tenets and define terms that are used in this work to discuss traditional Mindfulness meditation and related terms as they are used in UD.

Interrelated nature of reality and EIS

EIS traditionally includes meditative investigations and understandings of reality that are common to Buddhism, Hinduism, Jainism, and Brahmanism. Its achievements rest on insights acquired logically and empirically through meditative practices and contemplative investigations into the nature of existence and the interrelatedness of such distinctions as *body*, *mind*, and *reality*. This tradition developed sophisticated theorems of reality, which for the most part could be subsumed with the term *interrelated nature*, meaning that all of reality, everything existing, is relational, and that nothing, including the self, exists in and of itself in a static or isolated way.

According to the ontology of EIS, our entire experience of reality is interrelated with the mind. This is not a negation of the existence of external reality but merely an observation that experience is strictly a product of the mind and is limited to and shaped by the capabilities of the five senses and other mental faculties such as cognition, perception, language, and emotions. EIS holds that there are broader and subtler ranges of perception available to human experience that can be achieved through the

practice of Mindfulness meditation and the contemplation and cultivation of attention on mental and sensory phenomena.

Terms of analysis 1: Subject-object, mind-body, energy-matter Mindfulness practice utilizes a set of representative polar terms with which one can analyze the nature of experience and existence. Three polar terms are employed by Tarab Tulku to help illuminate the nature of our apprehension of reality (Tarab Tulku, 2002, 2006; Tarab Tulku & Handberg, 2005):

- 1 Subject-object: The subject-pole refers to the mind that perceives, and the object pole refers to the phenomena appearing to the perceiving mind. It is important to note here that the object pole does not refer to an external object but refers only to the phenomena appearing to the mind. The term also refers to the interrelationship between the subject-object poles, as they are mutually dependent and do not actually exist separately. On a deeper level of analysis, the subject refers to the body and mind of the perceiver, and the object is whatever actually exists and is showing properties or characteristics according to the way it is approached or perceived (i.e., through the body and mind). On this level of analysis, we call the object the *referential object* to refer to the nature or characteristic of the reality beyond our perception rather than the discrete object as ordinarily taken to mind through the senses and cognitive faculties. Similarly, we refer to the whole of reality (as it exists beyond our perceptive faculties) as *referential reality*. The subject and “referential object” are also interrelated, although in a different way than in ordinary perception. This idea is further elucidated herein (but briefly, as it is somewhat beyond the scope of this work) and particularly in the sections on the third and fourth mindfulness meditations.
- 2 Body-mind: Mind and body are interdependent. Without mind, the body does not function, and vice versa. The body, and its senses in particular, limits what and how phenomena can be perceived. In this tradition, a distinction is made regarding the body where it is physical in one aspect and energy in another; for example, the *subtle body* (defined further below), like the body in our dreams, is not a physical body but functions in similar ways.
- 3 Energy-matter: Energy in this sense refers to the very subtle nature of reality, well beyond the perceptions of ordinary minds, which, according to EIS, is the non-substantial potential field from which reality formation occurs and exists as matter (unfolded nature). Energy is considered as the enfolded order of reality and matter as the unfolded order. EIS holds that energy and matter are interrelated and in a dynamic flux at any given moment. However, although briefly discussed in the sections on the third and fourth mindfulness meditations, this polar relationship and its analytical use for radical transformation are beyond the scope of this chapter.

According to Tarab Tulku, these polarities are mutually dependent and have both dual and unified characteristics (Tarab Tulku, 2006). Because we experience the mind perceiving an object and the object as separate things, we can easily grasp the dual nature of the subject-object poles. Nevertheless, the perceiving mind and the object perceived arise in dependence upon each other and are therefore not separate entities

but are essential to each other and have the same root. It is in this sense that the subject-object poles are said to exist in unity with each other. The same is applied to the body-mind and energy-matter polarities. These poles are said to be unified, because what appears to be separate is found under analysis to be inseparable and having the same root, hence the term unity in duality.

While a full discussion of the referential object (as mentioned above in item 1) is beyond the scope of this work, it is discussed in some detail in the following sections on the third and fourth mindfulness practices. One important issue with regard to the subject-object polarity and the subject-“referential object” interrelationship is that these have different bases or roots. The subject-object poles are entirely rooted in the personal sphere where the object, as experienced, is a personal formation of reality. This ordinary object appearance should not be mistaken as the referential object, which root is of the universal sphere, no matter what it is or how it truly exists. The only reality we have any say in creating, particularly in the context of mental and physical health, is that which we ordinarily take to mind through our senses and other faculties, the object poles.

Terms of analysis 2: Types of mind and body The philosophy and practice of EIS examine reality on the basis of the interrelatedness of phenomena and the self-referential⁶ nature of experience, and provide an analysis of reality in terms of phenomena and mind. Phenomena are the objects of perception appearing to the mind (i.e., the idea of a table, a feeling, the form and color of a thing, etc.), and the mind is the subject of perception. The terms *mind* or *minds* are used herein to refer to the types or character of consciousness that experience phenomena. The mind is categorized into the five *sense minds* and a *sixth mind* that includes three subcategories: the *conceptual*, *feeling*, and *image minds*.

The physical body with the five basic senses (taste, touch, smell, sight, and hearing) provides the basis for perception. The sense organs and sense abilities are considered as faculties of the five sense minds that directly perceive phenomena and are independent of cognitive functions (language, labels, memory, concepts, etc.).

The *sixth mind* constitutes mental factors such as feeling, thinking, image and representation, cognition, memory, and so on, and is categorized into three minds, the *conceptual*, *feeling*, and *image minds*. An additional category of *subtle bodies* is included in the category of the sixth mind,⁷ that is, these do not belong to the category of the five sense minds.

A *subtle body* is, for instance, the body in our dreams. When dreaming, we rely on the dream body to sense the world, just as we rely on the physical body when awake, but the dream body has a greater and more subtle range of sensory capabilities and a wider range of bodily abilities (e.g., flying). EIS holds that the subtle body and subtle mind have a wider range of perception and movement than the physical body and ordinary mind.

Although we could discuss a number of levels of subtle embodiment from the ordinary body in dreams to the body used for focused imagination or visualization and onward, the terms subtle body and mind are used herein to refer to the body used by very advanced spiritual practitioners who have achieved Śamatha and Vipassanā, and are well practiced in Mindfulness. At this level, advanced practitioners train to extend

their subtle body and mind in manifest referential reality. Such experiences are held to be real in the sense that they are not imagined or necessarily private.

Subtle bodies and minds of the sort discussed above are the rare result of extensive spiritually based body–mind training and proceed in stages where the practitioner gains awareness of ever-more subtle aspects of body, mind, and reality. The early stages of such training are focused on balancing and stabilizing the mind in ways and with aims that are different from, but not entirely unlike, those of modern psychology.

UD has adapted these methods of training and applies them to more ordinary aims such as personal development and psychological health. In this regard, we introduce the term *imagery-body*, which is akin to subtle body but at a much less elevated level. At the most basic level, the imagery-body is the same as that used by athletes and artists, for example when a gymnast or musician mentally rehearses the physical movements of their craft. This technique is also used in modern psychotherapy and called by different names such as guided practice, embodied imagination, and so on. But at this level, the imagery-body is still a private experience. At more advanced levels of imagery-body, we can begin to experience the commons of manifest referential reality at more subtle levels than available through the physical senses and ordinary capacities of the sixth mind. These distinctions will become clearer as we proceed.

In the remaining part of this section, we continue to use the term subtle body, but it should be considered that the term imagery-body applies generally and analogously to the discussion as well.

EIS asserts that the mind and body, experienced at any level from the gross physical to very subtle, are mutually dependent, interrelated phenomena and that the mind always has an embodiment of some kind as the basis for experience. EIS further posits the subtle body and mind as real and concurrent with subtle realities. Mindfulness training and UD cultivate awareness based on subtle embodiments, and concurrently develop more subtle mental capacities, albeit at different levels, but in the early stages they are similar. The subtle embodiments allow for a more extensive and less projective (e.g., in the sense of conceptual interpretation) experience of reality.

The ordinary activities of mind arise on a *momentary* basis and operate through the capacities of the five sense minds and/or aspects of the sixth mind⁸ (conceptual, feeling, image minds, and subtle body senses). None of these minds can directly experience another mind's domain. Each sense mind's way of experiencing is unique, as are each of the aspects of the sixth mind; for example, the conceptual mind can only experience words and ideas, or *conceptual reality*, which is not accessible by any other types of mind. While functioning uniquely, all of the minds influence experience, particularly that of the three sixth minds, and more so when we are conceptually or emotionally dominated.

Normally, according to EIS, in the waking state we experience sense reality by means of the sense minds. The mind experiences phenomena through the physical body's five senses, becoming the respective five sense minds. According to EIS, no mind is waiting to experience but arises momentarily when the right conditions are present, in this case, when there are functional senses and referential object of the respective sense mind. Also that means that the individual sense mind and the referential sense object arise simultaneously.

The sixth mind has three parts, of which, one, the conceptual mind, operates through means that are *indirect* inasmuch as it abstracts and uses language as the basis for perceiving/cognizing/experiencing the object. The other parts, the feeling and image minds, provide *direct* means to experience phenomena, because they don't use abstraction and language for perception and therefore cannot add or delete anything. These three minds and the subtle bodies are outlined below. The subtle bodies are included here because their nature is not based on the physical body, and they are thus considered part of the sixth mind.

- 1 Sixth mind: Tarab Tulku explicitly categorizes the sixth mind into three types of mind that are important for explaining the dynamics of mind, and which he holds to be implicit in the Sutras and Tantras.⁹
- 2 The *conceptual mind*¹⁰ experiences only by means of naming and language, and thereby generates a dynamic, momentary, abstract, and generalized experience of reality.
- 3 *Image mind* provides the three-dimensional experience of form and space. For example, visual and aural sensory information gives us mental images of the spatial characteristics of phenomena such as distance and dimension, like visual images of objects such as a chair or table, and aural images provide spatial characteristics of place and distance. The image mind operates momentarily through its perceptive capacities, giving us a dynamic field of image reality.
- 4 The *feeling mind*¹¹ provides, for instance, the basic evaluative feeling experience as supportive, neutral, or negative regarding the continuation of existence, and on this basis we conceptually make further judgments and evaluations, and take actions accordingly. Feeling in this context does not refer to the language labels we ordinarily apply to our feelings; that is the role of the conceptual mind. The feeling mind, while able to experience qualities of feeling (e.g., intuition, instinct, empathy, emotion, feeling-tone, self-referential feeling, deep meditative states), is not capable of labeling its object. In this sense, the feeling mind is characterized by touching and uniting with its object, subject and object poles being inseparably together (e.g., the feeling of the feeling mind is feeling)—it provides a unified way of experiencing. The feeling mind operates momentarily and is unique because it is the only mind that is naturally unifying.

When conceptually and emotionally dominated, the experience of the image mind is specifically responsive to what the conceptual mind names, and on this basis the feeling mind gives rise to experiences of emotions, happiness, and so on. To a high degree, our normal human experience in modern cultures is based on the perceptions of the conceptual mind, which is dependent on sense minds, which is again dependent upon the physical body's sense organs. Experience is thus strongly connected with the conceptual mind and the physical body.

The conceptual mind is by nature selective in its capacity to render phenomena empirically or experientially. Only that which is named becomes part of the conceptual reality. It is because of the abstraction, generalization, and selectivity of language that the conceptual mind enables us to compare and analyze phenomena, by naming

only particulars of interest to represent the whole of an object (the rest staying conceptually unnoticed). The conceptual cognitive capacity naturally and subconsciously screens out the particulars it doesn't name. It can also add information to the perception of sense reality such as ideas about ownership, intention, causation, quality, value, and so on by force of habit, acculturation, education, and past experience, and so on. The conceptual mind can also recall the past and predict future events. Because the conceptual mind is limited to interpreting the selected sense data, rather than experiencing them directly and completely in their interrelated complexity, it has no inherent capacity to directly experience sense reality or to have any other direct experience of reality.

According to EIS, it is possible to experience phenomena without engaging the conceptual mind, in other words, without naming or thinking about that which we perceive, though this way of experiencing is very different and unconventional compared with normal conceptual experience. Where the experience of conceptual mind is considered a generalization and abstraction of sensory and other experiences, and therefore indirect, the feeling and image categories of sixth mind are seen as direct experience¹² (inasmuch as they do not use language).

The three types of sixth mind represent specific ways in which we experience reality, and two of these correspond with the sense fields. The body sense, and senses of taste and smell (subject and object poles being naturally unified), are in this manner similar to the *feeling* mind, and seeing and hearing (perceiving image, space, and dimension) are similar to the *image* mind of experiencing form and spatial relations.

Because the feeling and image minds perceive directly, their experience is contemporaneous with whatever is presented to them. Nevertheless, while the experience of the feeling and image minds may be direct and in the present moment, it should be noted that we cannot absolutely and directly experience the “referential object” with any type of mind.¹³ This is because all minds have limited and specific perceptual faculties, which, in meeting with the referential object, determine the way reality appears. This counts equally for direct and indirect ways of experiencing.

Furthermore, it should be mentioned that the five sense minds (subject poles) and their respective objects (object poles) are seen as being interrelated and separate from each other, with no overlapping perception. The five sense minds and the three sixth minds all independently perceive their object. Each mind has a subject and object pole, as these are inherent in the nature of perception. These minds are interrelated, but there is no overlapping perception or sharing of one mind's object pole with another mind.

For example, the eye sense mind perceives an object, let's say the form and color of a bird, and the hearing mind perceives its object, the sound of a bird's song, at the same time. The ear and the eye senses perceive independently of each other with no overlap. Like the five sense minds, the conceptual, feeling, and image minds are respectively interrelated but with no overlapping perception. All the minds are interrelated, which may lead to the composite experience of a “beautiful singing bird,” but this experience is a product of the interrelationship and cooperation of perceived phenomena.

EIS distinguishes different subtleties of body and mind. On the most apparent level, that of conceptual mind and the gross physical body, we have the least subtle and most common and dominant of all body-mind experiences. Through traditional

Mindfulness practices, a subtle body–mind basis for experience is cultivated. The subtle body and mind have the basis of the sixth mind. EIS states that with the subtle mind and body, we have the capacity to experience subtleties of referential reality. The ability to use subtle body and mind requires special training and practice, and, once accomplished, the experience of referential reality becomes deeper and more extensive. An adept experiences reality according to the subtlety of the body and mind they have engaged. Just as in ordinary dreams, although in this case the experience is veridical, the dimensions of time and space may open up (at random or upon mastering this body–mind), and aspects of body and mind such as intuition, perception, and freedom of movement are greatly enhanced.

All of the minds discussed, for those who are mindful of them, give very different experiences of reality. While we conventionally do not pay close attention to anything but the conceptual mind, with greater awareness our experience of reality could be very different and much deeper and broader than ordinarily experienced.

Traditional Mindfulness and UD Mindfulness for Physical and Mental Health and Traditional Mindfulness and UD Mindfulness for Spiritual Ends

The body–mind basis for traditional Mindfulness

The achievement of Śamatha meditation practice is a prerequisite for practice of the four Mindfulness meditations. Śamatha is a type of meditation practice that implies a shift from conceptual dominance to the dominance of the directly perceiving minds, and it also implies a shift to a more subtle body base. The practice and attainments of Śamatha are beyond the scope of this chapter; however the preliminary result of this practice is a stable and calm mind. The practitioner trains to focus on an object without effort or distraction from random thoughts, memories, disturbing emotions, sleepiness, and so on—as long as one wishes. This ability is often referred to as one-pointed concentration.

On the basis of this first part of Śamatha attainment, training in visualizing and mastery of the first level of subtle body–mind and the subtle sight mind in particular can begin. Visualization, which implies the use of the subtle body visual sense mind to see, provides a method for training in using the subtle body, for instance in connection with the Mindfulness investigations, to experiencing the nature of increasingly deeper levels of reality.

In Śamatha attainment:

- 1 there is the ability in particular to use the first level of the subtle body's eye-sense mind with the same acuity as that of the physical eye-sense mind resulting in very clear visualizations;
- 2 one-pointed concentration is the ability to stay with the visualization or feeling mind object for as long as one wishes.

These two points make the Traditional Mindfulness Meditations a “high practice.”

In accordance with Vasubandhu and others, the four Traditional Mindfulness Meditations are practiced in three consecutive stages:

- 1 Šamatha: one-pointed meditation attainment, using subtle body;
- 2 Vipassanā: investigative Mindfulness meditation based on Šamatha attainment, realizing the nature of the object under investigation. (Vipassanā is explained below);
- 3 unity of Šamatha and Vipassanā: meditation merging with the realization of the object of investigation.

In the remaining discussion of these practices, our focus will shift from a description of the traditional application of the Mindfulness meditations and methods as a spiritual discipline to more practical applications for use in personal development and therapeutic methodology, as recommended and developed by Tarab Tulku under UD. In this framework, we refer to semi-Šamatha, semi-Vipassanā, and semi-*Unity of Šamatha and Vipassanā*.

Semi-Šamatha: One-pointed UD meditation attainment—using imagery-body Since Šamatha practice is not simple, and very few people attain its goal of using the subtle body as a basis for experience, Tarab Tulku suggests that for personal development and psychotherapeutic work, one can use an embodiment “in-between” our normal physical body and a subtle body, which is called an *imagery-body*. Imagery-body is the embodiment we use when daydreaming, for improving sport performances or the kind of embodiments that are used in guided psychotherapy. Imagery-body is connected with the energy level of the physical body and can be used for practical purposes, as described later.

But what is this imagery-body? In the Abhidharmakosa, Vasubandhu differentiates between two levels of body sensation: the ordinary body sensations of temperature, pressure, pain, etc., and deeper or subtle body sensations (Abidharmakosabhāṣyam, 1988). This deeper level of body sensation is connected to and experienced as the energy basis for the physical body. When connected with the latter, one gains access to a deeper and stronger inner presence and a deeper experience with regard to “other”¹⁴ phenomena in the perceptual field. An imagery-body, as the basis for investigation, thus provides the possibility for deeper insight into how specific, more superficial minds function and how their corresponding realities come about. This makes it more apparent to the practitioner how the mind is involved in the appearance of reality (object pole). Using imagery-body as described above, one comes to experience a deeper level of reality and, based upon directly perceiving minds, enables one to experience a larger number of particulars (object pole). It also enables one more easily to become one-pointed (i.e., not being conceptually determined).

Semi-Vipassanā: Investigative UD mindfulness meditation—based on semi-Šamatha attainment Semi-Vipassanā meditation is the analytical investigation¹⁵ into the nature of mind and phenomena. It requires a kind of being where the faculties of the subtle body provide the basis for the various minds being applied to the object under investigation. In this UD investigative meditation, one stays in contact with oneself

and the object of investigation using feeling-mind and image-mind on the basis of the imagery-body.

Using direct (nonlanguage) experience and awareness enables one to stay in contact with the causal and ever-changing-phenomenal-nature of reality, beyond language selection and fixation, providing a complete experience with all the particulars available (within the range and limitations of the particular body basis and perceptive faculty used).

Conceptual reality doesn't follow the changing process of the "referential reality"; it is a fixated reality, as its object is of an abstracted and generalized nature. For changing ideas, we conceptually rely on changing the words one by one, making up a different conceptual reality, which again is fixating reality in a new idea—in this way, it can of course address ever-changing reality, but only in general terms. However, rather than being the dominant mode of perception, on the basis of imagery-body and directly perceiving image and feeling realities, the conceptual mind is used in cooperation with the other types of mind and becomes a more subtle¹⁶ and very useful tool for investigation and realization, letting us stay in contact with the direct experience of the object under investigation.

Unity of semi-Śamatha and semi-Vipassanā: UD mindfulness meditation merging with the realization of the object of investigation When, through investigative mindfulness meditation, as described above, we reach a certain level of accomplishment or realization in connection with the nature of the object under investigation, we merge or unite with this realization of the nature of the object of investigation. This is, in a sense, a collapse of the subject-object dichotomy and is accomplished using imagery-body and feeling mind experience. We stay merged with the realization of the object's nature, as long as we wish, assimilating the realization.

The four Mindfulness meditations and UD mindfulness

According to Vasubandhu, the four Mindfulness meditations are as follows:

- Mindfulness of body;¹⁷
- Mindfulness of feeling-tone;¹⁸
- Mindfulness of mind;¹⁹
- Mindfulness of phenomena.²⁰

In the text (Abidharmakosabhasyam, 1988), it says: "You have to find the general and special characteristics of 'body,' 'feeling,' 'mind' and 'phenomena'." With "characteristics," they point to the specific nature of the subject-poles, the object-poles, and the referential object. Thus, the investigative field of the four Mindfulness practices encompasses investigation into the nature of all existence, first on the level of the conventional or ordinary experience of reality and then on deeper and more fundamental levels of reality, which is unconventional and extraordinary.

From a UD point of view, for personal growth and therapy, the most important aspects of these investigative methods pertain to developing an understanding of how

we participate in the appearance of ordinary reality. This investigation and the realization that follows give us the best opportunity to deal with ourselves and our reality in regard to our health and environment. Due to the limited scope of this presentation, even though we will present the fourth mindfulness training concerning phenomena, we will not analyze the “referential object” in much detail, because it is primarily relevant to spiritual practice and much less relevant to mental and somatic health issues. The remaining portion of this section presents suggestions from a UD point of view only of the investigative part of the mindfulness meditations, as that is most relevant in this context, all of which should be done on the basis of imagery-body.

First Mindfulness: UD mindfulness on “body”²¹ and corresponding “phenomena”

In traditional Mindfulness, the term “body” refers to any form or embodiment of one’s entity existence that is present to the sense minds and the sixth mind, including but not limited to the physical body. However, in UD, in this context we are concerned only with the investigation of our physical human body and its five sense minds, especially the body sense.

The body sense, in this context of mindfulness, includes all of the five basic senses (touch, smell, taste, sight, and hearing), but *touch* is inadequate to describe the totality of body sense. The somatic body sense in particular is very complex, a fact that is often taken for granted, and includes touch (pressure), temperature, pain and pleasure, movement, weight, and energy, and provides a wide range of gross and subtle sensations.²² As we discuss the body sense, it is important to keep in mind the gross and subtle levels of sensation and the great depth and range of the sense minds.

According to EIS, specifically Dignaga (AD 480–540) and later Dharmakirti (AD 600–660), the five sense minds perceive directly. They do not use language, so they have no ability to pick and choose or isolate, as we do conceptually when naming a particular aspect of the referential object in question. Since the sense minds don’t use language, they can only perceive in the present moment, and naturally and indiscriminately perceive what appears to them. To quote from Dharmakirti: “When the nature of a thing is cognized in direct perception all of its aspects are cognized ...” (Zwilling, 1976). “All of its aspects” refers only to the aspects that are available for the particular sense mind in a particular moment under any particular circumstance and within the range of this direct faculty, that is, the sense minds are not selective with regard to the range of sensory information acquired by them.

That the senses have a counteractive effect on emotions and other mental disturbances is well known in the West as well as in the East. Our languages are full of common expressions referring to this wisdom with sayings like “come back to your senses,” “count to ten,” and “take a deep breath,” all of which are meant to bring us back into the present and in touch with the common ground of human experience. Coming back to the present, which is possible only with direct perception, has a calming effect on the body and mind, and is an excellent antistressing method in itself (Grossman, Niemann, Schmidt, & Walach, 2004; Kabat-Zinn, 2003). The sense

experience has the power to counteract the conceptual mind's tendency to grasp and hold its perceptions by making available other particulars from the sense field that were previously excluded from the conceptual reality.

This is particularly important for personal development and psychotherapy. Vulnerable self-references like feelings of persecution, inferiority, or insecurity, and habitual fixations of conceptual reality, such as prejudices, cultural taboos, and phobias, tend to engender distressful mental experiences. These tendencies, helped by the conceptual mind, are normally mildly dissociative in the sense that they represent a disconnection from or loss of direct perception by the senses and are thereby unique to the perceiving individual. They are not generally shared by others, nor are they part of common human experience. These conceptual realities, while they appear real to the perceiver, never become reality for the senses. So, to come back to the sense experience is a great and perhaps necessary means to reconnect to reality and undercut illusory and destructive mental tendencies.

This practice of connecting to the sense minds also helps one to recover from destructive conceptual perceptions of self. Coming back to one's senses, especially at a deeper level, helps to overcome the gap between a grounded sense of self and the conceptual idea of self; it builds a sense of inner strength and self-presence, and undercuts the dissociative tendencies that naturally arise due to domination of the conceptual mind. Without these mitigating factors, the negative tendencies of the conceptual mind would cause or exacerbate stress and stress-related psychosomatic conditions. By practicing this method, one recovers a firm and stable ground of being and an increased sense of self-worth and self-confidence.

All of these mitigating factors help to reduce the experience of existential fear—fear of destruction of that which is conceptually identified as self. Such existential fear is basic to all negative emotions. Cultivating ordinary body sense and imagery-body sense and making this the self-referential basis of experience, rather than just the conceptual idea of oneself, help one to reduce and eventually eliminate the habit of engaging with destructive emotions.²³

Western culture and philosophy have placed much emphasis on reason, rationality, and logic in investigations of reality, almost exclusively through the use of conceptual thinking and an objective analysis of external phenomena. While this approach has made significant contributions to human understanding, relatively little attention has been focused on the inner nature of mind, body, experience, and the interrelated perception of reality, which is so fundamental to the approach found in EIS and UD and which is much more common in Eastern cultures. In modern times, with the media's relentless cultural dissemination and emphasis on individualism, materialism, and consumption, many people in the West (and increasingly those in the East) have largely lost touch with the body sense as the basis for a common human experience of reality. Due to the dominance of the conceptual mind, its view of reality fails to connect with common human perception of reality or to recognize the interrelatedness of phenomena, especially that of the mind, body, and reality. Because many people in modern cultures are not being united with direct experience of body sensations, they are showing early symptoms of dissociative or more severe disorders, which cause people to become sensitive and easily vulnerable, as supported by current research in this area (D. J. Siegel, 2010a).

Since all human beings have the same kind of senses and therefore sense experience (unless these are impaired), the sense reality is our common ground of reference. Seen from a personal development or psychotherapeutic perspective, it is strongly empowering for the individual to recognize this and to develop a common referential ground using the two levels of body sense and any other type of direct sensing. By developing a stronger connection to direct sense perception, one is better able to intuit the sensations of others and in conversation to better understand what they mean, a condition that would help to prevent many misunderstandings.

In UD, it is recommended that the practice of experiencing and connecting with the ordinary somatic body sense or imagery-body sense be conducted daily through meditation and/or by being generally mindful throughout the day when doing routine activities such as exercising, bathing, martial arts, and so on. Most important is that the mind is brought back into being aware of the body sense experience, preferably many times each day (and ultimately to maintain this awareness throughout the day), which will make one feel grounded, safe, and at home within.

Points of investigation in UD mindfulness meditation on body sense mind/reality:

- Do the sense minds experience past, present, or future?
- Can we have sense experience without using language?
- Do the sense minds pick and choose what they perceive or experience, of what is reflected within their range and respective perceptual fields?
- Do the sense experiences make available a shared, cross-cultural reality?
- Could the body sense counteract dissociative tendencies?
- Can the sense minds, especially body sense, counteract a narrow conceptually named field, especially when we are emotionally distressed or just stressed, and thereby bring us into a less projective and emotionally distressful condition?
- Would grounding by means of body sensing diminish fear?
- Does body sense open intuitive feeling when in contact with others?
- Do we have a deeper level of body sense through which we can contact a deeper inner strength in ourselves?

Special points of investigation—when firmly rooted in body sense mind/reality Normally, we consider sense reality to exist “out there,” independent of the senses, but the view of UD, resting on the shoulders of EIS, tells us that this is not so. If our senses were constructed differently, our sense reality would likewise be different, as is the case for other species. On this basis, we can consider the extent to which sense experience is based on the perceptual capacity of our senses, and therefore is internally determined, rather than as a direct experience of phenomena as they conventionally appear to exist “out there.”

For spiritual development, the relational nature of the sense field becomes very interesting and necessary to realize in order to go beyond the physical body and the sense realm, and to enter the deeper fields of existence, the spiritual realm.

Therefore, for advanced practitioners, who are firmly rooted in body-mind as the basis for investigation, and *for no one else*, the interrelation between the subject-pole and the object-pole of the sense realm could be investigated to determine whether the object-pole exists in and of itself on the outside.

Advantages found in UD mindfulness meditation on physical body sense mind/reality—on the basis of achieved equality between body sensing and conceptual perception:

- concordance with the common human basis (sense minds) of reality;
- connecting directly to the body sense brings awareness into the present and relieves stress;
- enhancing one's ability for clear, nonprojective communication;
- increased intuitive ability with self and others;
- decreased restlessness and existential fear;
- greater ability to deal more appropriately with difficult situations;
- reduced dissociative tendencies and related stress;
- reduction of habitual engagement with destructive emotions (fear, etc.) and related stress;
- supporting greater self-confidence and self-worth;
- increased capability for natural somatic healing.

Second Mindfulness: UD mindfulness on “feeling-tone” and corresponding “phenomena”

The next Mindfulness Meditation deals with feeling-tone.²⁴ According to UD, any living entity in existence has basic evaluative feeling-tone²⁵—not just humans and animals, even plants—based on attraction to that which feels as though it is sustaining the continuation of the entity's existence and rejection or avoidance of that which feels that it could hinder continuation. Evaluative feeling-tone is the initial stage of our actions in life—the feeling-tone is fundamental to action. Without evaluative feeling-tone or feeling in general, there would be no incentive to act.

According to EIS, the subtle, evaluative feeling-tone is always present with any mental experience. Connecting to the feeling-tone of mind means to connect with the sixth mind on a deeper and quieter level with an expanded feeling of oneself. Through this experience, it's possible to have a basic and united feeling of body and mind as well as of subject and object and at the same time a feeling of not being so separate from others.

Based on the sensations of the body and bringing awareness to the feeling-tone of mind helps to overcome the gap between the conceptual ideas of self and simply feeling oneself from inside. There are many levels of this unification, each level bringing one into deeper and stronger contact with one's inner feeling of being present.

Points of investigation in UD mindfulness meditation on feeling-tone/reality:

- Is there something that could be recognized as feeling-tone?
- Do we have evaluative feeling-tone in connection with any perception by either of the five sense minds and sixth minds?
- Is feeling-tone basic to what we choose to name conceptually and does it therefore become an important determining factor for our formation of reality and action?

- Does contacting basic feeling-tone one-pointedly counteract fear?
- Does contacting feeling tone counteract feelings of isolation and loneliness?

Advantages found in UD mindfulness meditation on feeling-tone/phenomena Reuniting through feeling-tone with oneself and others, counteracting the gap between the conceptual ideas of self and simply feeling oneself from inside:

- gives the individual a way to feel “at home” and safe;
- counteracts disassociation;
- gives a feeling of expansion, incorporating others, and counteracts feelings of loneliness, separation, and isolation;
- increases confidence about one’s feelings making one less vulnerable to doubt and manipulation;
- counteracts the gap between the conceptual ideas of self and simply feeling oneself from inside.

Third Mindfulness: UD mindfulness of “mind”²⁶ and corresponding “phenomena”

In EIS, mind is categorized into the five sense minds and the sixth mind, as already mentioned. The sense minds have been discussed, so here we have three types of sixth mind according to Tarab Tulku’s tripartition into conceptual mind, image mind, and feeling mind.

UD mindfulness investigation on mind—in regard to conceptual mind and corresponding conceptual phenomena/conceptual reality

EIS philosophers, realizing the interrelated nature of phenomena,²⁷ have not investigated mind (subject-pole) without also investigating its object (object-pole) and vice versa. And because realization of these interrelationships is valuable for health and relations with others, these are investigated here, too.

Dignaga (AD 480–540) and Dharmakirti (AD 650), the latter presenting Dignaga’s Pramāṇa work in a more understandable way, was the first to comprise and systematize Buddhist logic, rejecting the prevailing theory by claiming that the conceptual mind cannot directly perceive sense-reality. The conceptual mind can only perceive indirectly by means of the nonaffirmative generalization,²⁸ literally translated as “exclusion from the other.” In other words, the conceptual mind perceives by means of a “general differentiation of similars and dissimilars in one go,” mirroring the naturally inherent differentiation of similars and dissimilars²⁹ in regard to the sense object. This means that the conceptual mind’s object-pole is based only on the labels projected onto the object in question, giving an affirmative perception and thus achieving the abstraction and isolation of the perceived object. This way of perceiving is very different from that of the senses.

A consequence of the conceptual mind’s unconscious screening out of everything except that which is selected and named, thereby isolating its object, is great flexibility

and freedom to build conceptual reality. However, the conceptual reality seems to appear as an independent phenomenon existing “out there” in its own right, in the exact way we experience it. So apart from bringing about a way to grasp hold of and communicate about reality, the naming and language used, which is based on general differentiation of similars and dissimilars, at the same time conceals the abstract and nonaffirmative nature of the conceptual formation and all the unnamed particulars, whereby we easily mistake the conceptual object for the sense object. In other words, we incorrectly and unconsciously accept the conceptual object as one and the same as the sense object.

The way in which the conceptual mind conceals the individual nature of a phenomenon, by naming only selected aspects with labels and categories, is clearly expressed by Kamalashila, in his *Tattvasangrahanpanjika* (Zwilling, 1976):

Conceptual identification... is imputed upon numerically different particulars as their common character. ... conceptual cognition conceals the individual nature of those things by superimposing a unity upon them, which is its own creation. The superimposition of such a unity results in the particulars being conceived of as similar. (Zwilling, 1976)

The ability to abstract lifts the human mind out of the otherwise strong bondage to sense reality and paves the way for comparison, reasoning, and analysis, and thereby for thinking and reflection as well as for our specific human way of communication on the basis of language. Also, as already mentioned, it forms the basis for the great flexibility and freedom of mind that only humans are known to enjoy.

The ability of the conceptual mind to screen, isolate, and select aspects of observed phenomena has nothing but positive impacts, as long as there is a natural balance among the different ways of accessing reality. However, when the gross conceptual mind, with its specific conceptual reality, overly dominates, and especially if we are engaged with vulnerable self-referential feelings,³⁰ we create a problematic reality for ourselves. When the conceptual mind and its conceptual reality take over, there is little opportunity for direct sense experience, leaving us with nothing to counteract the deficiencies of the selected, named, and identified conceptual reality.

Abstraction by “general differentiation of similars and dissimilars in one go” as well as “naming” doesn’t simply define our conceptual relationship to the outer world; it also defines our conceptual relation to self. A dominant conceptual mind narrows the experience of self in the same way it limits that of phenomena conventionally perceived as outside oneself. Our modern world culture has an alienating effect on people with regard to their perceptions of self and other, which is normalized along with the increasing dominance of the conceptual mind. Many people in modern cultures experience a distance to everything, including to themselves, which often results in an experience of loneliness and emptiness, and, in the worst cases, can lead to paranoia and other desperate dissociative conditions, at times leading to suicide or violating aggressive behavior.

Based on that which is named through this abstracting process, the conceptual mind operates with the sense that its perception of a given experience or situation is complete, regardless of how many phenomenal aspects have or haven’t been conceptually addressed. Recognizing this, we are left with the conceptual freedom to create another

“complete idea” based on other chosen and named points of reference. In other words, this recognition leaves us with the great prospect of a highly flexible mind that is able to counteract the closed mindedness inherent with an overly dominant conceptual mind. This knowledge is already being used to a certain degree within counseling and psychotherapy today, as within the different types of therapeutic mindfulness practices. It should be further emphasized that, in accordance with EIS and UD, the conceptual mind has no direct³¹ means to distinguish between the conceptual reality and the sense reality, as the sense reality is not within its field of experience.

When the conceptual field overly dominates our sense field and thereby limits our ability to differentiate and generate a complete experience, our capacity for reality determination is severely narrowed, and this can have other important implications for how our reality formations are determined. For example, such limitation makes us much more easily manipulated, giving unnecessary influence to television, newspapers, the advertising industry, or our own preconceived ideas about who we are and what we can and cannot do, or to such vulnerable notions that other people are in some unrealistic way against us. An overly dominant conceptual mind narrows and limits our ability to perceive reality and gives too much access and power to these and other forms of reality determination.

But most importantly, while we often believe that we are using the sense minds, we are usually relying on conceptually and selectively formed descriptions of what has appeared to the senses. We thereby impair our natural ability to get our feet on the ground, to counteract or compensate the conceptual mind’s natural selectivity, when things are “getting out of hand” or “driving us out of our minds,” especially under emotional or mentally disturbed conditions. This is in accord with what Steven C. Hayes says in connection with training clients “not to take the map for the territory”: “The point is to begin to learn how to look at thoughts rather than looking at the world through thoughts, and to learn how to detect the difference” (Hayes, Follette, & Linehan, 2004).

For better or worse, people are free to choose what the conceptual mind names and therefore what becomes the basis for a given perception of reality. Nevertheless, people have a tendency to become habituated to certain perceptions of reality and are therefore conceptually dominated in ways that are certainly selective and may appear biased or even intentional, and this can occur at various levels of human interaction.

Everyone adopts culture in a particular way according to the specific environment in which one is raised. People assimilate cultural norms and social values into a uniquely conceived and conceptually based view of reality. On this basis, we can understand some of the fundamental reasons behind misunderstandings and clashes between cultures. Language, which is foundational to culture, also carries such biases and selectiveness even within the same or similar types of cultures. At the group, family, and individual levels, various and more idiosyncratic conceptual realities will form on a wider continuum between so-called normal and pathologically structured views of reality. For those who are conceptually dominated, it is very difficult to realize that none of these conceptual realities exist by themselves but are continuously reproduced through language, which is the basis of all conceptual thinking. At an individual level, due to different experiences in life, we create different self-referential imprints,³² for example

good versus vulnerable self-referential feelings. As the conceptual mind abstracts from sense-reality and as its experience appears on the basis of just a few selected and named points of reference of an otherwise complex and interrelated reality, it is particularly receptive to the prevailing imprints of self-referential feeling.

On the basis of a relatively permanent personal crisis, determined by prevailing vulnerable self-references, the conceptual selectiveness becomes increasingly idiosyncratic and pathological in terms of its lack of reference to a commonly shared sense reality. On a more permanent basis, where, through a force of habit, individuals mistake the appearance of conceptual reality as sense reality, persons may hallucinate under certain circumstances, especially when vulnerably loaded self-referential imprints take over—similar to nightmares, but in the waking state.

None of this diminishes the importance of the conceptual mind for our thinking, reasoning, analysis, and communication; in fact, we would appreciate this ability even more if we realized its flexible nature and its inability to directly perceive the sense field and the dynamic and ever-changing field of phenomena. For this and other reasons, we should also realize that conceptual reality should not stand alone but needs to be compensated by direct types of perceptions to get a more complete “picture” of the phenomenal field all together.

Points of investigation for UD mindfulness meditation in regard to conceptual mind and corresponding phenomena:

- Are the different sense realities and conceptual reality the same or different and in which way might they be different?
- Does the conceptual mind only have the perceptual means of using language in order to grasp its object (and in that way only has indirect access to the sense reality, etc.) or are there other means open to the conceptual mind?
- Does conceptual reality exist in and of itself on the outside or is it interrelated with the subject-pole?
- Investigate whether or not conceptual reality is a generalized and abstracted reality in line with Dignaga and Dharmakirti's analysis as outlined above, and whether or not the conceptual mind screens out what it doesn't name, not knowing that it screens anything out; and whether conceptual mind therefore by nature isolates what it addresses.

Advantages found in UD mindfulness meditation—regarding conceptual mind and corresponding phenomena, on realizing that conceptual reality is not the same as sense reality and that conceptual reality doesn't exist out there in and of itself:

- provide a choice in how to build conceptual reality and change it by naming some other particulars;
- no longer determine so strongly what is mentally “seen” and felt;
- enable one to change habitual thought patterns and fixation of reality through language;
- give one the power of choosing to reproduce conceptual reality (in its cultural, social, and individual varieties);

- reduce the stress inflicted by believing in such fixations as “being difficult,” “impossible,” “against me,” “sick,” and so on;
- change the determining effect conceptual reality has on image and feeling realities, diminishing its otherwise independent role of establishing reality.

UD mindfulness investigation on mind—regarding mental-image mind and corresponding image phenomena

The image mind provides us with a sense of space, dimensionality, and form that gives us an overall sense of place and solidness in reality. We have discussed how the senses of seeing and hearing help to provide an experience of distance between subject and object, and the image mind has similar capabilities. For instance, descriptions are usually accompanied by the experience of mental images, as when reading a book and the imagination provides dimensionality to the scenes being described.

In the waking state, when mentally created images become vividly clear and dominant, overruling the sense experiences, they are imagination, visions, visualizations, hallucinations, or images accompanying conceptual description specifically in relation with emotions. The apparitions connected with emotions and hallucinations appear with such clarity, as if one had seen them by using the physical eyes. However, they are seen only by the sixth mind’s eyes.

The images experienced in dreams are of the sixth mind. According to UD, the reason these images are formed is that we have mental and self-referential imprints and imprinted mental patterns, and even collective and universal imprints. The dream images can be good, bad, or neutral, and they arise in connection with particular self-referential feelings. When a self-reference is negative, we can have mental images rising in the form of nightmares, where secondary causes such as events that have occurred during the day trigger underlying self-referential imprints to arise as dreams—for example, specific fears relating to our vulnerabilities.

People in the waking state, when emotionally or mentally unbalanced and even when they are not, can see things that other people don’t see. These images are also not sense images, even if we mistake them to be, but rather sixth-mind images. When people want to convince you, they often say, “I have seen it with my own eyes.” Actually, we have this problem more often than we are aware. We just think we have seen it with our physical sense minds, but very often it is not true, a fact well known to police investigators when eye-witnesses report very different things, even though they all saw the exact same events. In this way, we actually see with our mental image mind, or the sixth sense eyes, more often than commonly believed.

Points of investigation in mindfulness meditation—regarding image mind and corresponding phenomena:

- Do we and other people have different types of image realities in connection with everyday experiences, such as daydreaming, imagination, and night dreams, and even extraordinary experiences, such as visions and hallucinations?
- Do these realities exist “out there” in and of themselves or are all these mental reality appearances interrelated with “image mind”?

- Are there specific embodiments as a base for these different image experiences like daydream, imagination, night dream, and so on, or do they all rely on the physical body or no embodiment?
- Could there be something to the saying that “we learn to see,” so there would be cultural, social, and individual aspects to the appearances we “see” mentally?
- Are these mental “image” realities influenced by what is named, that is, conceptual reality?
- Would that mean that I could have a say in the way reality appears to me?
- Could self-references influence the way image reality appears, and if so, would that be all the time or under specific conditions?

Advantages found in UD mindfulness meditation—regarding image mind and corresponding phenomena, on realizing that mental-image reality doesn’t exist “out there” in and of itself, and that it is not sense mind appearances:

- can provide important insight into the say one has over the appearance of reality, in terms of being less determined by conceptually dominated perception and therefore giving more determinative power on the subject-side;
- helps one to break the habits of conceptually dominated perception based on vulnerable self-references that otherwise could result in feelings of depression, paranoia, and victimization.

UD mindfulness investigation on mind—regarding feeling mind and corresponding phenomena

The many types and levels of feeling range from the deepest, totally uniting third meditation state, which is the deepest meditation state,³³ to the subtlety of shifting moods or the most expressive and violent emotions. However, in UD, we are mainly concerned in this context with the feeling mind (subject-pole) and the more or less normal feelings (object-pole) that we all experience in our daily lives.

We saw under “feeling-tone” that according to EIS, feeling at this level is the initial state of action, but feeling is also the result of action, and apart from that, in accordance with UD, feelings also provide deep and necessary nourishment for the body and mind. Below, we will discuss the most important aspects of the feeling mind and feeling-based reality for everyday life: *the self-referential feeling and emotions*. With the latter, we will touch upon the dynamic of mind and emotions expressed in the interrelation of conceptual mind, image mind, and feeling mind—and their corresponding realities—in the construction of the individual person’s general experience of reality, as seen from the UD point of view.

UD investigation into interrelated nature of self-referential feeling and corresponding phenomena

According to Tarab Rinpoche, the self-referential feeling³⁴ refers to the existential center of experience. With any experience, we naturally have a self-referential feeling.

This should not be seen as a contradiction to the common notion in Eastern philosophy of “selflessness,”³⁵ a term often used in Buddhist literature. Selflessness, in Buddhism, actually refers to the negation of an independently existing self-entity or the independent existence of other persons or things. People normally perceive themselves as separate and apart from the phenomena they experience. In Buddhist philosophy, everything, including the self, only exists relationally or in dependence on other things, and therefore nothing has an independent existence. In Western literature, the term “selflessness” is often misleadingly interpreted as the negation of a self, giving rise to many misunderstandings, and perhaps this translation is not well chosen. Self-references exist, albeit relationally, and forms the existential core of our experience, which is often determined by our self-referential imprints.³⁶

In spiritual practice, the goal is to transcend the different levels of self-reference and ultimately even any sort of self entity existence. However, this is not the goal of personal development and psychotherapy where one does not try to get rid of the experiential center of oneself, what Jung referred to as “ego.” In UD, the immediate goal is to change and transform inadequate, disturbing, and rough layers of self-reference, in order to become more flexible and develop more balanced and nuanced ways of experiencing reality and also to diminish existential fear for developing a basis for a more loving and compassionate attitude.

According to UD, all beings, and especially humans, right from the time of conception have a strong drive to uphold their existence. From this early stage of life, beings form self-referential feelings and conceptual habits by continuously assimilating and accumulating what is needed, while rejecting and fighting against what seems to hinder development into a more fully formed human being. This process doesn’t stop with becoming a teenager or adult, but becomes more sophisticated throughout life, developing and settling into different types of self-referential feelings and conceptual identifications. People, particularly when they are conceptually dominated, always have both of these as the central self-referential core, accompanied by certain behavioral patterns to counteract fear and gain stability.

Although people share the common capacity for self-reference at different levels in an interrelated reality, we actually create much more unique matrices of self-reference throughout our development than is commonly realized, in accordance with our personal experience. Throughout our development, such personal experiences create imprints or predispositions regarding our self-referential perceptions, which are continuously reinforced and sometimes modified through subsequent activation and experience, resulting in an increasingly complex and interrelated reality formation. It is important to note that such formations of self-referential feeling, however dynamic, are automatically predisposed and based upon existing imprints without the freedom of choice one would have if this process was not operating under the habits of a dominant conceptual mind.

With the development of language, which is inherently conceptual, we gain the capacity to have conceptually based self-referential identities. From the time of linguistic development, we have the possibility to establish an outer conceptual relation to ourselves, in other words, to cultivate the ways in which we see ourselves and are seen in the world. These sorts of outer conceptual relations are dependent on specific conventional support. For instance, the self-identification of having a certain position

in society needs support from that society, and when that falls away, the status, position, and especially the identity upheld by such support fall away, too. Therefore, when people are strongly conceptual and thus have little or no direct contact with a genuine self-referential feeling based in the common ground of sensory experience, the loss of such support can easily result in a crisis of identity.

Also, if and when a person doesn't get the love and support needed during the time of their development, there is a greater possibility for establishing vulnerable self-references. Obviously, the earlier and more severe these experiences are, the more likely it becomes that vulnerable self-references may develop and impact the person's experience of reality and self. However, one cannot tell how a particular situation will affect a given person, as there is some variation from person to person in how and when a lack of support is experienced, and therefore how and when the person establishes a vulnerable self-reference. Some people even establish very good and supportive self-references under difficult circumstances. Also, one would have to take into account how many times a vulnerable self-reference has been activated due to circumstances and caused more imprints. Only the behavior of the individual in everyday life and their innate dispositions will determine the result of the circumstances under which their development is influenced.

We should also mention that an underlying UD view in connection with established vulnerable self-references is that because one has created these, they can also be undone. If recognizing that these are self-established, and if one is not satisfied with the easy "solution" of blaming others, circumstances, and so on (even though "others" and "circumstances" are always and undeniably involved), the vulnerable self-references and corresponding reality experiences can be transformed.

UD investigation into the dynamics of emotional feeling mind and corresponding phenomena

Emotional feelings are an important area of investigation because of their influence on experience and their relationship with self-referential feelings. We have already mentioned that our overall experience of a given situation is entwined with the cultural, linguistic, and individual ways of conceptually selecting and naming specific aspects of sense experience. We have also highlighted the different ways and levels at which habitually established self-references continue to develop and influence the selective process and impact the corresponding reality formations of the image and feeling minds. The momentarily active self-reference influences the conceptual experience (of self, a person, and/or a situation) by pushing through a *specific selective process*. When the conceptual mind predominates, the basis of reality formation is removed from the direct nature of the sense minds and depends largely on the predispositions of the conceptual, feeling, and image minds. The central self-referential feeling, especially in the context of conceptual domination, has a strong impact on our emotional experience of reality.

When a vulnerable self-reference is activated, we are often out of touch with direct sense experience. In other words we have a diminished or nonfunctioning compensatory mechanism that would, under different conditions, allow us to use the sense

minds to achieve an expanded freedom to select and compile our conceptual reality and, thereby, our emotional responses.

In a sort of negative-feedback loop, on the basis of vulnerable self-referential feelings, we conceptually describe a more negative reality, which is then followed by, and correlated to, an experience of mental-image reality that is equally negative. This happens, because as we describe reality conceptually, our image mind sees reality accordingly. And as this mentally experienced appearance is subconsciously taken to be the sense reality, it mistakenly becomes actual reality to the person experiencing it. Once the object is thus grasped by means of both description and appearance in terms of a mental image, the experienced object becomes the only reality momentarily available to the perceiver and the feeling mind experiences accordingly. Through the feeling response, conceptual, and image-reality constructs are confirmed and support the rise of an emotional defense of the often increasingly more vulnerable self-referential feeling.

While the basic process of affirming reality formations just described is not necessarily negative, in the case of identification with vulnerable self-references and the arising of negative emotions, the process of reality formation from conceptual mind to image mind to the feeling mind has the effect of making the conceptual mind and its reality even more negatively selective. In this scenario, the vulnerable self-references have a strong negative effect on the experience of reality, and if we don't realize that we have our own say in the way reality appears to us, we may become increasingly sensitive and emotional.

As long as, and to the extent that, the conceptual mind is dominant, there is a diminished capacity to utilize the common ground of the sense minds to counteract the build up of negative conceptual, image, and feeling realities. This can result in an increasingly more private (i.e., not shared) reality that over time can bring about dissociative conditions and alienation.

In order to counteract a problematic conceptual reality, one can pay attention to the common ground of human reality, which is based in the sense minds, and bring oneself back into sense reality, or if one has the capacity, one may join a deeper or subtler embodiment (the deeper the more effective).

Through practice, one gradually realizes the interrelationship between subject and object as well as between body and mind as described above, and becomes increasingly more aware and grounded (in sense reality). This process allows one to be more present to the common ground of shared reality, and it deepens one's sense of dignity and calls for respect from others. It also undercuts the effect of vulnerable self-references as one's reality changes according to the decreased domination of the conceptual mind and the deepened level of sensory embodiment (physical or more subtle embodiments). During this process, the vulnerable self-references continue to have less and less impact on establishing reality.

If one is able to counteract the habits of dominant conceptual reality formation by getting in touch with and centering on more genuine, direct, and subtle self-references, one can determine which part of the problematic experience has to do with one's own vulnerabilities (these can be changed) and which part has to do with the other/referential object (these can also be dealt with, albeit in another manner). But if one doesn't have the ability to choose a more genuine self-reference consciously

by connecting with physical or more subtle sensory embodiments, one is stuck in this unpleasant and often increasingly vulnerable self-referential feeling.

In this way, UD suggests that it is possible to take care and gain control over the self-referential feeling, putting us in command of ourselves and our reality. To take care of one's own self-referential feeling doesn't imply that we do not see what is happening on the outside and become passive, but rather the opposite: if I manage not to get into an emotional reaction—which is always connected with the condition of my present self-referential feeling either being supported or being threatened—and change the vulnerable self-referential feeling, I would not get entangled with the happenings on the outside and would be able to act appropriately in the given situation.

It should be clear from this short presentation, in accordance with UD and based on EIS, that when one is conceptually dominated, the resulting conceptual reality formation is sensitive to the self-referential feeling with which one presently identifies. It should also be clear that with further habitual description of the situation experienced, one is reinforcing and even deepening the imprinted negative self-referential patterns, making them more likely to appear again and determine future conceptual realities. Above all, it should be clear that these habits can be changed, resulting in an expanded, more positive, and balanced grasp of reality.

Points of investigation in UD mindfulness meditation in regard to ordinary feeling mind and corresponding phenomena, when joining the feeling-tone and/or deep body sensation (as dealt with above under first and second mindfulness meditations) investigate:

- whether the feeling comes from outside or is interrelated with feeling mind;
- whether the object-pole of feeling is also feeling or something else;
- the role of feeling in the way one directs one's life;
- whether we have more than one self-referential feeling;
- whether it makes sense that the self-referential feeling (subject-pole) is the primary cause of action/Karma, and that what we experience happening outside (object pole) is a secondary cause—the primary cause being essential;
- the extent to which the self-referential feeling influence conceptualization, mental-image experience, feeling, and actions/Karma;
- whether the self-referential feeling changes due to changes in external circumstances (referential object) alone, or whether the self-referential feeling changes mainly due to my specific experiences (object pole) of the outer circumstances (referential object);
- whether it is possible to gain command over the self-referential feeling (by changing or transforming it) and, in this way, gain command of how reality is perceived/experienced.

Advantages UD mindfulness meditation on mind—in regard to ordinary feeling mind and corresponding phenomena:

- realizing that feeling doesn't come from the outside, naturally diminishing outer determination and opens for possibilities to change;

- realizing that the self-referential feeling is the core around which reality unfolds places the power of change in the individual's hands;
- realizing that everyone has many self-referential feelings, not just the one identified with at any given moment, opening the possibility of changing, or transforming the disturbing self-references without encountering existential fear;
- realizing that, if the self-referential feeling is vulnerable and disturbs the ongoing experience, one has the ability to change or transform this existential center for the better, opening the prospect of gaining command of the experience (one's reality)—in fact, one might be able to realize that by taking care of the inner condition, one may always feel all right;
- mastering the self-referential feelings helps, in particular, to not get entangled with the emotions and vulnerable self-references of other people, a condition through which one could become even more helpful to others, looking past their self-referential system and corresponding reality.

**Mindfulness investigative meditation of mind—finding and merging
with a deep level of feeling mind and corresponding
phenomena—traditional Mindfulness and UD mindfulness
for spiritual ends**

This last section on feeling mind and the following section on the fourth Mindfulness Meditation on Phenomena in regard to the deeper level—not already included under the first three mindfulness investigations—represents advanced stages of investigative meditation. At this level of accomplishment, the adept goes beyond ordinary self-referential perceptions based on physical body and imagery body, that is, these investigations are based on the attainment of Śamatha and Vipassanā.

In the previous sections, we have suggested methods of practice in accordance with the goals of general well-being, and mental and physical health on levels at which the ordinary self-referential mode of awareness is important and necessary. At this advanced level with such basic goals having already been met, it becomes the aim of practice to experience a mind that is without the strong dual nature of conventional self-referential experience, and thereby beyond the concerns of ordinary mental and physical health and well-being.

The goal of attaining a healthy, grounded, and balanced sixth mind, rooted in the commons of sensory reality is commensurate with spiritual practice. This is in fact a requirement for these more advanced meditations. The practitioner at the initial stage of this practice is not completely free of vulnerable self-referential imprints. However, these would be well within the range of what would be considered healthy by modern therapeutic standards and even in ancient cultures. In the context of the current discussion, this presents a point of departure from the application of these practices to conventional therapeutic methods for attaining general psychological and physical health and well-being. Therefore, subsequent sections are limited to cursory discussions of the attainments of these meditations without guidelines to engaging with them as a particular form of therapeutic practice.

In the previous investigative meditations, the practitioner engages with different types of disturbing self-references in connection with investigating the nature of conceptual mind and reality formation, through the nonconceptual nature of feeling and image minds and corresponding phenomena, realizing their interrelated natures; and into the complexly interrelated self-referential matrices of identity based on the habits, predispositions, or imprints, acting as a supporter basis to the conceptual, image, and feeling realities and vice versa, in the dynamic play of the minds and their unfoldment of reality.

In the final investigative and merging meditations on feeling mind, one naturally begins to experience the dissolution of the subject-object dichotomy, because in these subtle body-mind states, there is no longer ordinary conceptual mind activity and no image reality, that is, there is only the feeling mind/unified experience left.

Implicit with this investigative meditation on the deep level of feeling mind is the aim to attain a state of awareness that is beyond the ordinary subject-object polarity of experience inherent in the sense minds and the three categories of the sixth mind. In essence, these final meditations are directed at an experience of mind that is beyond the categorizations and framework of sense minds and normal sixth mind subject and object poles/reality formation, normal levels of self-reference, and so on that have been used to arrive at this point.

The Earlier Buddhist Schools³⁷ spoke about this very fundamental phenomenon of mind as “a light in a pot with holes,” the holes referring to the sense minds and the different types of sixth mind; and the light in the pot referring to the most subtle nature of mind, *the mind principle*, which is the potential of the sense and sixth minds.

Mindfulness of this deeper state of feeling mind is one of the higher meditations and is related to the meditation traditions of *Mahamudra*, *Dzogchen*, *Nature of Mind*, and *Void*.³⁸ In the early stages of this practice, the practitioner may glimpse the “light in the pot,” but maintaining such an unusually subtle and practically nonself referential awareness for more than a fraction of a second is quite difficult. The accomplishment of this stage of meditation is attained when the practitioner can maintain a “one-pointed” feeling awareness of uniting with the light in the pot/nature of mind/void nature/*rigpa* nature/“clear light”³⁹ at will for as long as desired. This type of experiential condition is only possible on the basis of the absolute, most direct, and subtle form of self-referential embodiment and awareness:

In this most subtle state called *lungsem*, where *sem* relates to the most subtle self-referential mind nature and *lung* to movements/vibrations, the most subtle trace of body, it no longer makes sense to differentiate body and mind—they are said to be inseparable. (Tarab Tulku & Handberg, 2005)

In this way, in accordance with the EIS Tradition, the practitioner can eventually reach a “clear and uniting quality of mind and phenomena,” a mind that proceeds to unify the subject and referential object (and not just the subject-pole and object-pole). This basic or fundamental mind nature or mind principle is thus necessarily both a “personal” and a “universal” phenomenon and, in accordance with Tarab Tulku,⁴⁰ reaches even a primordial level of existence.

The second objective (which is simultaneous with the former) is to gradually merge with these increasingly subtle levels of self-referential feeling and awareness, progressing to a state of universal nondual body–mind awareness with only the absolute subtlest form of embodiment that is with only a trace of self-reference and experience of subject and object unity, and even beyond that. Practitioners who have achieved this stage of meditative accomplishment have done so through either a gradual process of the meditation stages or a more direct path, both through the practice of stages of Śamatha and Vipassanā meditations and accomplishment of more and more subtle embodiments and refined sixth mind.

Even if one can intellectually understand these stages of practice, there really is no diving into the light in the pot/nature of mind/void nature/*rigpa* nature/clear light, since, without training and accomplishment, one would simply, on the basis of creating a conceptual idea about it, be imagining such direct contact with the fundamental nature of mind. In these unknown territories, it is therefore necessary to proceed with proper guidance.

Those who achieve the final or resultant stage of this meditation (sometimes referred to as the state of fearlessness) are beyond self-interest, not needing anything to uphold identity. This condition is the right and only true basis for the most appropriate action with regard to benefiting others, unconditioned compassion, action based on unconditioned love, the actual goal of all spiritual traditions. It is all in accordance with the deepening of body–mind and self-referential feeling that it is possible to approach genuine unconditional love and compassion in the first place.

Fourth Mindfulness: Mindfulness investigative meditation of phenomena⁴¹—merging with a deep level of referential phenomena—traditional Mindfulness and UD mindfulness for spiritual ends

The last part of the fourth Mindfulness Meditation is also a very deep and subtle investigation corresponding with the deepest level of the third Mindfulness Meditation, focusing on the nature of phenomena itself. This cursory treatment can hardly do justice to the topic, but hopefully it will shed some light on the direction and outcome of this meditative investigation. The bases for this practice are traditionally the accomplishments of Śamatha, that is, usage of subtle body beyond the imagery body, and Vipassanā and the previous mindfulness meditations. We have already been dealing with part of the nature of phenomena in connection with the mindfulness of “body” and the different types of sixth minds as the distinct object poles. These are the objects we have in our experience, whether they represent the object poles of the senses or that of the conceptual, feeling, and image minds.

While we can easily understand the interrelated nature of external things such as the causes and conditions of an ever-changing array of phenomena, it is slightly more challenging to see that all phenomena, as we experience them, are inherently interrelated with the minds, and moreover that the conceptual reality we form has its own and sometimes very personal way of experiencing—as we have already discussed above.

Even if we were adepts and had the capability to experience directly, without using the ordinary level of conceptual mind, we still would have only an experience of what the minds can provide, which is limited to a particular range of perception. The important implication of this is that because of such limitations, we do not have any truly direct means of experiencing the full nature of referential phenomena through our senses or any of our other minds. The object poles we experience, which include oneself, are as much a product of our minds as they are a mere reflection of the entire phenomenal world, referential reality.

In the previous meditations, we took phenomena as object poles in a more discrete manner than we do in the present investigative and merging meditation. Now, we investigate phenomena inclusively. In this manner, the practitioner is able to get closer to distinguish the rules of referential reality's nature.

Nevertheless, when we continuously are anchored in body sense or even cultivate subtler energy embodiments, the conceptual mind calms down, and it no longer dominates over the other sixth minds. The real challenge here—as above—is that we have to work with the conceptual mind on an increasingly subtle body basis while all the time staying in direct contact with the object under investigation through feeling and image minds.

Staying in direct and one-pointed contact with referential reality with that to which the words refer, seeing with the mind eyes and hearing with the mind ears—Śamatha attainment—and using Vipassanā as an investigative means, we can gain much more precise access to the rules of referential reality—all in accordance with the subtlety of the body–mind interrelationship we use.

In this meditation, the objective is to investigate the nature and workings of referential phenomena, that is, to discover its nature and rules. Traditionally this investigation has several parts: investigation into referential phenomena to determine whether or not anything exists in and of itself in regard to “oneself”; whether or not anything exists in and of itself in regard to “other”—everything else other than one self; whether or not referential phenomena are subjected to causal nature, moment-to-moment changing nature and composite nature as well as to interrelated natures and how these interrelations determine referential reality’s unfoldment in duality.

These investigations on referential phenomena start with the investigation of conceptual reality realizing its nature, the way it functions, and its limitations and capabilities in order to let the nature and rules of the phenomenal world or referential phenomena stand out more clearly. Tarab Tulku said:

The first part of the fourth practice of mindfulness in regard to phenomena is again connected to the conceptual reality.⁴² This type of object is functional, so it exists. We can describe and work with it, and yet it's nothing solid, nothing tangible. In the exercise one should try and get an experience and realization of the particular nature of the conceptual reality. This investigation follows what in Inner Science is called “interrelated nature” and what in *Boddhisattvayana*⁴³ is meant by “everything is an illusion.” The conceptual reality exists but there is nothing solid upholding it. When realizing the nature of conceptual reality, it's like a fantastic painting in the air one can walk straight through.⁴⁴

Here, Tarab Tulku is talking about the nature of how the “referential object” appears to the conceptual mind, but similar investigations are carried out in relation to the other minds. In this way, we realize that everything we experience is like an apparition; it is at best only a reflection of the “referential reality” (actual reality), not the object itself, and it appears as thoughts, images, sensations, and feelings—none of these are solid things; they are all the object-poles of mind.

The second part of the Mindfulness Investigations of referential phenomena takes us into the study of the phenomena of “oneself.” Traditionally, this investigation is connected with the five *Skandhas* or Heaps: body, feeling-tone, discrimination, other mental functions, and the basic nature of the mind-principle. The outcome of the investigation might be (like in EIS) the realization that there is no independent existence of oneself on the outside of the composition of the “five heaps”/five Skandhas; oneself has a compounded nature that changes from moment to moment, and none of the Skandhas exist in and of themselves either.

A further level of investigation would be to detect rules of the “referential reality” in terms of “ourselves” and “everything else.” We investigate the causal, composite, and ever-changing nature of reality, as well as Nagarjuna’s⁴⁵ eight interrelationships/*tendrels*: becoming and cessation, the finite and the infinite, localization, and de-localization, part and whole, which has been arranged in pairs by Tsongkhapa⁴⁶ in accordance with the nature of “individual identity,” “time,” “extension in space,” and “conjunction nature.”⁴⁷ Investigative questions could be: Are these interrelations essential or not, and why? Why are they placed in pairs and why do they relate to “individual identity,” “time,” etc.? Are these actual rules of the unfoldment of referential reality? Could we find any other essential rules?

A possible continuation of this investigation would be to investigate the matter-energy (potential field) interrelationship that Tarab Tulku and Handberg (2005) pointed to as essential to referential phenomena, too. Everything we experience with our senses is of “form” or matter nature.⁴⁸ However, when we go deeper into the nature of mind and phenomena, EIS holds that oneself and everything have the nature of energy, and on a deeper level, we partake in the potential field or even in unity nature of subject and referential object.

Thus, the practitioner could achieve the realization or at least get a glimpse of the emptiness or void nature of the “referential object,” that is, the realization that even the referential object, all the way into its energy or even potential field, is of relational nature, devoid of inherent characteristics. These kinds of realizations are the most efficient means to undercut the attachment to self- and other-identification, that is, the fixation of self and other, which is the main hindrance for attending a deeper level of oneself and phenomena, for finally merging with the unity of both. These fixations are said to be the root cause of duality.

It is important to note that none of this is meant to say that we do not exist; it is only an investigation into how we actually exist. Tarab Rinpoche with Candrakirti (650 AD) stressed that, even though everything exists in a relational way, in a causal and moment-to-moment way, and that nothing exists in and of itself, everything still exists. Realizing this leads to the experience of “void nature” or “emptiness” of phenomenal existence, which is the way we actually exist in accordance with EIS.

Comparison Between UD and the Social Psychological Concept (SPC) and the Eastern-Derived Approach (EDA) and Transcendental Meditation (TM)

This section compares some of the essential ideas found in contemporary approaches to mindfulness. On this basis, the similarities and differences between the ideas presented by Dr. Ellen Langer, which are representative of the SPC, and those that are generally representative of an EDA and those representative of TM are discussed with specific reference to the ideas representative of UD.

Some basic tenets are presented that are essential for understanding the background of the Traditional Eastern Mindfulness and about Mindfulness from a UD view. As defined earlier, Mindfulness, as a term used herein, refers to the Buddhist practice of meditative training and investigation into the nature of reality. In this section, we want to select a few of these basic tenets to make comparisons with the SPC, represented by Dr. Ellen Langer and by the EDA, and discuss the following concepts: interrelated nature of reality; the different minds and different levels of the minds (including comments on TM); being in the now—in the present with acceptance and practices thereof; and body–mind and health perspectives.

The discussion is limited to only a few points of what is included under the different approaches to mindfulness. We restrict the discussion to some basic tenets of UD to analyze a few of the similarities and differences. In this short article we can only refer to a few of the many knowledgeable practitioners and scientists working with mindfulness in the West. The practitioners/scientists representing an EDA to mindfulness have, to a varying degree, a Buddhist influence, which in turn has been adopted into modern mindfulness practice in different ways depending on the aims for using mindfulness and the population that is addressed. We have chosen to pool the references for this part, as most of the comparison is presented to include only the main features and not the detailed perspectives.

“Interrelated nature of reality”

UD The view of UD on “interrelated nature of reality” including “the transitory nature or moment-to-moment changing nature of everything that exists,” is the base for every experience and is fundamental to the UD view (see section “Interrelated nature of reality and EIS”).

SPC Dr. Langer emphasizes that the person who experiences is part of and influences the experience. She states that it is important to be aware that one person’s perspective is only one of many possible perspectives, and that the mindset of that person and the context will decide how reality will appear (Langer, 1979, 1989, 1997, 2009; Langer & Benevento, 1978).

We see this as one way to express interrelated nature, and it seems similar to what is theorized in social constructionism, which in turn has similarities to Buddhist theories (Gergen & Hoskin, 2006). Langer describes this in her many research publications and books, and she states that things are neither good nor bad, and nothing stands

still, but everything is changing momentarily. Langer also states, with respect to this same reason, that research can only yield probabilities but is often taken for facts. This demonstrates the importance of an awareness of interrelated nature of reality—nothing existing in and of itself, but everything is by nature relational.

EDA The concept of the “interrelated nature of reality” is prevalent in most of the work on mindfulness, and it seems that the more Buddhist-inspired mindfulness that is applied, the more the interrelated nature is emphasized. It seems clear that most researchers/practitioners share a similar perspective that the individual makes a personal interpretation of their experiences in order to construct reality and thus is responsible for creating the personal experience of reality. This interrelatedness is also described to exist on a much larger scale inasmuch as we are all interconnected and part of a larger whole. However, it is not often discussed to what degree a person can reach the “true nature” of the referenced reality. It sometimes appears like this referenced reality is described as existing “out there” in a way that is actually similar to how it is experienced and that it is possible to reach and describe reality on this basis in a more or less objective and accurate way. Also, the transitory nature of all things is often presented and discussed but with varying emphasis and views.

Comments to “Interrelated nature of reality” In both SPC and EDA, the similarities to UD are many, although it seems, as in UD, that there is more absolute emphasis on the “interrelated nature of reality” in every experienced situation, in particular in regard to each type of mind (subject-pole) and corresponding object-pole—clearly differentiated from the referential object.

The different minds and different levels of the minds

UD The specification of the five sense minds and the sixth mind and the latter’s different aspects, and in particular the role of the conceptual mind and the different more subtle minds, is basic to understanding that the reality experienced appears according to which mind and degree of subtlety of the mind are engaged.

SPC Dr. Langer writes that words are only concepts, that these concepts limit our thinking and our way of looking at things, that our mindset holds them still, and that we cannot even consider change until we become more flexible with regard to our conceptual structures.

EDA The five sense minds are described, and there seems to be some agreement about the importance of using all these sense minds to enhance awareness and be in the present. The different mindfulness practices train the person to gain a deep and direct contact with the different sense minds. The sixth mind and the conceptual mind in particular are discussed in most practices, advising the practitioner to calm down the conceptual mind and not follow the thoughts that arise. However, very often, the conceptual mind and the sense minds are not separated out clearly. But mostly, the practices emphasize how different an experience will be depending on which sense

mind is used. Furthermore, the guided instruction, if present, encourages the person to be in the body, not only to think (be conceptual) about it, but to really be in the body senses. It is considered that to be attuned to one's inner sensations through introspection, which is trained via mindfulness, enhances the ability to become aware of another person's internal emotional states, thus enhancing empathy.

Dr. D. Siegel describes in his book "The Mindful therapist" a model that illustrates how reality is fixated in the subjective experience that evolves from "the plane of possibility" to "the plateau of probability" and to the finally fixated stage in "the peak of activation" (D. J. Siegel, 2010a). Neural firing takes place simultaneously, and he points out that it is our experiences that shape our brain. Siegel, furthermore, also defines Mindsight as the ability to look into the inner world of our selves and emphasizes the importance of mindfulness and taking our mind into account (D. J. Siegel, 2010b).

TM Addressing the interesting question "if direct change in state of consciousness through specific mental techniques can extend human life and reverse age-related declines," Alexander, Langer, Newman, Chandler, and Davies (1989) studied a group of 73 elders (mean age 81 years). The researchers in the study were able to demonstrate clear positive health effects with also increased longevity by training elderly people in TM and Mindful training in active distinction. Furthermore, Balaji, Varne, and Ali (2012) summarized, in their review on yogic practices and TM, that they "found that there were considerable health benefits, including improved cognition, respiration, reduced cardiovascular risk, body mass index, blood pressure, and diabetes. Yoga also influenced immunity and ameliorated joint disorders." Although Ospina et al. (2007) in their meta-analyses expressed criticism with regard to the methodology used in many of the studies, they stated that 55 studies indicated that some meditation practices produced significant changes in healthy participants.

Comments on the different minds and different levels of the minds Direct and indirect perception does not seem to be analyzed in the same way with regard to the different types of minds as in UD. However, it is of vital importance to carry out analyses in this way in order to avoid being dominated by the conceptual mind, which always perceives indirectly and is focused only on the past or the future. Instead, it is important to balance this limitation of conceptual thinking with the direct perceiving capabilities of the sense minds and sixth minds, such as the body sense, which is always in the present and will thus bring the person into consensus with the basic ground of reality common to all human beings.

Although the conceptual mind and the five physical sense minds are often discussed in both SPC and EDA, the differentiation and the impact of the different minds and the more subtle body-minds as described by UD seem to be taken into account less often, and only the more general term "mind" is used. However, in SPC, Langer strongly emphasizes the importance of de-fixation of the experienced reality, by constantly considering other perspectives. Likewise, Siegel's work can be seen as demonstrating the need for an awareness of the inner world as part of the mind. With regard to the UD view, opening up to sense realm and other compensatory minds simultaneously could create a balance with respect to the conceptual mind. However, perhaps

the most important issue is to reflect and take into account what role the “mind” might have in the specific situation, which certainly is not always the case in science and health care. However, one difficulty in comparing different theories is that the same term could refer to different entities or aspects of mind. For example, the modern term “sixth somatic sense,” also described as a “non-worded world of sensation,” is used in the West to represent body sense, but according to traditional Mindfulness and UD, body sense belongs to the five senses and is separate from the sixth sense. Also, the terms “body and mind,” “body–mind,” and “subtle body” are used with different meanings, for UD terminology—see section “Terms of analysis 2: Types of mind and body.”

“TM: Accomplishment of the deep level of mind,” would be comparable to a stage described in the section “Mindfulness investigative meditation of mind—finding and merging with a deep level of feeling mind and corresponding phenomena—traditional Mindfulness and UD mindfulness for spiritual ends” and is related to by UD and EIS as “a final level of meditation,” and “mindfulness of phenomena,” seems to correspond to what is described in TM as the state of a purely content-free, silent state of awareness. In accordance with UD, it becomes clear that there are many levels of the deep feeling mind or “void” nature (in some schools, they discuss 16 levels of void), beyond the sense field and conceptual field, and even beyond any image appearance, that is, reality of form manifestation.

Being in the now—in the present with acceptance and practices thereof

UD UD asserts that the mind and body are mutually dependent and interrelated phenomena, and that any type of mind always has an embodiment of some kind. Mindfulness practice cultivates awareness based on the subtle body sensing, and concurrently develops more subtle mental capacities. UD holds that there is a broader and subtler range of perception available to human experience that is achieved through the manifold practices as a prerequisite of Traditional Mindfulness meditation and the contemplation and cultivation of attention on mental and sensory phenomena.

SPC Dr. Langer states that, “A mindful approach to any activity has three characteristics: the continuous creation of new categories; openness to new information; and an implicit awareness to more than one perspective”; furthermore, that mindfulness is to notice new things, be in charge and be attentive and actively make choices. Langer uses the expression mindlessness as the opposite of mindfulness, and mindlessness is governed by the “autopilot.” Langer says about being present that “if you are not there, there is no possibility to know that you are not there.” Instead of specially assigned practices, Langer advocates a continued attitude with awareness, like a beginner’s mind, a mindful curiosity, and to always be attentive and see alternatives and actively make choices, which will put you in the present; also, to always realize and have the awareness that there is never one but many perspectives in every situation and that nothing is static. To realize and maintain awareness that there are many possible perspectives relates to what is included in the UD definition of mindfulness as “investigation into the nature of reality” but in Langer’s mindfulness, without meditation.

There is also a form of acceptance to this situation with the awareness that there are many possible perspectives.

EDA All mindful practice includes being in the present. This is basic to training in mindfulness and includes bringing one's complete attention to the present experience on a moment-to-moment basis with awareness of one's own inner emotions and reactions, and remaining nonjudgmental. This involves awareness of the five sense minds and focusing on what experiences can be felt through them, as well as letting thoughts (conceptual mind) come and go without placing any particular attention on them. Furthermore, the attitude towards what happens should include acceptance of the experiences; one should not try to change them. If guided, the person will be told to "be in the experience/feeling" and not just to think about being there but actually be in the body, thereby having a more direct, sense-based experience. Focusing on the breathing is often used as a means to get into body sense. Many of the practices include some form of focused attention on the different parts of the body similar to what Jon Kabat-Zinn (2003) describes as a "body scan." Typically these practices start with focusing on breathing and systematically go through the different parts of the body to get in contact with the physical senses and whatever can be experienced. There is also more formal meditation like sitting meditation with more analytical aspects to it and with the use of visualization. Most of the different kinds of sitting meditations include calming down the conceptual mind and just letting thoughts come and go without thinking about what has been going on in the past or what might happen in the future (Kornfield, 2008).

Usually, it is advisable to set aside a special time for these practices daily. The aim is that the person should remain mindful as much as possible. Different short practices are also presented in order to include the practice into daily life situations and to simplify and find time for the practice, such as "red light practice," checking one's breathing at regular intervals, mindful eating, mindful walking, and so on.

Furthermore, moving meditations like Yoga, Tai chi, Chi Gong, and similar training forms, which all can support developing a body sense, are often included in contemporary mindfulness practices. There are many workbooks with practical hands on instruction on how to apply mindfulness in everyday life.

Comments to being in the now—in the present with acceptance and practices thereof
From a UD point of view, these Mindfulness practices would bring one into the present, undercutting stress, and so on, and are very useful for their compensatory effect to the conceptual mind's unconsciously screening out what it doesn't name. And the deeper the body basis for these practices, the better, as this generates the possibility for one to realize the interrelated nature of subject-poles and object-poles, and therefore see one's own influence on the perception of reality that would otherwise be accepted as existing—objectively, as it occurs to the conceptual mind.

However, according to Traditional Mindfulness, this would be considered true mindfulness only if the investigations were done on the basis of a meditative state of mind, that is, from a subtle body base, which would give an even deeper realization of the interrelated nature of reality and the possibility for going beyond that which we ordinarily take to exist objectively.

Body–mind interrelation and health perspectives

UD Well-being is a major goal of all activities in Buddhist traditions, as it is in UD, and not just for the individual but also from a much wider perspective. UD confirms that it is possible for the mind to influence human physiology and bodily functions, an assertion that is well confirmed by modern research. In UD, training personal development is a major aim, the latter part of which is specifically directed to the Art-of-Relating and Psychotherapy with direct therapeutic applications.

While UD primarily provides a basis for personal development and psychotherapy, it holds that there is an even broader and subtler range of perception available to human experience that is achieved through the manifold practices leading up to and including the Traditional Mindfulness meditations (see section “The four Mindfulness meditations and UD Mindfulness”).

Regarding mindfulness of the body, and other embodiments, the more subtle the body the more subtle the sense capacities and the more the space and time dimensions open up.

SPC Dr. Langer states that mind and body are “just concepts” and that mind and body are not separate but belong together; the mindset will decide what happens in the body as the mind–body is one. This is the main focus of the fascinating research by Dr. Langer, as reported in her book “Counter clockwise”: “Where the mind is, the body will be.” The majority of Dr. Langer’s research studies clearly demonstrate how mindfulness exerts a dramatic effect on health and prolongs life (Langer, 1979, 1989, 1997, 2009; Langer & Benevento, 1978).

EDA Mindfulness is based on an awareness of the interrelation of body and mind. It is well accepted that the mindset will change and have an effect on the physiology of the body as well as the function of the brain. Body–mind clinics focusing on this close interrelation are also gaining greater acceptance in health care. Neuroscience research has demonstrated that neuroplasticity is enhanced as a result of mindfulness practice, which again emphasizes the interconnection between the body and the mind. Mindfulness practice furthermore stimulates neural integration of different essential parts of the brain, including the middle prefrontal cortex, the region for the executive functions of the brain, that are of major importance for mental health and in turn for general well-being. Moreover, Mindsight, as defined by D. Siegel (2010b) “to see the mind—the inner world in ourselves—and shape it towards health,” is one further essential step to developing the vast capacity of the “mind.” This is also in line with the theory that of what all takes place in the mind, the subjective experiences are correlated with neural firing and vice versa, which is verified by research on neuroplasticity. Thus, our brain is shaped by our experiences. In connection to this, Dr. Siegel further describes a triangle of well-being and resilience that consists of the brain, the mind, and relationships. Thus, there is a structural and functional base in the brain that, in combination with the mind and relationships, can be developed to support well-being and health.

Mindfulness has most extensively been used to achieve stress reduction through the establishment of the Mindfulness Based Stress Reduction (MBSR) program at the

University of Massachusetts Medical Center by Dr. Jon Kabat-Zinn (2003) and has proven to be very effective. Mindfulness practice, on both a short- and long-term basis, has been extensively researched and shown to be effective in treating a large number of diseases, mental as well as somatic and to increase neural integration, which is considered essential for a well-functioning brain and mental health, and even to have a positive effect on the telomeres and slow down the aging process, and also to enhance empathy (Carlson, Speca, Faris, & Patel, 2007; Davidson et al., 2003; Doidge, 2007; Epstein, 1999; Goldstein, 2012; Hanson, 2009; Hölzel et al., 2011; Jacobs et al., 2011; Kabat-Zinn, 2003; Krasner et al., 2009; Lazar et al., 2000, 2005; Rakel et al., 2009; Schwartz & Begley, 2002; Segal, Williams, & Teasdale, 2002; Shealy, 2011).

Comments on body-mind interrelation and health perspectives Body-mind and health aspects might be where the similarities are the greatest between the different approaches, perhaps because the prerequisites to realize the potential health aspects are based on a deep understanding of the interrelatedness of mind and body. The mind's ability to alter brain function and cause neuroplastic changes, which has been demonstrated through advanced scientific research, will most likely lead to increased awareness and insight in medical and other healing professions.

Concluding Remarks

It appears that, as a whole, there are many similarities between mindfulness as approached by UD, the SPC by Langer, and the EDA, all of which share the goal to increase health and well-being, and use mindfulness as a method. However, some major differences appear with regard to the differentiation of minds in UD, the different levels at which the analysis of reality takes place. Also distinct in UD is the differentiation between direct and indirect means of perception pertaining to sense minds, and feeling and image minds (direct) versus the conceptual mind (indirect) and the claim that the sense, image, and feeling minds don't use language as the basis for perception. Recent research in neuroscience and other areas has clearly demonstrated positive structural and functional effects on the brain, neuroplastic changes, and dramatic positive health effects in persons with regard to applying mindfulness as described by SPC, EDA, and UD-Buddhist approaches. Medical health care would certainly benefit by taking mindfulness into account with respect to the well-being of both patients/clients and healthcare professionals. Furthermore, research studies on epigenetics have underlined the significance of our mindset demonstrating a direct health effect by influencing the genes (Lipton, 2005).

Dr. Langer demonstrates in her research the very significant and impressive effects of being aware of one's mindset and emphasizes that there is more than one perspective in any given situation, which, when taken into consideration by the person, can have a major impact on health and well-being. Dr. Kabat-Zinn has successfully pioneered the use of mindfulness in medical practice through his MBSR program (Kabat-Zinn, 2003). Dr. D. Siegel states that "Mindsight enables us to sense and shape energy and information flow. Mindsight takes away the superficial boundaries that separate us

and enables us to see that we are each part of an interconnecting flow, a wider whole” (D. J. Siegel, 2010b).

Awareness of the interrelated nature of reality with regard to the different categories of minds and degrees of subtleness opens one up to the insight that we are creators of our experienced nature of reality and thus in control of our lives, and therefore have plenty of possibilities for changing our condition and reality experience all along with becoming more aware of this very interrelated nature of being. Furthermore, there is the prospect of realizing that we are interconnected with one another leading to Tarab Tulkus words: “If we knew how interrelated we are, we would take great care of the other, as we would realize her/him to be part of myself.”

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Notes

1. Sanskr. Pratityasamutpada, Tib. *Tendrel* or *tenjung* relates to the interrelation of all phenomenal existents, the cause-and-effect nature of reality, the transitory or moment-to-moment changing nature of everything, part and whole interrelation, becoming and cessation, finite and infinite, localization and delocalization, etc. Tarab Tulkus emphasized in particular the interrelations of subject and object, body and mind, and energy and matter. Tarab Rinpoche expressed the meaning of *tendrel* in English as *unity in duality*, emphasizing that the interrelated nature of existence is at the same time both in unity and in duality. *Unity in Duality®* is also a trademark held by Tarab Institute Inter. that represents the overall educational view of Tarab Institutes and Tarab Ling, the educational organizations founded by Tarab Tulkus. These organizations are dedicated to applying the view of tendrel/unity in duality (including mindfulness) also to more ordinary concerns such as general health and well-being rather than strictly to advanced spiritual practice.
2. Tibetan Scholar: Tarab Tulkus, Lharampa Geshe/D.Phil. (1935–2004) from Drepung Monastic University, Tibet. Tarab Rinpoche was a Lecturer at Copenhagen University and Research Librarian at the Royal Library of Copenhagen.
3. This is a translation of the Tibetan term *Dran-pa nyer-bzhag bzhi* (Phon. *drenpa nyershak shi*). These meditations are first described in the Satipaththanas in the Pali Cannon and are more commonly referred to as the Four Foundations of Mindfulness.
4. The term “Inner Science” is a translation of Tib. *Nang-don rig-pa* (Phon. *nangdön rigpa*). Here, it refers to the universalities underlying eastern traditions, in accordance with Tarab Tulkus, in his extraction of the same. We have translated to the term “science” in order to draw attention to the similarities of this method to modern scientific inquiry inasmuch as Inner Science is an empirical method based on observation and verification. Specifically, Eastern Inner Science refers to ancient Indo-Tibetan theories and practices employed to investigate the nature of reality using the mind itself through various frameworks—see note 1.
5. Art-of-relating, in UD terminology, refers to a specific way of dealing with relationships based on insight into the interrelated nature of reality.

6. In ordinary perception, there is always self and an object. This is what is meant by self-referential nature of experience.
7. In Tibetan, the subtle bodies are called Yid-lus, phon. *yilü* = “(sixth-)mind-bodies.”
8. In accordance with EIS, any aspect of mind that is not directly related to the senses is placed in the category of sixth mind, but the important point is that all minds are momentary and arise simultaneously with the phenomena perceived.
9. The Buddhist literature is categorized under either the Sutras or Tantras.
10. Tib. Yid-kyi rtog-pa'i rnam-shes (Phon. *yikyi togpe namshe*).
11. Tib. Yid-kyi myung-wa'i rnam-shes (Phon. *yikyi nyongwe namshe*).
12. Tib. Ngönsum (Phon. *mNgon-sum*).
13. By the later Inner Science Schools (Yogacara and Madhyamaka), it is questioned whether its possible to pinpoint anything, as nothing has characteristics that exist independently, such characteristics only exist relationally.
14. We use the term “other,” implying others and everything else—except oneself. So, oneself and other comprise everything within a certain perceptive field.
15. There are different types of vipassana meditation; some are more analytical, and some are less, but in accordance with Tarab Rinpoche, all vipassana meditation uses some measure of notifying mind (i.e., conceptual mind) for its attainment.
16. In Tibetan, this subtler conceptual mind type is called Shes-rab (Phon. *sherab*).
17. Tib. Lus (Phon. *lü*).
18. Tib. Tshor-ba (Phon. *tshorwa*).
19. Tib. rNam-shes (Phon. *namshe*).
20. Tib. Chos (Phon. *chö*). Skr. *Dharma*.
21. Tib. Lus dren-pa nyer-bzhag (Phon. *lü dren pa nyershag*) relating to the first *skandha*.
22. Modern scientists have identified as many as 15 additional senses with unique sense organs buried deep within the tissues of the body called proprioceptors. There is scientific evidence that the basic senses such as sight and smell also function on subconscious levels providing very subtle levels of sensation.
23. Destructive emotions are those that have a destructive effect on oneself and others. Constructive emotions are not a problem for personal development and one's mental and somatic health—just the contrary.
24. Tib. Tshor-ba (Phon.) *tshorwa*.
25. The evaluative feeling-tone is related to the second psycho- and physical constituent, *skandha*.
26. Tib. Sems dran-pa nyer-bzhag (Phon. *sem drenpa nyerchag*).
27. Tib. rTen-drel (Phon. *tendrel*).
28. Skr. Nivirtti, Tib. lDog-pa (Phon. *dogpa*).
29. Tib. Log-pa (Phon. *logpa*).
30. See below under “Mindfulness of feeling-mind.”
31. “Direct” here only implies “without use of language.”
32. Tib. dBag-chags (Phon. *bagcha*). Skr. Vasana (English). These are sedimental imprints or impressions. Our experiences create “energy” imprints, which at a later time, under specific secondary conditions, can become activated and, for instance, give rise to a specific “self-reference.”
33. This is a state of mind that, as is said in the Tantras, we naturally attend to in the final stages of death as well as in the deepest state of dreamless sleep—but generally unconsciously.
34. Tib. bDag-'dzin (Phon. *dagdzin*). Skt. *atmagraha*.
35. Tib. bDag-med (Phon. *dagme*). Skt. *anatman*.
36. Sanskr. Vasana; Tib. dBag-chags (Phon. *bagcha*). Skt. *vasana*.
37. Vaibhasika and Sautrantika.

38. The term Mahamudra means “great movement or position,” and it relates equally to the practice and to the goal of the practice. Dzogchen derives from the Nyingma tradition/the Eldest Tibetan Buddhist School, and seems to have been brought to Tibet by Padmasambhava, a Tantrician and Magician from eighth-century India, with whose help Buddhism was introduced into Tibet. Both Mahamudra and Dzogchen are called “direct” means, as they aim in a “direct” way, without much guidance into all the intermediary stages, for the goal of mahamudra and *rigpa* respectively. At the same time, it’s interesting to see that in accordance with the Tantras, the goals of *rigpa*, mahamudra, void meditation, and nature of mind meditations are all again correlated with the state we naturally enter at the time of deep dreamless sleep and the final stage of dying.
39. In accordance with Tarab Tulku’s teaching material in UD Education, Module IV. The “clear light” relates to the final state of dying, and the third and final meditation state in accordance with the “Clear Light Yoga.”
40. TTR Yogacara—UD Education Module 1, W3. Tarab Institute Inter. www.tarab-institute.org
41. Tib. Chos dran-pa nyer-bzhag (Phon.) *chö drenpa nyerchag*.
42. The conceptual part of the *denminduje* (Tib. *lDan-min "dus-byed*)—this category has different parts, like rules of nature or natural laws, but the most dominant part is the conceptual reality.
43. The Inner Science Schools of Buddhism can be parted into the Earlier Schools of Inner Science and the later Schools, the latter often known by the name Bodhisatvayana.
44. Tarab Tulku, sound file and transcript, Vaibhasika, Hamburg, 2003.
45. Nagarjuna (c. AD 150–200), the originator of Madhyamaka Inner Science of Mind and Phenomena, and also called the second after Buddha Sakyamuni. He is the author of basic works of the early Madhyamaka like Mula-madhyamaka-karika (Tib.) *dBu-ma rtsa-ba'i tshig-le 'ur byas-pa shes-rab ces bya-ba*, 1970, Delhi, where he presents the Eight Tendrels.
46. Tsongkhapa (1357–1419) (Tib.) *dBu-ma rtsa-ba'i tshig-le 'ur byas-pa shes-rab ces bya-ba'i rnam-bshad rigs-pa'i rgya-mtsho*.
47. Tarab Rinpoche and Handberg (2005).
48. Tib. *zug, gZugs*; (Sanskrit) *rupa*.

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6

Exemplifying a Shift of Paradigm

*Exploring the Psychology of Possibility and
Embracing the Instability of Knowing*

Sayyed Mohsen Fatemi

The Role of Perspectives and Paradigms in Psychology

At the center of psychological research and studies, there lies an underlying choice of perspectives in which knowing and its modes are defined. The studies, therefore, are essentially tied to their original source in that one cannot expect to see results and findings that are not compatible with their leading perspective. For instance, a Freudian perspective cannot give rise to findings that question the fundamental assumptions of Freud's views on human nature. Similarly, a humanistic psychological perspective would espouse practices and approaches that ultimately explain their sensibility within their original source. Also, a behaviorist perspective based on Skinner's law of positive reinforcement would, inevitably, search for outcomes and consequences that follow behaviors and that subsequently lead to an increase in the frequency of those behaviors.

The notions of paradigms can be explored within a perspective in that a perspective or world view can entail a series of assumptions and beliefs that tend to explain ontological and epistemological relationships: they would represent how things are, how understanding takes place, how the relationships among things are established, what knowing is all about, how we discover relationships among phenomena, etc.

Kuhn (1962) critiques the cumulative process of facts and their implications for scientific progress and questions the dependency of the scientific progress on the steady accumulation of facts indicating that the progress happens only when there is a shift in paradigm. Paradigms, Kuhn (1962) argues, can narrow one's perspective too much and prevent scientists from observing realities that fall outside of the paradigm. As Kuhn (1962) indicated, the real breakthroughs happen during paradigm shifts, when a new way of thinking replaces an older model. A new paradigm does not comply with the old one not only because the presuppositions have changed in the new paradigm but also because the entire scientific field and its relevant problems have been redefined in light of the new paradigm. Therefore, what may be considered a problem may no

longer be a problem in view of the new paradigm, and what made sense within the old paradigm may be totally nonsensical in view of the new paradigm. For example, Fischer (2006) argued that psychological textbooks in the 1960s and 1970s defined psychology as the science that predicted and controlled behavior, and he provides a recount of the pervasive research methods based on the domination of the paradigm and indicates that

By now, with psychology having been established as a rigorous empirical discipline, most psychologists no longer accept the “control and predict” definition and no longer cite logical positivism and related philosophical foundations, but often do count on accepted experimental procedures and statistical analysis as adequate to continue building a body of knowledge. Psychology textbooks most often define psychology as the study of human and animal behavior. (p. xx)

New paradigms are not warmly received, as they shatter the taken-for-granted assumptions. The emergence of the new paradigms is often associated with skepticism, mistrust, and disbelief: the new paradigms are unsettling, as they perturb the longstanding mindset that has already developed familiarity, comfort, and accessibility of the truth. To exemplify, those who have been recursively and extensively exposed to the hegemony of natural science as the leading master of inquiry for social science and psychology find it ineluctably hard to receive a perspective that questions the tyranny of the rational empiricism or logical positivism namely questioning the applicability and plausibility of natural science paradigms in the realm of psychology.

According to Kuhn (1962):

The physical referents of these Einsteinian concepts [space, time, and mass] are by no means identical with those of the Newtonian concepts that bear the same name. (Newtonian mass is conserved; Einsteinian is convertible with energy. Only at low relative velocities may the two be measured in the same way, and even then they must not be conceived to be the same.) (p. 101)

Deep down a psychological perspective, one may discern an orientation that not only suggests a way of looking at the world but also highlights what is important to know. Within an August Comte's orientation, for example, one may see the emphasis on the so-called facts and causes of behavior. The assumptions within a paradigmatic analysis would espouse a set of beliefs that demonstrate how knowing is possible. Once the paradigms are recursively established, they become almost unquestionable, since they tend to show the right way of knowing, acting, and thinking. Questioning the paradigms would then require disobedience from the structurally established sovereignty of the operating set of beliefs. This would lead to exclusion from the domain of the ruling paradigm with its own practical consequences.

Describing the practical consequences of a leap beyond the established paradigms, Scileppi, Teed, & Torres (2000) indicate that

University dissertation committees and journal editors more readily accept research supporting the dominant paradigm, and foundations and government agencies are more

likely to fund such research. The general population finds the result of research favoring the dominant paradigm to be more believable. These societal effects influence students and novice researchers to choose to investigate only phenomena that are declared valid by the dominant perspective. Thus, the dominant paradigm is unfairly supported, and other views are quickly discounted. (p.12)

One may, therefore, claim that any psychological study or perspective can reveal a bigger perspective that defines, promotes, prescribes, controls, and even proscribes practical approaches, practices, and methods.

Mindfulness and Psychological Paradigms

The dominant paradigm in the mainstream psychology including the experimental psychology is very much close to the assumptions of the natural sciences with the notion that through the use of the quantification and the use of statistics, one can know the real world. The discourse of the positivist psychology is built on a position of certainty that knowledge is indeed attainable through the specific methodological shields. The certainty is largely borrowed from empiricism where the ideas need to be subjected to empirical investigation before they can be called scientific.

Langer's (2009) work on mindfulness can be seen as a work that questions the pervasive paradigm within the mainstream psychology. Interesting enough, she moves in line with the paradigmatic pillars of experimental psychology and demonstrates the inadequacy of the mainstream psychology. Langer's work, similar to those in the camp of hermeneutic and social constructionist psychologists, advocates that knowledge is constructed through our actions and interactions. What gives further merit to her work in this regard is her substantiation of the insufficiency of the mainstream paradigm through the use of the exclusive language of the mainstream psychology. In other words, others who have challenged the dominant paradigm of the positivist psychology have often used a language that is already marginalized in the mainstream psychology. Langer's work abides by the positivist paradigm, yet it shows how our ideas without reflecting any objective reality are constructed to rationalize or justify different discourses of domination. Langer (2009, p. 18) dissociates from the tyranny of the paradigm and indicates that "a new approach to psychology and to our lives is needed." Langer's position of challenge begins from her research on mindfulness. Langer's (2009) mindfulness questions the reliance on positivism and technical rationality while challenging the certainty of knowing. Mindfulness, according to Langer (2009), entails an active state that is associated with creation of new knowledge, welcoming new horizons of information, noticing new things, and being open to the possibility of multiple perspectives. It is through an active state of mindfulness, Langer (2009) argues, that one would embrace the complexity, uncertainty, instability, and uniqueness of the phenomena. Through numerous experiments, she has demonstrated how the mere reliance on positivist-oriented knowing would lead to the monopoly of the legitimacy of one way of knowing, namely the so-called rational way of knowing over numerous other ways of knowing. Langer's (2009) mindfulness advocates a tilt towards the position of not *knowing*, since the fixed position of positivist

knowing would hamper the exploration of an expansive array of epistemologies and locks the search for knowing in a predetermined point. The questionable knowing has its roots in positivism and enlightenment whereby rationality is defined through an access to restricted avenues of awareness mainly embodied through the linear and analytical forms of thinking. Langerian mindfulness opens up the horizon for revisiting the well-established epistemologies and argues that as much as they have contributed to expansion of our understanding, they have contained our ways of thinking. Through her research on the implications of mindlessness and mindfulness, Langer (2009) highlights the significance of the contextual components including cultural, social, economic, and political contexts, and indicates how the hegemony of positivism and its aspirations to make broad comparisons have contributed to the promotion of insensitivity towards contexts thus fostering mindlessness. Her delineation of this mindlessness would purport how the emphasis on uniformity of positivist driven methods such as questionnaire boils down to the marginalization of the contexts. In line with Bruner's (1986) distinction between the paradigmatic mode, namely the logico-scientific mode and the narrative mode, Langer (1989) recognizes narratives and presents them as an independent mode of cognition while demonstrating psychology's incarceration within natural science (logicoscientific mode) as a form of mindlessness.

Langer's work has already been inspiring in micro levels in that it has encouraged, promoted, and induced research findings and studies that demonstrate the impact and implications of mindfulness for numerous areas including health, education performance, learning, and creativity. Nonetheless, the field of psychology may prosper from a shift of paradigm through Langerian mindfulness as one may also attribute the trend of some of the already-ongoing developments in psychology to an explicit or implicit inspiration from such mindfulness. This shift is inviting, as it calls upon the exploration of a wide variety of epistemologies and even ontologies that may have been concealed to oblivion due to the hegemony of discursive manifestations of the positivist-driven paradigm.

Psychology and Acting From a Single Perspective

Mindfulness, according to Langer (2009), consists in a series of transformations in *being, thinking, feeling, and living*. It liberates us from getting incarcerated in the persistence of acting "from a single perspective."

An example of this persistence can be found in the positivist psychology that claims full accessibility of reality and its apprehensibility: reality can be fully understood, as it is driven by universal laws. The reality, therefore, can be defined, described, explained, predicted, and controlled.

Positivist psychology driven by logical positivism posits that empirically verified observations are the only valid data. This perspective, which goes back to 19th century, has been influenced by bigger underlying perspectives, including rationalist philosophers such as Descartes, the British empiricist philosophers such as Loke, and positivist philosophers of science like Popper.

Positivist psychology, due to its focus from a single perspective, has been mindless about the research subjects' sense of research setting. It is in line with this parochialism

of positivist psychology that exclusions have superseded inclusions. As Banister, Burman, Parker, Taylor, and Tindall (1994, p. 8) indicate, "it is understandable, though not surprising, that language is absent from most studies in psychology." They proceed with the quotation from Harre and Secord (1972) and write "the pretence that people do not speak is also the core of the repression of meaning in positivist research" (p. 8 in Banister et al., 1994).

Langer (1997) encourages a mindful disengagement from remaining in a single perspective and exploring alternative ways of looking and says:

In a mindful state, we implicitly recognize that no one perspective optimally explains a situation. Therefore, we do not seek to select the one response that corresponds to the situation, but we recognize that there is more than one perspective on the information given and we choose from among these. (p. 108)

Through a discussion of the story of the Prince and the Pauper, Langer (2009) highlights a very significant point in terms of understanding the perspective with vital implications for doing psychological research. If the one who tries to understand the perspective of the other is formidably entrenched in their own perspective and cannot by any means establish a fairly solid understanding of the other's perspective, the attempt is nothing but a pretentious gesture.

Social psychology, in its pervasive positivist version, has been mainly concerned with applying the knowledge to the problem. In applying the knowledge to the problem, the choice of applying the right technique has appeared as one of the first and foremost priorities. Ironically enough, this has been embedded in the assumption that the practical problems can be solved merely through the application of the right technique, namely reduction of practical issues to the question of applying the right technique. This has led to a high involvement on examining what is technically given to the subject or the participant of research: an engagement with tools, techniques, procedures, methods, and instruments. The procedure-stricken research has been searching for the application of the right technique to the problem; the meaning, however, as established by the other has often been neglected, ignored, or marginalized. The focus on behavior independent from the meaning as created by the other has promoted an algorithmic understanding of psychological phenomena. The research in psychology, therefore, if conducted from a single perspective, would only stabilize the position of the observer without revealing the truth of the observed. In elucidating the significance of understanding the perspective of the other, Gadamer (1988) elaborates the significance of attention towards the acknowledgment of the possibility of a perspective being different from one's own:

To reach an understanding with one's partner in a dialogue is not merely a matter of total self-expression and the successful assertion of one's point of view, but a transformation into a communion, in which we do not remain what we were. (p. 341)

Mainstream psychology has mainly operated from an observer's perspective in which the observer is eventually entitled to conduct the observation and endorse the process of inclusion or exclusion. The legitimacy, thus, unfolds itself within the power of the

observer as their observation would finally represent the amount of certainty taken from the dynamics of observation. This, in a more practical sense, would allow the observer to legitimize the responses that need to be taken vis-à-vis the observation. One may look at the mainstream positivist research or positivist therapeutic measures within psychology, for example, to see how the researcher or therapist would embark on creating a view based on their assumptions that can justify both the interpretation and the action.

Langer's (2009) work on mindfulness can be seen as a pivotal source of awareness for exploring the relationship between the underlying perspective of an observer in a psychological research and the power of the perspective in leading the direction that he/she takes in dealing with the psychological phenomena. Langer's presentation of mindfulness allows us to understand how the context that plays a huge role in the interpretive process is itself created by the one who is subsequently bound by the context. The context thus is, on the one hand, the creator of the perspective from which the action seeks its justification and, on the other hand, created by the one who opens up the relationship between the context and himself/herself. Through a mindful exploration of the Prince and the Pauper, Langerian understanding of mindfulness pinpoints how an understanding of the perspective of the other may lead us to a faulty understanding of both the context and the perspective if it is superficially taken as an experience of another perspective while essentially remaining in one's own perspective. In other words, if a researcher or a therapist pretends to be in the shoes of the client (the patient) while knowing that this being in the shoes of the client (patient) would soon be replaced by being in their own shoes as a researcher or a therapist, this not only means a distorted understanding of the perspective but also develops more gaps between the perceiver and the experience as a result of which the experience is still unknown to the pretentious knower of the experience. Conversely, the researcher or the therapist may not claim that she/he has understood the other's perspective, yet she/he can acknowledge openness towards the existence of the other perspective.

How can the researcher understand the perspective of the other if they are afraid of losing control of their own perspective in the process of the research or therapy? How can the researcher understand the perspective of the participant or the subject of the research if the researcher is recursively stalled in the language induced by their perspective?

Langerian mindfulness is not just a focus on the cognition; it is a shift of understanding: a shift from epistemology to ontology. Langerian mindfulness, in this sense, requires a change of being and not just knowing. It calls for a nonalgorithmic understanding of the perspective of the other and sensitivity to the incessantly on going process of genuine novelties that unfold themselves beyond the established contingencies. Langerian mindfulness (Langer, 1997, p. 124) reiterates that "a mindful approach does not favor the observer's over the actor's perspective."

One may see another example of psychology's mindlessness and its concentration from a single perspective in psychology's infatuation with the illness model. Psychology, one may argue, has been so mindless about the possibilities right from the beginning. It has acted in the language of Langer (1989, 1997) "from a single perspective" and has been oblivious of any shift of attention. The negative psychology itself is a

salient example of mindlessness where the windows towards any opening have been fully blocked with an emphasis on negativity.

Elaborating on this negative orientation of psychology, Fineburg (2004) cites numerous examples and indicates that

VanderStoep, Fagerlin, and Feenstra (2000) surveyed introductory psychology students to see what concepts were recalled most after taking the course. The concepts most often recalled were overwhelmingly related to negative psychology and the illness model. Students most often remembered learning about Phineas Gage and his brain injury, systematic desensitization, narcolepsy, Milgram's obedience study, attitudes influencing behavior (presented through a "controversial issue" debate), and two disorders—dissociative identity disorder and schizophrenia. The other ideas recalled—"psychic" powers, altered visual perception, neuron firing, and classical conditioning—could be considered neutral, but not specifically positive. Many introductory psychology students do not continue to higher levels of psychology, so their overall perceptions of psychology center around the disease and illness model that has dominated for the past half century. (p. 198)

In pursuit of the monolithic perspective with a concentration on negativity, psychology seems to have mostly generated a flux to corroborate the categorization of the illness model in various arenas. One may track down the ubiquitousness of this trend in plethora of research from personality to happiness where the impossibility of increasing one's happiness and the inevitability of a real transformation would call for a quintessential applicability and plausibility (see Allport, 1955; Lykken & Tellegen, 1996; McCrae & Costa, 1990; Suh, Diener, & Fujita, 1996).

Acting from a single perspective and its consequential mindlessness has been a driving force so dominantly that it has affected thinking about wellness and health. It is, then, not surprising that our understanding of wellness has been mainly embedded within an illness orientation. There seems to be scant research that has examined the concept of being well as an independent state of being without a focus on the illness models (see Medich, Stuart, & Chase, 1997; Paul & Weinert, 1999).

A Langerian perspective with mindfulness would illustrate how psychology's entrenchment within the pillars of stabilized definitions and their urge for constancy has deprived us from looking outside the preestablished borders. In identifying the underlying elements of the cling to such mindlessness and getting encapsulated in one single perspective, Horwitz (2002) writes:

The emergence and persistence of an overly expansive disease model of mental illness was not accidental or arbitrary. The widespread creation of distinct mental diseases developed in specific historical circumstances and because of the interests of specific social groups ... By the time the DSM-III was developed in 1980, thinking of mental illness as discrete disease entities ... offered mental health professionals many social, economic and political advantages. In addition, applying disease frameworks to a wide variety of behaviors and to a large number of people benefitted a number of specific special social groups including not only clinicians but also research scientists, advocacy groups, and pharmaceutical companies, among others. The disease entities of diagnostic psychiatry arose because they were useful for the social practices of various groups, not because they provided a more accurate way of viewing mental disorders. (p. 16)

Elucidating the perniciously embedded mindlessness within the medical-oriented psychology as an example of acting from a single perspective, Langer (2009) argued that

We can become effective health learners only by questioning the traditional ways we respond to medical information. We will be ready to seek a new way if we recognize that doctors can only know so much, that medicine is not an accumulation of absolute truths, that incurable really means indeterminate, and that our beliefs and most of the relevant external world are social constructions. (p. 29)

Langerian mindfulness, thus, highlights how the perspective can be limited and limiting and how the containment of the perspective may develop the illusion of mastery without allowing a search for alternative ways of exploring the unresolved mysteries.

It may be in line with the achievement of such a mindfulness and understanding the tyrannical subjugation of psychology's longstanding mindlessness that Seligman and Csikszentmihalyi (2000) revisit the sovereignty of medical-oriented psychology and its pervasive attachment to the illness model. They question the pathology, faults, and dysfunctions as the bare-bone essentials of human conception. The whole enterprise of positive psychology, one may suggest, demonstrates an implicit flight from mindlessness to mindfulness where, in the language of Langer (1997), "the value of uncertainty" is celebrated, as it allows one to mindfully deconstruct the assumptions that may have been considered as ineluctably solid due to their frequent and extensive exposure. Seligman (2002, p. 211) appears to be, for instance, mindful of Langerian alternative ways of looking when he indicates that "current dogma may say that negative motivation is fundamental to human nature and positive motivation merely derives from it, but I have not seen a shred of evidence that compels us to believe this." Positive psychology, albeit away from the flurry of negativity and its connectedness to psychology's main subject matter, is still steeped within the discourse of the mainstream positivist psychology with that being presented as a laudable sign of superiority to others including humanistic psychology. This might as well demonstrate how the hegemony of a paradigm would have an influence on those who even oppose the implications of the paradigms and yet reside within the same route of thinking.

Psychology seems to have been mindlessly preoccupied with acting from a single perspective that strongly stresses a focus on the illness, disorder, diagnosis, problems, and malfunction. This preoccupation has resulted in producing other perspectives that have tightened the examination of a search beyond the discourse of negativity. Maddux, Snyder, and Lopez (2004) appear to highlight the dangers of such mindlessness as they reveal a connection between the illness ideology and psychology.

They deconstruct the underlying elements of such mindlessness that has imposed its heavy implications on psychology and indicate:

The discipline is still steeped not only in an *illness metaphor* but also an *illness ideology*—as evidenced by the fact that the language of clinical psychology remains the language of medicine and pathology. Terms such as *symptom*, *disorder*, *pathology*, *illness*, *diagnosis*, *treatment*, *doctor*, *patient*, *clinic*, *clinical*, and *clinicians* are all consistent with the ancient assumptions captured in the term *clinical psychology* and with an ideology of illness and

disease. Although the illness metaphor (also referred to as the *medical model*) prescribes a certain way of thinking about psychological problems (e.g., a psychological problem is like a biological disease), the *illness ideology* goes beyond this and tells us to what aspects of human behavior we should pay attention. Specifically, it dictates that the focus of our attention should be disorder, dysfunction, and disease rather than health. Thus, it narrows our focus on what is weak and defective about people to the exclusion of what is strong and healthy. (Maddux et al., 2004, p. 322)

A Langerian understanding of psychology illustrates the mindless entrapment by getting encircled in one single perspective and their implications. It delineates how a research, a project, and a focus can be incarcerated within the limiting tendencies of one perspective and how perspectives can constrict and contain our choices. The frequent exposure to specific pervasive perspectives in psychology and their infusing suggestions may overwhelmingly insinuate that what is out there is the mere or exclusive representation of the fact; it harbors the illusion of accessibility to a truth that can serve as a preamble for compartmentalizing the truth and falsehood.

Langer (2009) demonstrated how psychology's infatuation with the mindless pursuits of recursive conceptions within the prematurely established discourses can respectfully blindfold us and bring a seemingly decent fixation within the stable yet perturbable flux of promoted certainty. Langer (2009) indicates that "a disease's mere label has the ability to foster an illusion of control wherein immediately the expert begins to consider the disease as fixed and inert" (p. 133).

Langerian perspective on psychology displays a full engagement within the paradigm of the mainstream psychology to corroborate a solid understanding of the methodological rigor of the hegemony and substantiates the fallacies of the dominant models in action; it speaks the language and yet does not get drowned in the language; it speaks the language to show the inadequacy of the language.

One may look at the crisis in psychology in 1960s and 1970s, and the debate on the new paradigm versus the old paradigm to see the challenges of illustrating the deficiencies and inoperability of the old paradigm within the positivist framework. The endeavors to suppress the interpretation turned out to be impossible (Parker, 1989), and the old assumptions based on quantification were perturbed; the tyranny of the scientific positivism came to an end, and the quantitative worlds of facts and laws proved to be vulnerable. Langerian perspective on psychology applies a mindful understanding of the quantification and displays an interpretive shift from the positivist approach; it demonstrates that not all quantitative research is positivist.

In nullifying the all-encompassing mentality of precision within the quantitative analysis and the statistical focus on psychology, Langer (2009) argued that "numbers and the tests they represent are not useless. They are tools, and tools can be helpful if used mindfully to guide us and to give us ideas—not to govern what we do or do not do" (pp. 138–139).

A Langerian understanding of mindfulness can, thus, be well attuned to a return of meaning in research. Qualitative research might, therefore, be reminded to be more mindful of the threads that may be missing in the literature and yet can be

well scrutinized within the Langerian school of mindfulness. Langerism addresses the “methodological horrors” (Woolgar, 1988). In describing these horrors, Banister et al. (1994) write:

indexicality, in which an explanation is always tied to a particular occasion or use and will change as the occasion changes; inconcludability, in which an account can always be supplemented further and will continually mutate as more is added to it; and reflexivity, in which the way we characterize a phenomenon will change the way it operates for us and that will then change our perception of it etc. (pp. 3–4)

Langer (2009) presented a mindful understanding of the above and indicates “what can we do in the face of a culture that quantifies every thing? We can remind ourselves what these words and numbers really do and do not tell us. And we can reassert the uncertainty that they hide” (p. 140).

Psychology and Entrapment by Categories

Langerian mindfulness (1989) highlights the role of getting settled in the perfunctory repose of the categories and indicates that “mindlessness sets in when we rely too rigidly on categories and distinctions created in the past ... We build our own and our shared realities and then we become victims of them—blind to the fact that they are constructs ideas” (p. 11).

During the past 30 years, there have been more than 45,000 published articles on depression, with only 400 on joy (Hall, 1998). Psychology seems to have been largely encapsulated and entrenched within the categories created by the pervasive discourse of negativity within the bedrock of the illness model. The pervasiveness of the categorization has brought an implicitly induced mindlessness that has prevented most of the research in psychology from breaking the establishment and the tyranny of the categories. The confirmatory reference points have reclaimed their sensibility within the paradigmatic analysis of the categories, which, notwithstanding their generative power of conducting reflection on the categories, their ramifications, and their imbrications, have attested to a tacit mindlessness in which the sovereignty of the established categories has not been mindfully deconstructed.

One of the main reasons of psychology’s entrapment in the illness model and its emergent categories may be examined in the contextual analysis of psychology’s growth and development. Both in the United States and in Western Europe, psychology has been influenced, at least as much as the products are concerned, by the underlying social, economic, political, and even military factors. The Great Depression, the World Wars, the Cold War mentality of fear and anxiety, the probability of increasingly growing forces of harm and danger are among a few of the contextual elements that have potentially contributed to the significance of a direction towards which psychology has marshaled its forces. One may need to look at the assessment tools and their initial applications for military goals to reconnoiter how psychological tools and assessments have expedited their process of growth through a recondite emplacement within the mentality of power. The contexts, albeit varied in terms of

manifestations, have strikingly impacted psychological scholarship. Darwinian theory and its operative metaphors in ruling out the possibility of a search for genuine virtues, Hobbes' epistemology of human beings' innate badness, the Soviet Union's launching of Sputnik, the first man-made space satellite, are some of the many other examples of the contextual factors that have forcibly prescribed a direction for psychology that displays its revelatory mindlessness in probing realms and perspectives beyond the formidability of the context. It seems that psychology has been extensively subjected to its contexts' oriented propensities and has been incarcerated within the definers of the contextual constraints.

On the paralyzing impact of contexts and their dictating mindlessness, Langer (1989, 1997, 2009) illustrates how contexts can induce "premature cognitive commitment" and pinpoints that "contexts can be an influence, even when we are trying to make the most precise and specific judgments" (p. 38).

In an effort to break the contexts and to promote mindfulness for revisiting what has easily been concealed to oblivion, Langer (1997) challenges the underlying contextual constriction of the notion of intelligence, its roots in the 19th century, and its overarching inundation in determining our thinking about its possessiveness of the truth.

Elucidating the perils of contextual subjugation and its debilitating effects, Langer (1997) indicates how implicit or explicit submissiveness within the contextual borders would deprive us from adopting a proactive posture or a creative approach.

Langer's points on entrapment by categories can be very helpful in understanding how psychology's incarceration within some of the preestablished categories has imposed a one-sided direction in thinking about social phenomena. Langer's illustration of mindlessness by categories would facilitate the process of looking at the psychological trends and their social implications. Once the categories have been established, they have been operative in making judgments and making decisions. If you seem to fit the categories as they have been designed, you would be automatically subjected to the defining borders of the categories. In the realm of social services, for example, one may see how this entrapment would have led to "blaming the victims for not adjusting to degrading social conditions" (Nelson & Prilleltensky, 2005). In further exemplification of such entrapments and their social implications, Nelson & Prilleltensky (2005) write:

As an example, the field of psychology had created intelligence testing in the UK (Francis Galton) and France (Alfred Binet) and IQ tests were imported to and refined in the US during this period. Galton and other psychologists in the area of intelligence testing were proponents of Social Darwinism (Albee, 1996a), which took Darwin's concepts of natural selection and survival of the fittest and applied them to human beings and intelligence. IQ was viewed as an innate quality of individuals, and people with low IQ scores were seen as inferior and unworthy, people who should be "weeded out" of society because they weakened the genetic stock. The eugenics movement, which was prominent in the 1920s, used the philosophy of Social Darwinism to advocate for the separation of the "feeble-minded" from the rest of society into institutions, sterilization of people with low IQ, and restrictions on the immigration of people deemed to be inferior (those from eastern and southern Europe, Africa and Asia). (p. 8)

One may see further depth of such mindlessly accepted categories and their social destructive implications as Nelson & Prilleltensky (2005) highlight “chilling” quotes from Albee (1981), who presents examples with instantiation of such mindlessness:

We face the possibility of racial admixture here that is infinitely worse than that favoured by any European country today, for we are incorporating the Negro into our racial stock while all of Europe is comparatively free from this taint... the decline of American intelligence will be more rapid... owing to the presence of the Negro. (Brigham [Princeton psychologist], 1923)

[Massive sterilization] is a practical, merciful and inevitable solution of the whole problem can be applied to an ever widening circle of social discards, beginning always with the criminal, the diseased, and the insane and extending gradually to types which may be called weaklings rather than defectives and perhaps ultimately to worthless race types. (Grant [New York Zoological Society], 1919) (Nelson & Prilleltensky, 2005, p. 8)

Psychology and the Sovereignty of Labels

The literature in psychology is brim with examples of mindless entrapment by labels and their metaphoric implications (see Churchland, 1987). One may need to look at the research on cognition, for instance, and find out how computers and their affiliated terms and connotations gave rise to a mindless search for explorations of one of the main subject matters in psychology, namely mind. When computers occupy the zeitgeist of scholarly works for mind, they bring a series of morphologically based concepts that develop and promote their restrictive approach towards thinking about mind. Our computer-driven research of the mind would suggest that the computer and the mind would have the same attributes: the computer can be considered with the attributes of the mind including the memory, and the human mind has the characteristics of the computer such as data processing. Notions such as coding, decoding, message, information, input, output, processing, to name a few, would structure the path of thinking about the mind in a way that other possibilities would be marginalized or overshadowed. The diverse qualities of the phenomena may be accordingly suppressed in the huge priming of the established labels that prescribe the direction and the sensibility of taking a direction to approach the subject matter. The following statements by Nadeau (1991) may cast further light on our mindless entanglement:

Human beings are programmed in a manner analogous to programming computers. The hardware that is our brain allows us to assimilate the software of language and this software becomes the basis for encoding all aspects of the elaborate software package of a transmitted culture. (p. 171)

The same can be said when the metaphors of biology marshal their forces in thinking about social phenomena. This has turned out to be a common practice, namely borrowing terms and labels from biology or natural sciences and applying them in social sciences. Among some recent examples, one may refer to Wilson's (1998) book, *Consilience*, with a biological interpretation of culture and society based on Darwinian

evolutionary theory. Getting immersed in reductionism and evolutionary notions of the fittest, Wilson (1998) lays huge emphasis on the only possible way of consilience where all phenomena are “based on material processes that are ultimately reducible, however long and tortuous the sequences, to the laws of physics” (p. 297).

The created models in the heart of these metaphors would limit our thinking within the domain of the prescribed structural configuration as if there were stable qualities within the social organisms. Accordingly, our intellectual endeavors to understand the phenomena would be subscribed to a quest for stability within the form. For example, if the adaptation model stands at the apex of our thinking about social phenomena, we would automatically look for the social organism’s response by focusing on the best form of adaptation. The response may be taken as an explanation of the organism’s stability that would help us apprehend its progress. This entangles us on a unilateral gaze at the outcome without understanding the process in which the constantly ongoing flow of events would call for a mindful understanding of the meaning within the human interactions. A mindless indulgence on the Darwinian biology and its attributions to human phenomena in social psychology would similarly produce labels and metaphors that block our understanding of the complex interplay of diversity and its implications for understanding the meaning created by human beings in social settings. Once we create a compartmentalization and let it pervasively serve as a leading metaphor, we assign labels that can allocate the individuals to the groups of our compartmentalization. If the individual fails to fall into the created categories, it would be labeled as a mismatch of the group: it does not fit our classification and can thus be labeled as the opposite of our previously constructed labels. ADHD, learning disability, general disability, and so many other socially constructed labels within our seemingly psychological analysis move in that direction. The boundaries and limits of the frequently cited labels would induce significant consequences that impede the process of transformations as they insinuate a pseudoemplacement of truth and its associated validity and reliability within the recursive patterns of labels pervasiveness.

A Langerian approach displays how getting encircled by the labels hamper the possibility of a genuine look at what may lie beyond our assumptions. Langer (2009) indicates that:

Labels lead us to go on hypothesis-confirming data searches. That is, we look for evidence to support the label. Since most information is ambiguous, the result is “seek and ye shall find.” The label “patient” leads us to examine behavior and life circumstances through a problem-finding lens. The label “patient” also leads us and doctors to search for illness-related symptoms. In both cases, behavior and sensations from the norm are interpreted as unhealthy. Moreover, independent cues of health may be totally ignored. (p. 135)

On the social level, we may see labels and metaphors that suggest an unquestionably established relationship between technical progress and the progress of democracy, the increase in computer mediated world and the enhancement of health and security, the advancement of technology and the rise in human comfort.

Social psychology’s engagements with some of the created metaphors have led to the promotion of certain structural thinking about social phenomena. For example, elaboration likelihood model presented by Petty and Cacioppo (1986a, 1986b) presented

a metaphoric understanding of the persuasive process that suggests an either-or way of thinking about the persuasiveness: the central routes versus the peripheral routes. Under the conditions of high involvement, the message would be processed centrally, and accordingly the receiver of the message would be highly involved in examining the content, arguments, and ideas of the message, whereas under the conditions of low involvement, the message is processed peripherally in that the receiver of the message pays no serious and central attention to issues such as content arguments and ideas in a message; instead, the receiver, under low-involvement conditions, would pay attention to issues such as attraction, expertise, and appearance of the sender, and therefore the message is peripherally processed. In central processing of the message, ELM suggest, there would a high active participation, whereas in peripheral processing, such an active participation decreases. The model would structure our thinking about persuasiveness through the creation of a metaphoric label namely routes that suggest we think about the message either this way (peripherally) or the other way (centrally), and we cannot think simultaneously both ways or in ways different from the peripheral or central. A mindful exploration of the peripheral may suggest that a peripheral route is also tied to a central route in that one needs to be centrally involved to some extent to proceed with a peripheral route. If the factor that activates the peripheral route activation (e.g., the attractiveness of the sender of the message) does not require any thought or consideration, can it ever bring the suggestion that, since this speaker is so attractive, thus what he/she says is perhaps true? The peripheral route, hence, is dialectically tied to a central route, to use the language and metaphor of the model.

On another level, the implications of negative labels associated with despair, inadequacy, deficiency, and despondency in psychotherapy may be explored in the context of the underlying epistemological, ontological, and etiological psychological perspectives where the focus on negativity has dissipated any mindful endeavor for searching beyond the mindlessly planted assumptions. One may go through Freud's words to detect numerous examples of the monolithically mindless attention and its embedded insinuations. In one of his assertions, Freud (1918–1996) says: "I have found little that is 'good' about human beings on the whole. In my experience most of them are trash..."

The important point to note here is that through the imposition of labels and their mindless expansion, we circumscribe thinking about the psychological phenomena and limit the production of ideas, understanding, and perspectives that go beyond the limited products. The limits, therefore, identify the psychological phenomena and make it look stable and fixed. Langerian mindfulness, however, warns against the danger of this caging by the labels and argues that within these limits, the psychological phenomena and its individual or social its manifestations are open to the possibilities for change and, thereby, definition: the labels should not lead us to term them as unquestionably true.

With a focus on the practical implications of mindless entraps by the recursive patterns of labels and their inducing assumptions, Linley and Joseph (2004) examine the relationship between the deeply embedded assumptions within any psychological practice and discuss how practitioners often mindlessly go for the implementation of the practices without mindfully excavating the recondite constituents of the implicitly

established messages within their mindlessly taken-for-granted axioms. On the role of these assumptions and their implications, they write:

Further, these assumptions are typically implicit, and therefore are often uncritically accepted by practitioners trained in a particular model and a particular way of knowing. It is precisely because these fundamental assumptions are implicit that they are so often taken for granted and unchallenged, assuming the position of the status quo. (Linley & Joseph, 2004, p. 714)

One needs to read the above-mentioned citations mindfully to realize that their words are in fact tantamount to Langerian mindfulness and its call for deconstructing the layers of the assumptions that justify one's constant positioning in a single perspective.

Langer (2009) extends this from the world of psychology to the world of medicine and challenges the consecration of the mindlessly accepted principles that seem to acknowledge the ownership of knowing and knowledge to a group:

We would be aware that medical facts are not handed down from the heavens, but in fact are determined by people under changing, different conditions. I don't think I can say often enough that medical decisions rest on uncertainty—if there were no uncertainty, there would be no decision to be made. To reveal at least some of this uncertainty would mean that while our doctors may be knowing and caring, they cannot be all-knowing. They are subject to the same biases and value-based judgments as the rest of us. But doctors often feel they have to hide their uncertainty. (p. 136)

Maddux, Snyder, and Lopez (2004) seem to have been inspired by a mindfulness when they examine the mindless implications of psychological wellness and illness, and suggest, "We can not conduct research on the validity of a construction of psychological wellness and illness. They are social constructions grounded in values, not science, and socially constructed concepts can not be proven true or false" (p. 321).

Langerian understanding of mindfulness would help us understand how our language demonstrates our priorities and how it shapes our living and being. If the language is mindfully chosen or changes, that would bring a transformation in one's being. Once the subscription to a language is mindfully examined, the very examination can delineate the limiting conditions of the language used, and that examination would develop mindfulness in the choices that one may have.

Exemplifying the underlying elements of the use of the words "remission" and "cure," Langer (2009) indicates how our frequent exposure to the mindlessly accepted labels, names, and words would stop us from exploring our choices. She challenges the pervasive discourse of language in psychology and medicine and explains:

The way we use language encourages people with cancer, alcoholism or depression to consider their disorders as an intractable part of who they are. Colds and headaches, by contrast, describe how we are at a particular time, not who we are. We might be able to improve "how we are" if we make decisions about what to call our ailments based on differences from one episode to the next. (pp. 129–130)

The Psychology of Possibility

The psychology of possibility is one of the conspicuous landmarks of the shift in Langerian mindfulness. The psychology of possibility offers a shift from “knowing what is” to “knowing what can be” (Langer, 2009, p. 15).

The psychology of possibility critically questions the sovereignty and subjugation of knowing; it strikingly shatters the reliance on the structural repose of habitual ways of thinking; it ruptures the dependency on the plethora of circumscribing factors including our thoughts, our experiences, our schemas, and our assimilating concepts. The psychology of possibility harbors the flight from the routinized discourse of entanglement within the prescribed signifiers to the infinite realm of becoming. The psychology of possibility is not a positivist-driven psychology with a concentration on logical positivism, linear modes of thinking, and illness models. The psychology of mindfulness is a psychology of hope, faith, and meaning making; it is a psychology of self-empowerment, self-growth, and self-consummation. The psychology of possibility does not lie in negation and disconnectedness; it is a psychology of connectedness: it illustrates the possibility of repositioning one’s self through a nonevaluative process in which negativity does not stop the process of furthering one’s movement. The psychology of possibility celebrates the process of becoming through a mindful examination of choices. The psychology of possibility allows one to linger in the spaces of being and becoming. The psychology of possibility highlights how our mindsets are paralyzed within the illusion of stability; the psychology of possibility enlightens the possibility of an exquisitely fresh experience with revitalizing implications. In elucidating this, Langer (2009) indicates that “we hold things still in our minds, despite the fact that all the while they are changing. If we open up our minds, a world of possibility presents itself” (p. 18).

The psychology of possibility does not look for endorsement through probabilities; it encourages thinking beyond the stability of the established patterns of thinking. In dissociating from the dependency of mindset based on a mere focus on “is” than “can be,” Langer (2009) writes:

There are many cynics out there who are entrenched in their beliefs and hold dear their view of the world as fixed and predictable. There are also people who, while not cynical, are still mindlessly accepting of these views. A new approach to psychology and to our lives is needed because the naysayers—those who demand empirical evidence are—winning. It is they who have determined what’s possible and what’s achievable, to our collective detriment. (p. 18)

A Langerian understanding of psychology is constantly seeking the dialectics of construction and deconstruction where the certainty of the assumptions and the hubris of knowing can be openly exposed to the manifestation of uncertainty and a quest for alternative possibilities. A Langerian understanding of psychology offers a new reference point that goes beyond the government of numbers and the illusion of precision. This new reference point propounds that one’s level of *being* can be continuously heightened not through a repose in the repertoire of schemas and engagement in the

cognitive process of Piagian assimilation and accommodation but through a genuine and mindful exploration of the flux of novelty and its innovative unfolding as one flexibly and yet persistently embraces the incessantly flow of presence. Although it can lead to an inclusion or a discovery of flow in Csikszentmihalyi's (1990) sense, this is different, since it serves as a springboard for fostering higher stages of *being*. In doing this, Langerian perspective offers a new paradigm.

Psychology has long been sitting on the pulpit of intercepting actualities and has thus produced the borders and the definers of the psychological products within the prescribed paradigmatic analysis of what is out there. A Langerian perspective, however, propounds a concentration on potentialities and possibilities where the innovativeness of the next moment is by no means pledged by the attractors of the sovereignty of the familiar. This moves in line with fighting for *otherwise* (Fatemi, 2009) where:

Creativity targets the unknown, the unfamiliar, the unexplored. It searches the mystery within mastery, the opening within the blockage, the revolution within stability, the disintegration within integration, the decomposition within the composition, the indeterminacy within determinacy, and the light within the darkness. (p. 50)

A Langerian perspective on psychology is creative and creational in that it continuously and not continually encourages innovation and novelty, and induces a constant engagement with revisiting the perspective that positions the actor. This, *ipso facto*, brings an exquisite manifestation of the experience where the experience is not merely compartmentalized within the repetitious patterns of the priming, cultivation, or association. In delineating the function of this experience, Langer (2009) writes:

When we learn mindlessly we look at experience and impose a contingent relationship between two things—what we or some one else did and what we think happened as a result. We interpret that experience from a single perspective oblivious to the other ways it can be seen. Mindful learning looks at experience and understands that it can be seen in countless ways, that new information is always available, and that more than one perspective is both possible and extremely valuable. It is an approach that leads us to be careful about what we “know” to be true and how we learn it. At the level of the particular experience, each event is unique. Why do we think we can learn from experience? That is, if events don’t necessarily repeat themselves, what can one event teach us about a future event? (pp. 29–30)

A Langerian understanding of psychology, therefore, is not built upon a linear understanding of phenomenon and their relationship. The linear understanding allows one to search for sensibility, yet it imposes syntagmatic relations that need to be observed upon any examination. Langerian perspective on psychology challenges the Cartesian epistemology and the presumed discovery of law-like generalizations that appear as the foundation for deductive explanations and predictions. This might bring Langerian epistemology in close proximity with Heidegger (1959), where he questions Cartesian discourse and its subject-object orientation indicating that nothing new can be learned as understanding becomes tantamount to nothing but a repetition of what has already been included in the interpretive process.

Heidegger (1959, pp. 157–158) elucidates that “[Man] is always thrown back on the paths that he himself has laid out: he becomes mired in his paths, caught in the beaten track, and thus caught ... excludes himself from being. He turns round and round in own circle.”

A Langerian understanding of psychology avoids such a circle and considers language as a choice; it invites mindful listening and warns against the mere presentation of a spectator, as, in the language of Heidegger (1959, p. 13), it “is in words and language that things first come into being and are.” A Langerian understanding, therefore, focuses not on an already-existing understanding but on making understanding possible and initiating understanding in multifarious and polysemic levels. In doing this, Langer (2009) suggests:

Experience can be a feeble teacher. How do we learn when we think we are learning from experience? We look back at the experience—an experience that could be understood in countless ways—and impose a relationship between two things even though many other relationships could have been constructed. Once we have the relationship in mind we look for confirmations and eliminate alternative understandings. So experience too often “teaches” us what we already know. Sometimes yesterday’s progress is today’s failure. We try walking on a broken leg that is healing and we’re doing fine, and then we see we’ve pushed ourselves too far and the next day we have to take it easier. We could have understood our past experiences to lead us to give up, take it easy, or try harder. (pp. 30–31)

A Langerian understanding of psychology reproaches the scientific dogmatism and its consequential reductionism, and critiques the establishment of a determinate reality for human intellect. A Langerian perspective explicates the significance of understanding the process, and in doing this it brings into perspective James’s (1971) view that life is so opulently rich. In doing this, Langerism is very much in common with James’s notion of indeterminism and his illustration of the limitation of the knowing and the knower. Yet, along with James (1956), Langerism encourages the search for “real, genuine possibilities in the world,” as it fosters and facilitates the process of transcending the ordinary to higher and mystical stages of consciousness or, in the language of James (1958), “from a less into a more.” Thus, Langerism may serve as a preamble for a transcendental process of *being* and becoming away from the quotidian engagements that only resonate with the platitudes of the entanglement with the ordinary. In describing the possibility of such a process and its experiential understanding, James (1971) writes:

There are possibilities [in us] that take our breath away of another kind of happiness and power based on giving up our own will and letting something higher work for us, and these seem to show a world wider than either physics or philistine ethics can imagine. Here is a world in which all is well. (p. 266)

The point here, however, is to argue for a broader demonstration of Langerian mindfulness where, in addition to its significant applications and implications, mindfulness can be taken as a foundational perspective that can serve as a leading theory.

Langerism can, then, be taken as a new reference point for psychology where the research, teaching, learning, and, more importantly, understanding can be fundamentally transformed. This transformation, besides its numerous practical benefits, can give rise to attention towards the unprivileged voices that may have been concealed to oblivion in the mindless entrapment of the discourses of power. Indicating how the mindsets on expertise would develop mindlessness, Langer (1989) explains how the hegemony of those who construct the dominant narratives in a society have the power to exclude people and groups. She elaborates the mindlessness beneath the narrative structures that turn out to be the internalized truths within a society and expounds on the society's mindlessness to abide by the standards established by the so-called experts. Langer (2009) demonstrated the impacts of the dominant discourses in suppressing marginalized voices and depicts the extension of the mindlessness to the individual level where individuals are mindlessly subscribed to the hegemony of the discourses that they search for their meaning through an automatic obedience to the norms set by the dominant discourses. As Langerism would open up numerous possibilities for exploring the significant interstices that may have been largely overlooked and their marginalizing implications, it can also be of vital importance for practitioners within the psychological field. To exemplify, some therapists may be mindlessly entrapped by the categories such as cross-generational coalitions, rigid boundaries, or self-differentiation, and accordingly may not be able to examine the dehumanizing implications of such categories. However, some therapists' mindless clinging to the scientific dogma and the persistence to reductionism may reveal the pernicious impacts and dehumanizing effects of reducing people to DSM-IV diagnoses. Langerism questions the therapists' privileged access to the truth and saliently highlights the mindful process of revisiting the assumptions and the views that, if not reexamined, can lead to insidiously paralyzing outcome and consequences. In line with this, Langerism would facilitate the process of a genuine cultural psychology where the intercultural phenomena would be studied not on the strength of the dominant positive paradigmatic analysis but by virtue of a quest for understanding while lingering in the unfamiliar paradigm. This may also suggest that truths can be institutionalized, and the process of institutionalization of the truth may hamper the process of a recondite cultural understanding. To do this, Langerism can be of great service to psychology of mass media where the social construction of reality would unfold itself.

In discussing the nature of Langerian mindfulness, Sternberg (2000) examines mindfulness in the body of psychological constructs and proposes that mindfulness would be a better fit in the realm of cognitive styles.

Coming from a mindful perspective and looking for alternative ways of interpretation, one may also suggest that mindfulness is a stage of *being*; a higher *being* that is well connected to knowing: knowing becomes *being*. Ha'iri Yazdi (1992) explores this relationship of knowing and being in the following way:

The inquiry into the nature of the relationship between knowledge and the knower can lead to the very foundation of human intellect where the word knowing does not mean any thing other than being. In this ontological state of human consciousness the constitutive dualism of the subject-object relationship is overcome and submerged into a

unitary simplex of the reality of the self that is nothing other than self-object knowledge. From this unitary simplex, the nature of self-object consciousness can, in turn, be derived. (p. 1)

Langerian mindfulness, therefore, presents a shift from epistemology to ontology. It opens up a new state of *being*. Psychology, having got itself disengaged from any ontological engagements, can view mindfulness on the strength of an epistemological position. The search for mindfulness in psychology is, thus, conducted within the epistemological priming of the presentations that, according to the very nature of Langerian mindfulness, may have not have been very mindful of the multiple perspectives outside the realm of the epistemological endeavors. To put it in another way, psychology's long engagements with the quest for sensibility within the familiar epistemological paradigms may have accentuated the process of an overindulgence in the epistemological positioning at the cost of an ongoing mindlessness towards the ontological engagements.

Langerian understanding of psychology develops a link between both realms, namely epistemology and ontology, and openly embraces the possibility of an ontological influence on the epistemological realm. It could, among other potential services for the world today, offer a more mindful understanding of the need for a solid interdependence between the two known realms that have mindlessly turned back at one another. A Langerian understanding of psychology, hence, opens up the possibility for a genuine interdisciplinary and multidisciplinary search with an emphasis on the distinctions of each operating perspective.

If mindfulness is taken as *being*, a higher stage and a state of *being* at that, psychology's task would find itself inextricably tied to an etiological responsibility, namely providing a great repertoire of mindfulness for fostering growth in both individual and social levels. Langerian understanding of mindfulness can, therefore, be a great tool at the service of both cultural and political psychology where the perfunctory knowing of relations and relationship can bring detrimental implications for world peace and security. Langerian understanding of psychology may accordingly promote rich opportunities for affecting the quality of life with positive social, individual, and political implications.

Langerian presentation of mindfulness, hence, brings a fundamental deconstruction of some of the mainstream psychological assumptions that have dominated our psychological understanding. Langerian mindfulness and its consequential experiments have brought new findings in numerous areas of psychological research including creativity, health, performance, education, learning, and decision-making. This, can be taken as a micromanifestation of the Langerian version of mindfulness, whereas in the macrolevel Langerian presentation of mindfulness propounds a transformative process of examination of psychological phenomena; it augurs changes in psychological thinking while going beyond the realm of thinking. Langerian understanding of mindfulness can be interpreted as a new understanding of psychology in which the reference points for the psychological analysis would be openly exposed to a mindful excavation of both the perspective and the actor.

Langer may be described as the forerunner of the Western psychology of possibility. Contrary to the mainstream psychology that legitimizes psychology's dependency on

the observer's version of understanding and their authoritative privilege in endorsing the observer-driven truth, Langerian psychology examines the hegemony of the context-oriented truth and probes the necessity for looking at the a priori assumptions that act as the driving forces of the psychological analysis. In doing this, Langerian understanding of psychology would potentially offer an in-depth look at a wide variety of psychological assumptions that are implicitly taken for granted.

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Art of Mindfulness

Integrating Eastern and Western Approaches

Maja Djikic

Mindfulness, historically associated with meditation techniques that originated principally from Buddhist practices (Hanh, 1976), has permeated Western psychology in the recent decades. There are two distinct approaches to it in the current psychological literature—one based on the practices congruent with the Eastern meditation (Alexander, Langer, Newman, Chandler, & Davies, 1989; Bishop et al., 2004; Kabat-Zinn, 1990), and a uniquely Western approach that does not involve meditation but draws novel distinctions about the objects of one's awareness (Langer, 1989; Langer & Abelson, 1972; Langer, Blank, & Chanowitz, 1978). In this chapter, I shall describe how these two approaches differ in what they considered to be a problem (to which mindfulness is an answer), what they argue to be the underlying causes of the problem, and, finally, what practices they propose would lead to positive outcomes. The differences between the approaches will then be integrated within a unifying framework that focuses on personality development.

The differences between Eastern and Western approaches to psychology—concerning the nature of mind, self, mental illness, well-being, and the best means of examining them all—are so extensive that it would be foolish to attempt to pursue them in this short chapter. It should be kept in mind that the very dichotomy of Eastern and Western, in all of its black-and-white implications, may be called into question. Here, I use it as a shorthand, aware of the impossibility of separating fully the two perspectives. What might be of greater use is to focus specifically on the two traditions of mindfulness that are currently both active within the Western psychology. The most current operational definition of mindfulness from the more traditional, meditative perspective is that it is a form of self-regulation of attention that is present-oriented and is characterized by curiosity, openness, and acceptance (Bishop et al., 2004). This is aligned with Kabat-Zinn's (1990) definition of mindfulness as purposive, present-moment, nonjudgmental awareness. In the alternative, nonmeditative approach that is uniquely Western in its predisposition, Langer (1989, 1997, 2005, 2009)

operationalizes mindfulness as drawing novel distinctions, which results in being situated in the present, sensitive to context and perspective, and guided (but not governed) by rules and routines. The two sets of operational definitions appear startlingly different, yet, as we shall see upon closer examination, the singularities of each approach can be placed within an underlying framework, wherein each contributes to the elucidation of the other. To do that, however, we need to start with the differences, starting with the formulation of the problem.

The Problem

From the Eastern, Buddhist, perspective, the root problem is suffering (*dukkha*), which includes not only the inevitabilities of sickness, old-age, and death, but also the pain of frequently not getting what we want, and then suffering about that, too (Mosig, 1989). An example here would be something as ubiquitous as the pain of chronic illness or the loss of a loved one. The focus is on the pain that is inevitable in the process of life, and learning ways of being that would obviate suffering that usually stems from it.

From the Western perspective, the problem is mindlessness (Langer et al., 1978; Langer, 1989)—in which we make bad decisions and sometimes no decisions at all by exhibiting routinized, stereotyped, primed, or authority-compliant behaviors. When mindless, we are victimized by the persistence of categories that existed only in the past or that exist only in our minds, struggling and failing in a futile labor against reality. This includes, for example, treating all members of a racial or gender group in the same way, or giving up the struggle for life just because 70–80% of other people who have your diagnosis tend to die from it.

Even within the definition of the problem, there appears to exist a deep philosophical divide between the two approaches. From the Eastern perspective, the problem being remedied begins and ends internally— it is one's way of being or attitude that needs a remedy; to the Western mind, the way of being needs to be accompanied by the right kind of action that will benefit the doer's well-being, in ways both practical and emotional. This being—doing divide, if you will, is reflected in the perspective on the nature of human potential. The Western person tends to think of fulfilling their potential as reflected by and pursued through action, which is propelled forward by a sense of purpose (Jung, 1939/1953; Rogers, 1951), while the predominance of meditative techniques in the East points to the path to self-development through stillness and silence (Walsh & Shapiro, 2006). Finally, this cultural doing versus being divide is reflected even in the definitions of mindfulness—Langer's (1989, 2005) definition of drawing novel distinctions emphasizes activity within awareness, while Kabat-Zinn's (1990) definition emphasizes present-moment, nonjudgmental awareness—a state or quality of awareness.

The Cause

Given that the problems cited above are significantly different, it is no surprise that their causes are likely to diverge further. From the Eastern Buddhist perspective, the

cause of the problem of suffering is craving, that is, either attachment or aversion to experiences, emotions, or persons we consider positive or negative (Sheng-yen, 2000). To the Western mind, which generally attempts to solve the problems of content of life, the idea of the solution dealing with the varieties of a megacognitive process, rather than cognitive content, might at first seem rather foreign. To a Western person, for example, the problem of a dying parent is the problem of the loss, rather than the problem of aversion to the loss.

From the Western standpoint, the problem of mindlessness is caused by a lack of choice that stems from being dominated by old categories (and thus leads to the repetition of experience), and by being controlled by the environment. The problem of choice begins with failing to perceive and create choices in one's environment (Langer & Rodin, 1976; Rodin & Langer, 1977), and it is compounded by the problem of the discomfort due to the uncertainty implied in multiplicity of alternatives (McGregor, Zanna, Holmes, & Spencer, 2001). From the evolutionary perspective, it seems reasonable that many of our cognitive and behavioral tendencies would remain relatively stable after being reinforced, since some basic aspects of our environment have tended to remain stable over the millennia (Buss, 1995). Humans as species may have stable preferences and aversions regarding food consumption, or mating. However, when this persistence is mindlessly applied to cognitive categories, it causes a serious and dangerous mismatch between the well-entrenched categories and the emerging (and rapidly changing) world.

This problem of heavy evolutionary emphasis on previous experience as a guide to the future behavior is compounded by the existential uncertainty and anxiety we feel in the face of life choices (McGregor et al., 2001; Peterson, 1999). This fact makes the presence of alternatives anxiety-inducing, given that a multiplicity of alternatives may imply greater probability of error. A person, therefore, may limit the perception of alternatives not only to the point in time after the decision is made, but prior to it as well. As a consequence, the multiplicity of choices we experience at each decision point keeps being veiled by a miasma of anxiety. The price of repetition of past experience in a rapidly evolving world (no matter how comforting or "certain" the behavior may feel) is high—it necessitates that the solutions to the problems we encounter remain out of reach.

From the Western perspective, not only are people controlled and prevented from making better choices by their own routinized past experiences, but also they are controlled by their environment. Frequently, people act because they are primed by cues in their environment, unaware that their behavior is influenced at all (Bargh & Chartrand, 1999). Furthermore, when in the presence of authority figures, instructions are heard as directions, leading to the surrender of responsibility for choices we make (Fromm, 1941; Milgram, 1963). Fromm (1941), who bemoaned the conformity of German populace to Nazi ideology, would not have been surprised that now we are equally mindlessly conformist to the apparent certainties of expert advice, for example, recommendations given by physicians and other health specialists (Langer, 2009).

Finally, even our means of learning promote mindlessness, given the epistemology implicit within our educational system, according to which to know something is to have certainty about a fact. Langer (1997; Langer & Piper, 1987) argued that the very

notion of what it means to “pay attention” in the Western world—to pay attention to the fixed aspects of the stimuli, rather than the variable ones—cultivates mindlessness throughout the educational system and beyond.

The causes for the problem (of suffering and mindlessness, respectively), diverge, with the Eastern perspective seeing craving (through either attachment or aversion) as the main cause, while the Western view gravitates toward a multiplicity of causes that take away choices. Given the diversion of the causes, the solutions diverge even further, as we shall see in the next section.

Solutions

The difference between the two approaches regarding the solution to the problem of suffering and mindlessness can be posed as a difference between radical acceptance and radical challenge. From the Eastern, Buddhist perspective, the problem of suffering is to be solved by dissolving craving, which includes the Eightfold Path, the central fold of which is Right Mindfulness (the other seven including Right Thinking, Right Understanding, Right Speech, Right Action, Right Livelihood, Right Effort, and Right Concentration; Kabat-Zinn, 2003; Sheng-yen, 2000). Therefore, craving is dissolved by cultivating a state of mindfulness, in which one approaches experience with accepting, nonjudgmental, and compassionate awareness (Gilbert, 2005; Hayes, Strosahl, & Wilson, 1999; Kabat-Zinn, 1990). Underlying this awareness is a fundamental acceptance of self, environment, and experience, which is achieved mostly through different meditative practices (Walsh & Shapiro, 2006). One aspect of meditation that Western individuals often have trouble with is the very thing that may be therapeutic about it—cultivating stillness.

From the Western perspective, mindfulness is to be achieved not by radical acceptance, but by radical challenge. This means challenging any single perspective, any judgment about the self or the world, any particular outcome, as being absolutely right or wrong, good or bad (Djikic & Langer, 2007). This stance is likely to promote not only tolerance of others but also one’s own authenticity. Continually making novel distinctions brings forth a multiplicity of alternatives, the sense of certainty giving way to cultivated tolerance of ambiguity. Langer (2009) argued that educational focus on mindful distinction-making (being attentive to variability), where facts will be taught as necessarily affected by perspective and context, would preempt mindless habits that persist to and through adulthood (Langer, 1993). An awareness of context by drawing novel distinctions leads to being in the present. The fact that the same behavior can be described from multiple perspectives (e.g., as simultaneously both positive and negative) leads to less absolute judgment of any particular behavior. It is this continual active challenge (to a single perspective, single answer, single fact, single authority) that defines the uniquely Western approach to mindfulness. This does not mean that novel distinction-making is more effortful than meditation—both can be effortful at the beginning and can become effortless with time and practice (Tang & Posner, 2009). It only means that from the Western perspective, mindfulness can be approached through activity, and not just the stillness of meditative techniques.

Integration

Given that the two approaches appear so different, how are we to integrate them into a single framework that will accommodate both while elucidating each in a new light? We shall start by outlining the underlying similarity of the approaches, the most conspicuous of which is the similarity of their outcomes.

Novel distinction-making improves attention (Carson, Shih, & Langer, 2001; Levy, Jennings, & Langer, 2001), memory (Langer, 1997), and creativity (Langer & Piper, 1987). In terms of health benefits, it reduces mortality among nursing-home elderly (Alexander et al., 1989; Langer, Beck, Janoff-Bulman, & Timko, 1984) and decreases arthritic pain and alcoholism (Langer, 1997). Finally, in work settings, novel distinction-making decreases burnout and increases productivity (Langer, Hefernan, & Kiester, 1988; Park 1990). Meditative techniques have similar far-reaching effects, particularly with physical and psychological ailments that appear to be stress related (Walsh & Shapiro, 2003). Among their many effects, meditative techniques improve processing speed, concentration, and memory (Murphy & Donovan, 1997). They also reduce cardiovascular and hormonal disorders (Schneider et al., 2005; Murphy & Donovan, 1997), decrease stress and increase immune functioning (Davidson et al., 2003), reduce pain in chronic disorders (Kabat-Zinn, 2003), and reduce mortality among the elderly (Alexander et al., 1989). The overwhelming overlap of effects seems to point to a common factor at the root of the Eastern and Western perspectives on mindfulness.

In terms of the difference in the conception of what constitutes the main problem from Eastern and Western perspectives, that is, positioning the problem of suffering against the problem of mindlessness, it is important to note that both deal with the prevalent unwillingness of individuals to accept reality as it is. With regards to suffering, there is reluctance to face failure, pain, sickness, old-age, or death, as inevitable aspects of existence. Similarly, an individual hides from the reality of alternative interpretations, perspectives, contexts, or behavioral routes by mindlessly acting out primed, routinized, authority-compliant behaviors. It underscores hesitation to acknowledge reality of having a choice, and the necessity of taking the responsibility for it. Suffering, then, is intrinsically linked to the mindless separation from reality.

Even the causes described above, craving (in the form of attachment or aversion) versus the lack of choice, no matter how apparently divergent, are held together by an underlying link, illusory desire. It is unusually difficult to know what we want. For example, if a romantic partner breaks up with me, I might go home and want to eat a whole tub of ice cream. Do I really want the ice cream, do I want a hug from a friend, or perhaps do I want my romantic partner to beg my forgiveness and promptly return to me? It is difficult to know, because, from the Western perspective, the environment and our past experiences control many of the wants we experience as presently ours, though we and the world have changed. We may not want a particular article of clothing or furniture until we have seen a commercial in which these articles are conveniently linked to our other wants—for success or acceptance. I might insist on eating apple pie because I used to love it as an adolescent, though it no longer agrees with my stomach. In the impulse to act, there is no pause in which to consider one's

alternatives or choices. Therefore, our wants are to be subjected to the same mindful distinction-making as other objects of our attention, so that a choice can be made, and responsibility can follow. From the Eastern perspective, all desires are illusory when they manifest through either attachment or aversion. Therefore, the displaced desire for ice cream and actual desire for a hug or comfort or to have the partner back are both tinged with the same illusory quality. This aligns with the Western perspective, because when one looks at the thing that we “really” think we want (return of the partner), mindful distinction-making would make us think again. After all, why would we want to be in a relationship with a person who doesn’t reciprocate our feelings? Under the light of the mindful distinction-making, the intensity of all attachments and aversions becomes suspect.

The means of pursuing mindfulness that we discussed at first glance seems diametrically opposite—radical acceptance versus radical challenge. Yet they are brought together when we consider what is being accepted and what is being challenged. Meditative techniques promote acceptance of reality through present-moment, non-judgmental awareness, while the Western technique of novel distinction-making promotes radical challenge to an illusion of a single perspective, a single authority, which make alternatives and choices invisible. While meditative techniques loosen the grip of categories by treating them as potentially equally illusory, novel distinction-making, through evoking a multiplicity of categories, prevents attachment to any single one.

Toward a New Framework

One can conciliate Eastern and Western approaches to mindfulness, but what new framework might illuminate both of these approaches? The clue can be found in a simple question. Given the multiplicity of positive effects of mindfulness, what force compels individuals to keep mindlessly suffering? Instead of looking for causes within the mindfulness framework (either Eastern or Western), I shall attempt to answer this question from a framework that deals with personality development instead.

Personality, though by definition a stable pattern of thoughts, feeling, and dispositions (McCrae & Costa, 2008), changes and develops across the life span (Roberts & DelVecchio, 2000). Change in personality, like in any other stable system, is preceded by a dysregulation or fluctuation that needs to reach a critical level before it reorganizes into a new stable configuration (Bak & Chen, 1991; Schiepek Eckert, & Weihrauch, 2003). Often, when this dysregulation (emotional in nature) is involuntary or externally caused (such as in case of trauma or overwhelming life experience), personality change happens quickly and frequently has destructive effects on well-being (Foa, Keane, Friedman, & Cohen, 2009; van der Kolk, 1987). Positive, developmental changes in personality are likely to occur only if the person voluntarily chooses or exposes herself to the emotional dysregulation that can sufficiently disrupt the personality system to create a lasting change (Djikic, 2011; Peterson, 1999).

In the West, we have few means for such positive, voluntary dysregulation that promotes personality development. One is psychotherapy—or rather the type of psychotherapy in which the therapists do not dysregulate their clients, but clients

dysregulate themselves (Rogers, 1951). Research has shown such discontinuities or fluctuations to occur prior to “breakthrough” growth in psychotherapeutic settings (Hayes, Laurenceau, Feldman, Strauss, & Cardaciotto, 2007). Another potential source of personality development is art. Exposure to art causes subtle fluctuations in personality structure (mediated by emotional fluctuations), across different forms of art (music, literature, visual arts; Djikic, 2011; Djikic, Oatley, & Peterson, 2012; Djikic, Oatley, Zoeterman, & Peterson, 2009). I would argue that mindfulness (from both Eastern and Western perspectives) provides another, unique path to voluntary self-dysregulation, which can lead to salutary changes in one’s personality system.

Now, we can come back to the question of why people keep being mindless, despite an enormous amount of evidence showing extraordinary positive physical and psychological effects of being mindful. I would argue that both meditative techniques and novel distinction-making produce subtle fluctuations in one’s emotional and personality systems. This is precisely the reason why many people prefer to forfeit the benefits of mindfulness rather than expose themselves to the unsettling tumult of self-dysregulation.

The aspect of meditative techniques that can quickly unsettle novice practitioners is stillness. Stillness produces an existential gap that most people try to avoid by continually talking, thinking, watching TV, checking their berries and tablets, or listening to music. It is the very same gap that allows for the disidentification of awareness from the content of awareness (Walsh & Shapiro, 2006). For novices, the terror and discomfort of stillness are dysregulating, providing a motivation either to stay mindless or to open the space for a new stage of personality development. For those who take the opportunity, the outcomes translate into trait changes, even with regard to the traits that are considered most stable and unchangeable, such as the Big Five (Travis, Arenander, & DuBois, 2004).

From the Western perspective, the process of making novel distinctions is as unsettling as meditation, but for a different reason. Making novel distinctions highlights both the multiplicity of the perspectives, through which one can observe any object in one’s awareness, and the continually emerging, changing, nature of reality. Individuals may cling to a single perspective because they may want to experience the existential comfort of “doing or thinking the right thing.” Multiple perspectives and the fact that there is no “right thing” are likely to dysregulate individuals who are attempting to be mindful. Furthermore, when the object of awareness is self, the distinctions that are novel usually concern aspects of self that have been occluded, usually because they are, for whatever reason, inappropriate to self. Being mindful thus brings forth the existential anxiety not just about the changing world but about the imperfect self—a state that many individuals may not seek out.

Perhaps we can conclude that mindless people find mindfulness dysregulating (at the start), but that very dysregulation avails them of opportunities for growth. Mindfulness, either from an Eastern or from a Western perspective, has unique qualities that differ from both therapy and exposure to art. Therapy implies the presence of another, and art an indirect presence of another (the artist). It is only with mindfulness that we do not need another to try to develop ourselves. Furthermore, the voluntary nature of practicing mindfulness is undeniable. After all, it is rare that one is pressured into meditation (as is the case with therapy) or accidentally exposed to novel

distinction-making (as is the case with art). It allows for personality development for those who prefer to work on themselves by themselves.

Conclusion

For the mindless novices, the process of attempting to be mindful, through meditation or novel distinction-making, will be a struggle no matter how their attempt ends. If it succeeds, they will face dysregulation that is necessary to make the change; if it fails, their mindless actions will keep clashing against the unforgiving demands of reality. They will struggle either way, but only for the former will the struggle lessen over time, as they learn to mindfully accept reality of the self and the world as it is, ever-emerging and unknown.

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Part II

Consciousness, Cognition, and Emotion

Langer and Abelson (1974) were the first to note the overwhelming power of labels in dictating consequent decisions, behavior, and health. Labels, particularly those that describe illness, rapidly constrain individuals' experiences by priming expectations of ill-health and by dictating their attention toward illness cues (Langer, 2000). Many mindfulness-based practices build off this knowledge of how language influences cognition, and have increasingly demonstrated significant, positive effects on various cognitive functions including attention, memory, and executive functions. Mindfulness training has also proved effective in regulating behavior and reorienting general attitudes. This section of the handbook addresses the relationship between mindfulness and cognition, and how this connection moderates behavior.

Mrazek et al.'s chapter provides additional evidence for Langer's assertion that mindlessness is pervasive in our culture. Mrazek et al. discuss the intrinsic relations between the constructs of mindfulness and mind-wandering. Their chapter reviews recent research that places mindfulness and mind-wandering on opposite ends of the same continuum. They also introduce research that suggests the use of mindfulness (defined as a state of sustained nondistraction) as a remedy for mind-wandering (defined as a mindless state of distraction marked by task-unrelated thoughts) and for mind-wandering's associated cognitive impairments and reduced task performance. Relatedly, Kang, Gruber, and Gray present the deautomatizing function of mindfulness, and its facilitation of cognitive and emotional regulation.

Demick reviews the most widely researched cognitive style, field dependence-independence (FDI), to highlight similarities between mindfulness and FDI. He argues that mindfulness and FDI share numerous underlying assumptions (e.g., holism; contextualism; multidimensionality; change; mobility; integration). Mindfulness—similar to the more extensively researched FDI construct—is a comprehensive psychological theory that has the potential of explaining the complex character of everyday life.

Balcetis, Cole, and Sherli explore the implications of motivated perception and mindfulness in the context of self-regulation. Their chapter discusses how the susceptibility of visual experiences to certain underlying mental states can be exploited to facilitate goal pursuit. They suggest that more research be dedicated to fully uncovering the relationship between mindfulness and motivated perception, and how it interacts with a broader range of self-regulative functions.

Relatedly, Rigby, Ryan, and Schultz examine how mindfulness influences self-regulation and well-being based on the framework of Self-Determination Theory (SDT). They discuss the relationship between mindful awareness and interest-taking, and propose that both facilitate more autonomous self-regulation, greater satisfaction of basic psychological needs, and more investment in intrinsic versus extrinsic life goals and aspirations.

Gantman, Gollwitzer, and Oettingen introduce the idea of mindful mindlessness in goal pursuit. Goal pursuit pertains to the process of selecting goals and planning their implementation. Their chapter clarifies the link between mindfulness–mindlessness and nonconscious goal pursuit through a discussion of both the similarities and differences between conscious and nonconscious goal pursuit.

Luttrell, Briñol, and Petty discuss the relations among mindfulness, attitudes, and persuasion. They address previous debates in the literature concerning persuasion’s link to either open- or closed-mindedness states, and demonstrate how persuasion can operate on people’s attitudes under both mindful and mindless conditions. The authors also discuss mindfulness’s contribution to enhanced body awareness and, in turn, how sensitivity to bodily cues and responses can further influence attitudes.

Herbert begins his chapter with an explanation of how heuristic scripts facilitate decision-making. Automatic cognitive rules of thumb allow us to conserve mental energy while making decisions that would otherwise be complex and cognitively taxing. Herbert provides examples of significant behavioral changes that occur in response to situations that introduce a mindful outlook and that challenge the use of scripted responses.

Automatic reliance on culturally imbued preconceptions contributes to mindlessness. Martin et al. explore what happens when people are caught off guard and must operate outside of heuristics—such as when experiencing a close brush with death. They suggest that the removal of the various cultural lenses that guide human behavior will yield more mindful and authentic selves.

Vannette and Krosnick discuss the implications of optimizing and satisficing on survey and questionnaire tasks. The differences between the cognitive processes of optimizing and satisficing parallel Langer’s mindfulness–mindlessness distinctions. The authors assert that comparing the two pairs of cognitive styles can benefit survey methodology and questionnaire construction.

Mindfulness-based interventions and training strengthen cognitive functioning and creativity. Carson reviews theoretical and empirical associations between mindfulness and creativity. She demonstrates how creativity is endemic to Western conceptualizations and practices of mindfulness; according to these Western sociocognitive traditions, “to live creatively is indeed to live mindfully [and to be mindful].” Among Eastern traditions, however, cognitive flexibility and divergent thinking represent two of many beneficial by-products of living mindfully.

Niedderer examines the role of [product] design as an agent for behavior change in social contexts, with a particular focus on the role of emotion in designing artifacts for mindful social interaction. Objects direct our actions both consciously and unconsciously, and can influence the interactions individuals have both with them and with each other. In other words, people largely relate to each other through the mediating influence of products. Furthermore, products influence whether the nature of such social interactions is pleasant or unpleasant as well as mindful or mindless.

Albert argues that there are “mindful” and “mindless” approaches to thinking about time. Through demonstrating how easy it is for people to omit temporal considerations when applying statistical reasoning to predict human behavior, he also sheds light on why people are error-prone when dealing with uncertainty and probability. Albert’s chapter finishes with an in-depth analysis of common errors associated with various forms of visually displaying time, and he suggests that the way in which we envision time needs to change in order to reframe and improve our sense of timing, our emotions, as well as our ability to control events more mindfully.

Falk examines the neural correlates of mindfulness practice. While some research has already uncovered the structural and functional correlates of Eastern forms of mindfulness in the brain, Falk argues that more work needs to be done toward understanding the subtleties within camps. In order to more fully understand the similarities and differences among varying approaches to mindfulness, research would need to be dedicated to unveiling the neural underpinnings of Langer’s conception of mindfulness, for example, as well as to understand how Langer’s model differs from Eastern or Eastern-derived approaches.

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Mindfulness

An Antidote for Wandering Minds

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What's in a Name?

Despite the vast flexibility that language offers us for self-expression, we occasionally encounter the limitations of words as imperfect symbols. The word *red* may trigger something relatively universal, but *burgundy* will likely take on a different meaning for a seamstress and a wine aficionado. Words become particularly clumsy when there is not much agreement as to where they point. Most of us use *love* with some trust that others will understand our meaning, yet the word holds a somewhat different significance for each of us. *Mindfulness* has arrived at a similar fate—received with a sense of growing familiarity, but ultimately varied in its meaning. Fortunately, this fate need not stall the pursuit of the benefits that *mindfulness* offers any more than our lumbering use of *love* prevents us from experiencing intimate connection. After all, there are always love letters and operational definitions to help us convey our meanings more clearly.

Mindfulness as Nondirection

Mindfulness is interpreted in a variety of ways, with ongoing disagreement as to the most privileged and useful definition of this construct (Grossman & Van Dam, 2011). Some meditative traditions have defined mindfulness as sustained nondirection (Brown & Ryan, 2003; Dreyfus, 2011; Wallace & Shapiro, 2006), whereas multifactor conceptualizations of mindfulness emphasize additional qualities as well, such as an orientation toward one's experiences characterized by curiosity, openness, and acceptance (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Bishop et al., 2004). Another prominent use of *mindfulness* in psychology pioneered by Ellen Langer uses the word to refer to actively drawing novel distinctions, and thereby having greater

sensitivity to context and perspective (Langer, 1989; Langer & Moldoveanu, 2002). These definitions are by no means exhaustive, and there are many traditions of mindfulness practice that have evolved over millennia and offer further delineation.

Amid this disagreement, there is nevertheless consensus from meditative traditions that sustained attentiveness represents a fundamental element of mindfulness. Although sustained attentiveness is less central to the social psychological view of mindfulness as making novel distinctions, even this form of mindfulness enhances present-moment awareness given that “actively drawing these distinctions keeps us situated in the present” (Langer & Moldoveanu, 2002). Accordingly, we have largely focused our investigations of mindfulness using nondistraction as an operational definition.¹ Our intention has not been to devalue other qualities espoused to be essential to mindfulness, but rather to avoid confusion when using a single term to refer to a variety of different constructs. For instance, multicomponent definitions of mindfulness must indicate whether the various elements are either necessary or sufficient to represent an instance of mindfulness. If one maintains unwavering attention on the breath for hours with a persisting judgment that breathing is wonderful, does the evaluative nature of that experience disqualify the careful focus as mindfulness? While continued discussion on the most privileged definition of mindfulness will almost certainly continue, it may be that different usages of mindfulness are so entrenched that the most practical solution is to accept the term as a catch-all that can provide a useful but unspecific contextualization, within which everyone must explicitly define what they have measured or trained.

Mind-Wandering as Task-Unrelated Thought

In direct contrast to mindfulness, which entails a capacity to avoid distraction, mind-wandering is characteristically described as the interruption of task-focus by task-unrelated thought (TUT; Smallwood & Schooler, 2006). Unlike the struggle to identify a validated and widely accepted measure of mindfulness, there has been somewhat greater consensus with respect to operational definitions of mind-wandering. The most widely used measure is straightforward: periodically interrupting individuals during a task and asking them to report the extent to which their attention was on the task or on task-unrelated concerns, a procedure known as “thought sampling,” which measures “probe-caught” mind-wandering. There is a broad literature validating the self-report measures of mind-wandering obtained through thought sampling by using behavioral (Smallwood et al., 2004), event-related potential (ERP; Smallwood, Beach, Schooler, & Handy, 2008), and fMRI methodologies (Christoff, Gordon, Smallwood, Smith, & Schooler, 2009). Such studies suggest that individuals are able to accurately report whether they have been mind-wandering—and even whether they have been aware of it—as revealed by distinct patterns of task performance and neural activation in association with self-reported mind-wandering. Additionally, studies using retrospective reports of mind-wandering after a task has been finished typically find results that are similar to those obtained with thought sampling during the task (Mrazek et al., 2011). This not only provides convergent validity for thought sampling, but also suggests that in at least some task contexts, asking participants to intermittently

report their mind-wandering does not substantially alter their behavior or performance (Barron, Riby, Greer, & Smallwood, 2011; Mrazek, Smallwood, Franklin et al., 2012).

Another common measure of mind-wandering involves asking participants to indicate every time they notice that they have been mind-wandering. This measures “self-caught” mind-wandering, providing a straightforward assessment of mind-wandering episodes that have reached meta-awareness (as an explicit re-representation of the contents of one’s own consciousness; Schooler, 2002). By contrast, thought sampling queries participants at unpredictable intervals and does not require participants to attend to their thoughts independently of an external prompt. However, because thought-sampling probes occur at varying and unpredictable times during a primary task, this method can be used in conjunction with the self-catching measure to catch people mind-wandering before they notice it themselves (Schooler & Schreiber, 2004).

Several indirect markers of mind-wandering are also available, including those derived from performance markers of inattention in the Sustained Attention to Response Task (SART; Cheyne, Solman, Carriere, & Smilek, 2009; McVay & Kane, 2009; Smallwood et al., 2004; Smallwood, McSpadden, Luus, & Schooler, 2008; Smallwood, Fishman, & Schooler, 2007). The SART is a GO/NOGO task in which participants are asked to respond with a key press as quickly as possible to frequent non-targets and to refrain from responding to rare targets. Different performance markers in this task, such as response times (RTs) or different kinds of errors, have been associated with varying degrees of task disengagement (Cheyne et al., 2009). For example, failures to respond to rare targets (errors of omission) generally indicate a more pronounced state of disengagement than a large coefficient of variability (CV) for RTs (the CV is the standard deviation of RTs divided by the mean). RT CV has been associated with a state of mind-wandering that emerges from a minimally disruptive disengagement of attention characterized by a periodic speeding and slowing of RTs as attention fluctuates slightly (Cheyne et al., 2009; Smallwood, McSpadden, Luus et al., 2008).

Mindfulness and Mind-Wandering as Opposing Constructs

Many behavioral markers of mind-wandering have a distinctly mindless quality, such as rapid and automatic responding during SART (Smallwood et al., 2004), absent-minded forgetting (Smallwood, Baracaia, Lowe, & Obonsawin, 2003), and eye movements during reading that are less sensitive to lexical or linguistic properties of what is being read (Reichle, Reineberg, & Schooler, 2010). Furthermore, ERP studies have demonstrated that instances of mind-wandering are characterized by a reduced awareness and/or sensory processing of task stimuli and other objects in the external environment (Barron et al., 2011; Kam et al., 2011; Smallwood, Beach et al., 2008). The ability to remain mindfully focused on a task therefore appears to be in direct opposition to the tendency for attention to wander to TUTs. Starting from this observation, we began our ongoing series of investigations into the relationship between mindfulness and mind-wandering by first examining whether we could find empirical support for this intuitive notion that mind-wandering and mindfulness are opposing constructs.

Existing work that links mindfulness and mind-wandering has relied heavily on the Mindful Awareness Attention Scale (MAAS; Brown & Ryan, 2003), the most widely used dispositional measure of mindfulness. This scale addresses the extent to which an individual attends to present experience without distraction (e.g., I find myself listening to someone with one ear, doing something else at the same time). Low self-reported mindfulness as measured by the MAAS is associated with fast and error-prone responding in the SART (Cheyne, Carriere, & Smilek, 2006). An adapted version of the MAAS called the MAAS-LO (lapses only) has also been associated with several performance markers of mind-wandering in the SART (Cheyne et al., 2009). These results show that measurement of trait-mindfulness by scales such as MAAS can predict behavioral concomitants of real-time mind-wandering observed during the performance of a task in the lab.

We recently conducted a more comprehensive investigation into the relationship between the MAAS and several convergent measures of mind-wandering (Mrazek, Smallwood, & Schooler, 2012). All participants completed the MAAS, a 10-min mindful breathing task with thought-sampling probes, a 10-min mindful breathing task requiring self-catching of mind-wandering, a 10-min SART, and a self-report measure of trait daydreaming that has been widely used to study mind-wandering (Mason et al., 2007). We found that individuals who reported high levels of mindfulness during daily life also reported less daydreaming. Furthermore, high levels of trait-mindfulness were also associated with less mind-wandering as measured by self-reported TUT during mindful breathing, fewer errors of commission during the SART, and lower RT variability. These results provide converging evidence suggesting that—at least based on their most common operational definitions—mindfulness and mind-wandering are indeed opposing constructs.

Mindfulness as a Tool for Reducing Mind-Wandering

If mindfulness and mind-wandering are inversely related, this suggests that mind-wandering and its disruptive effects on task performance (e.g., Reichle et al., 2010; Smallwood et al., 2003, 2004, 2007) should be reduced by interventions that increase mindfulness. While mindfulness training has been demonstrated to improve executive attention, perceptual sensitivity, and sustained attention (MacLean et al., 2010; Tang et al., 2007), the direct impact of mindfulness training on mind-wandering has until recently been less carefully examined. In fact, to date, there has been little progress in developing empirically proven strategies for reducing mind-wandering.

We recently examined whether a brief mindfulness exercise can reduce mind-wandering, thereby potentially introducing both an effective antidote to mind-wandering and establishing a causal relationship between the presence of mindfulness and the absence of mind-wandering. This expectation is consistent with the many well-documented benefits of mindfulness training (for a review, see Brown, Ryan, & Creswell, 2007). However, many prior studies have utilized intensive meditation training lasting months or years, limiting the applicability of observed improvements for most societal and educational contexts (Brefczynski-Lewis, Lutz, Schaefer, Levinson, & Davidson, 2007; MacLean et al., 2010). Furthermore, from

a methodological perspective, mindfulness intervention studies typically include so many different aspects in their intervention that it is difficult to discern which specific element is responsible for any observed changes. What is needed in order to discern the causal role of mindfulness in mitigating mind-wandering is a simple manipulation that directly and specifically targets individuals' ability to remain mindful. Accordingly, we used an 8-min mindful breathing intervention that provides a simple and widely accessible intervention that also affords a high degree of experimental control.²

In this investigation, participants were randomly assigned to conditions in which they completed 8 min of mindful breathing, or else in two control conditions, passive relaxation, or reading. Expectation effects and demand characteristics were minimized by informing all participants that they were participating in a study designed to examine effects of relaxation on attention. In the mindful breathing condition, participants were instructed to sit in an upright position while focusing their attention on the sensations of their breath without trying to control the rate of respiration. Participants were asked to return their attention to the breath anytime they became distracted. Participants in the reading condition were asked to browse a popular local newspaper, while those in the passive rest condition were asked to relax without falling asleep. Subsequently, all participants completed a 10-min version of the SART. Relative to the two control conditions, those who first completed 8 min exhibited enhanced performance as measured by behavioral markers of inattention commonly associated with mind-wandering (fewer errors of commission and lower RT variability). The effectiveness of this intervention establishes a causal relationship between the cultivation of mindfulness and subsequent reduction in mind-wandering.³

Mind-Wandering and Mental Aptitude

Given the robust relationship between mind-wandering and impaired task performance, the benefits of strategies for reducing mind-wandering clearly have great practical significance. Indeed, mind-wandering is a ubiquitous phenomenon associated with reduced awareness of task stimuli and the external environment (Barron et al., 2011; Kam et al., 2011; Smallwood, McSpadden, & Schooler, 2008), impaired vigilance (Cheyne et al., 2009; McVay & Kane, 2009; Smallwood et al., 2004), absent-minded forgetting (Smallwood et al., 2003), deficits in random-number generation (Teasdale et al., 1995), and poor reading comprehension (Reichle et al., 2010; Schooler et al., 2004; Smallwood, 2011; Smallwood, McSpadden, & Schooler, 2008).

We recently examined whether mind-wandering also impairs performance on measures of mental aptitude—such as working-memory capacity (WMC) and fluid intelligence (*gF*)—that are predictive of performance in real-world contexts such as academic achievement and job performance (Deary, Strand, Smith, & Fernandes, 2007; Kane, Hambrick, & Conway, 2005; Rohde & Thompson, 2007; te Nijenhuis, van Vianen, & van der Flier, 2007). We conducted four studies employing complementary methodological designs embedding thought sampling into popular measures of these constructs and determined that mind-wandering was consistently associated with worse performance (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013). Indeed,

nearly 50% of the shared variance among WMC, fluid intelligence, and performance on the Scholastic Aptitude Test (SAT) was explained by the mind-wandering that occurred during cognitive assessment. These results strongly implicate the capacity to avoid mind-wandering during demanding tasks as an important source of success on measures of general aptitude. Furthermore, mind-wandering during testing may help explain the reliable correlations between measures of mental aptitude as well as their broad predictive utility. In fact, a substantial proportion of what makes tests of general aptitude sufficiently general could be that they create a demanding task context in which mind-wandering is highly disruptive.

Mindfulness Training and Mental Aptitude

Given that the ability to attend to a task without distraction underlies performance in a wide variety of contexts, training this ability should in principle result in a similarly broad enhancement of performance. In a recent randomized controlled investigation, we examined whether a two-week mindfulness training course would be more effective than a comparably demanding nutrition program in decreasing mind-wandering and improving cognitive performance (Mrazek et al., 2013). We found that mindfulness training improved performance on measures of WMC as well as reading comprehension, as measured on the Graduate Record Examination (GRE), while also reducing mind-wandering during these tasks. Notably, improvements in WMC and GRE performance following mindfulness training were mediated by reduced mind-wandering specifically for those who were most prone to distraction at pretesting. This suggests that mindfulness-based interventions benefit individuals who are already proficient at attentional control, and that training to enhance attentional focus may be a key to unlocking latent cognitive skills that were until recently viewed as immutable.

Mindfulness, Mind-Wandering, and Meta-Awareness

Another process that is important to consider in understanding the relationship between mindfulness and mind-wandering is meta-awareness. Meta-awareness is the process of reflecting on the current contents of consciousness (Schooler, 2002). This can serve an important corrective function by reinstating task focus whenever attention becomes diverted to a TUT. As such, meta-awareness is often seen as a tool for minimizing the detrimental effects of mind-wandering (Schooler et al., 2011). This raises the intriguing question of whether strategies exist that might improve attention by enhancing people's awareness of their mind-wandering. One promising direction for exploring this question entails the cultivation of mindfulness through meditative practices.

When mindfulness is defined as nondistraction, it can be clearly distinguished from meta-awareness. It is possible to be fully aware of the sensations of breathing without metaconscious reflection about these sensations. One could even argue that in any given moment, mindfulness and meta-awareness are mutually exclusive: being fully

attentive to a given sensation may preclude the possibility of simultaneously reflecting on it. Yet while nondistraction is distinct from conscious reflection about that nondistraction, meta-awareness may nonetheless be a crucial element in the cultivation of mindfulness. For instance, meditative practices designed to cultivate nondistraction in beginners typically require focused attention to a single aspect of sensory experience (e.g., the sensations of breathing) despite the frequent interruption of focus by unrelated distractions or personal concerns. Meta-awareness of each distraction thus promotes meditative focus by providing an opportunity to redirect attention to the object of meditation after a lapse of concentration. How and why this awareness of mind-wandering arises, and the determinants of its frequency of occurrence, remain items in need of investigation.

Recently, Hasenkamp, Wilson-Mendenhall, Duncan, and Barsalou (2012) outlined a model of the temporal sequence of mental events that occur during the practice of meditation: *sustained attention* is periodically interrupted by *mind-wandering* until *awareness of mind-wandering* initiates the *shifting of attention* back to the perceptual target of meditation. In an fMRI investigation of mind-wandering during meditation among experienced meditators, Hasenkamp and colleagues (2012) found that sustained attention and shifting of attention were associated with regions well-established as elements of an attentional control network in the brain, including dorsolateral prefrontal cortex (PFC) and posterior parietal cortex. In contrast, they found that mind-wandering was associated with activation in medial PFC and posterior cingulate cortex, as well as posterior parietal and temporal regions including the hippocampal formation, regions widely associated with a “default network” that is active during rest (Buckner, Andrews-Hanna, & Schachter, 2008) as well as during mind-wandering (Christoff et al., 2009).

Notably, Hasenkamp and colleagues found that *awareness of mind-wandering* was associated with greater activation of bilateral anterior insula (AI) and dorsal anterior cingulate cortex (ACC). These results were interpreted as reflecting the operation of a *salience network* for detecting relevant or salient events—in this case the occurrence of mind-wandering. Although the poor temporal resolution of fMRI makes it difficult to discern the brain regions involved in mental events that occur quickly in succession, these results tentatively suggest that bilateral AI and dorsal ACC may contribute to meta-awareness of mind-wandering in a manner that allows attention to be redirected back to a given task.

In a subsequent article, Hasenkamp and Barsalou (2012) compared individuals with differing amounts of meditation experience in terms of the functional connectivity displayed at rest between brain regions associated with the four phases identified previously during mindfulness meditation. Comparing individuals with high levels of experience to those with low levels, the authors found increased functional connectivity among regions associated with the attentional control network, as well as between these areas and medial PFC, associated with the default network. This suggests that in contrast with the currently dominant view in which the attentional control and default networks are antagonistically related, mindfulness meditation practice may indeed enhance the extent of cooperative functioning between these brain systems (see, e.g., Smallwood, Brown, Baird & Schooler, 2011), perhaps in service of increased meta-awareness of mind-wandering.

The suggestion of a possible relationship between mindfulness and meta-awareness raises the intriguing possibility that cultivating mindfulness might enhance meta-awareness (or vice versa). Existing research regarding the impact of mindfulness training on meta-awareness is mixed. On the one hand, individuals with extensive meditation experience show a stronger association between subjective emotional experience and physiological markers of emotion (i.e., heart period; Sze, Gyurak, Yuan, & Levenson, 2010). The fact that experienced meditators have enhanced meta-awareness of emotions is certainly consistent with the notion that mindfulness training might also improve meta-awareness of mind-wandering. However, Khalsa and colleagues (2008) have shown that advanced meditators do not have any greater interoceptive awareness of heartbeat detection, even though they believe their interoceptive awareness is superior.

In the context of meta-awareness of mind-wandering, it is useful to consider what degree of meta-awareness would be most useful in cultivating mindfulness. While meta-awareness is pivotal to the cultivation of nondistraction, conscious reflection on one's focus is not always necessary or desirable. Before attention has lapsed, meta-awareness is not needed—and in some cases could itself serve as a distraction. It follows that in the course of cultivating mindfulness, the frequency of meta-awareness may resemble an inverted u-shaped function: initially increasing to allow for redirection from distractions, but eventually diminishing when attentional stability makes frequent meta-awareness unnecessary.

Although this would suggest that brief mindfulness training programs should result in increased meta-awareness, demonstrating this change may not be straightforward. For example, as described earlier, we recently found that two weeks of mindfulness training led to reduced mind-wandering during a GRE test (Mrazek et al., 2013). However, we observed that mindfulness training reduced both probe-caught *and* self-caught mind-wandering. This result points to a challenge in establishing whether mindfulness training increases meta-awareness: If mindfulness training reduces mind-wandering, it likewise reduces opportunities to observe meta-awareness of mind-wandering. Thus, in the training experiment just described, it is possible that mindfulness training indeed led to enhanced meta-awareness (of mind-wandering), but that this change was rendered invisible to measurement by overall decreases in mind-wandering. A related challenge is that extensive practice in detecting mind-wandering in the context of meditation might lower an individual's threshold for what subjectively constitutes an instance of mind-wandering. These difficulties indicate that a promising direction for future research would include measuring changes in meta-awareness of mental processes that are themselves unaffected by mindfulness training.

The Ironic Nature of Nondistraction

When telling someone that you research mind-wandering, one of the most common responses is “I would be your perfect participant.” It seems that many of us have an intuitive appreciation for how frequently our minds are adrift—as much as half of our waking lives (Killingsworth & Gilbert, 2010). Yet at the same time, many of us are familiar with other contexts in which our minds do not wander at all. We are

sometimes completely focused—perhaps on an engrossing film or conversation—in a way that belies our usually wandering minds. Similarly, a child with attention deficit hyperactivity disorder can sometimes attend to a video game for hours despite an inability to remain attentive for even a few minutes in a classroom. Our understanding of what allows mind-wandering to turn off so dramatically in these situations is only just emerging, and the occasional presence of this apparently effortless nondistraction raises an important question regarding the cultivation of mindfulness.

One might think that the key to cultivating nondistraction would be to provide individuals with frequent opportunities to practice nondistraction in those contexts in which it is most natural. After all, 16-year-olds learn how to drive in quiet neighborhoods and empty parking lots, not on crowded highways. Yet mindfulness is commonly trained in contexts where it is particularly difficult: sustaining attention on something of little inherent interest like the sensations of breathing. We suggest this is no accident. There are several possible reasons why tasks characterized by frequent distraction are well suited for mindfulness training. For instance, practicing mindfulness in these contexts may reduce the actual occurrence of TUTs. Attending to a simple stimulus, such as the breath, provides fertile ground for distracting thoughts to arise, but such thoughts may lose their disruptive salience when they are continually ignored. A second possibility is that tasks that are not intrinsically engaging require—and therefore train—greater cognitive control. Yet a third possibility is that continuously monitoring one's wandering attention leads to enhanced metacognitive regulation, perhaps increasing awareness of mind-wandering and thereby allowing attention to be redirected from off-task thoughts more quickly. These differing explanations—which are not mutually exclusive—provide an exciting direction for future research.

Mind-Wandering in Relation to Broader Conceptualizations of Mindfulness

We have focused our investigations on mindfulness as nondistraction, which we believe represents the element most central to the concept of mindfulness in meditative traditions and also most directly linked to mind-wandering (Brown & Ryan, 2003; Wallace & Shapiro, 2006). However, more encompassing definitions of mindfulness emphasize additional features of the experience that may also be related to mind-wandering. For example, Bishop and colleagues (2004) have formalized a two-factor theory of mindfulness that emphasizes not only nondistraction but also an attitude of curiosity, openness, and acceptance toward one's experience.⁴

One possibility is that mind-wandering has a similar inverse relationship with both nondistraction and a nonjudgmental orientation. Indeed, being fully attentive to a given sensation may reduce the possibility of being simultaneously evaluative of it. Yet it is also possible that it is the *content* rather than the *occurrence* of mind-wandering that is most strongly associated with the nonjudgmental orientation toward one's experience. Future research should investigate how the actual content of mind-wandering episodes relates to the various subprocesses of multifaceted conceptualizations of mindfulness.

Mind-Wandering in Relation to Western Social Psychological Views of Mindfulness

There is yet another prominent conceptualization of mindfulness also worth considering in relation to mind-wandering: an active state of mind characterized by drawing novel distinctions that results in being (1) situated in the present, (2) sensitive to context and perspective, and (3) guided (but not governed) by rules and routines (Langer, 1975, 1989; Langer & Abelson, 1972; Langer, Blank, & Chanowitz, 1978). This characterization describes a state of active attention to and engagement with one's environment that in some ways stands in contrast to our notion of mind-wandering. For instance, actively drawing novel distinctions can anchor awareness in the here and now. This enhanced awareness of present experience is the opposite of what typically occurs during mind-wandering. As described above, ERP studies have demonstrated that instances of mind-wandering are characterized by a reduced awareness and/or sensory processing of task stimuli and other objects in the external environment (Barron et al., 2011; Kam et al., 2011; Smallwood, Beach et al., 2008). In fact, mindfulness interventions grounded in drawing novel distinctions have been shown to improve attention (Langer, 2000). Several demonstrations have shown that asking participants to notice new things about a stimulus results in better performance than simply asking them to pay attention to the stimulus (Bodner & Langer, 1995; Carson, Shih, & Langer, 2001; Levy, Jennings & Langer, 2001). Although growing evidence suggests that training participants to pay attention to a stimulus can be effective (Mrazek et al., 2013), it may be that a particularly effective way for enhancing sustained attentiveness is combining both attention training and novel distinction drawing.

Another way that mind-wandering can be contrasted with the Western social psychological view of mindfulness is with regards to automatic and habitual responding. Langer contrasts mindfulness with the opposing construct of mindlessness. Mindlessness is a state of mind "characterized by an overreliance on categories and distinctions drawn in the past," "context-dependent and ... oblivious to novel (or simply alternative) aspects of the situation," and in which "rigid invariant behavior" occurs with little awareness (Langer, 1992). As discussed above, many behavioral markers of mind-wandering have a distinctly mindless quality, such as rapid and automatic responding during SART (Smallwood et al., 2004), absent-minded forgetting (Smallwood et al., 2003), and eye movements during reading that are less sensitive to lexical or linguistic properties of what is being read (Reichle et al., 2010). From this perspective, mind-wandering can be construed as a form of mindlessness.

The foregoing discussion suggests that Langer's conceptualization of mindfulness places the construct in opposition to mind-wandering, but this Western social psychological view of mindfulness is not intrinsically distinct from mind-wandering. For instance, TUTs can actively draw novel distinctions while simultaneously distracting attention from a primary task. For this reason, mind-wandering is more clearly distinct from mindfulness when it is defined as nondistraction than when defined as drawing novel distinctions. However, little empirical research has addressed the relationship between mind-wandering and Langer's conceptualization of mindfulness. Future work should explore whether the Mindfulness/Mindlessness Scale (Bodner & Langer,

2001) is associated with validated behavioral and thought-sampling markers of mind-wandering, and whether the positive outcomes associated with mindfulness as measured by this scale are mediated by reduced mind-wandering.

Future Directions: Mindfulness and the Potential Benefits of Mind-Wandering

Given the opposing conceptual relationship between mindfulness and mind-wandering, our understanding of mindfulness will evolve as we discover more about how attention lapses. Yet future research must also keep potential benefits of mind-wandering in view. After all, the human capacity to plan the future and reflect on past experiences has clear adaptive value (Baars, 2010; Smallwood, 2010). There are circumstances in which diverting attention away from the “here and now” is beneficial. Indeed, recent findings suggest that under some circumstances mind-wandering can promote future planning (Baird, Smallwood, & Schooler, 2011) and enhance creative incubation (Baird et al., 2012). Yet the accumulating evidence for the positive outcomes of mindfulness might be interpreted to suggest that mind-wandering is of no benefit, especially within a framework that places these constructs in direct opposition. In contrast, the potential benefits of mind-wandering could be interpreted to suggest a downside to mindfulness. For instance, a practice of mindfulness that eliminated mind-wandering might lead to neglect of distal goals like retirement planning. It may therefore be that mindfulness is most helpful when it affords a degree of control over mind-wandering that allows for its benefits while minimizing its costs.

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Notes

1. Although perhaps obvious, it is worth noting that when we refer to mindfulness as nondistraction, this nondistraction is in the context of a particular activity. For example, if your goal is to engage in a task, but instead you become deeply focused on off-task concerns, this would not be an example of mindfulness, even though your off-task focus may be undistracted.
2. Mindful breathing is a technique that is widely taught in mindfulness training programs around the world, including both modern ones and those based on more traditional approaches. The authors have themselves participated in courses and retreats where these traditional methods were taught to them by qualified teachers holding formal qualification and authorization. This is mentioned here to illustrate the fact that similarity exists between the concise methodologies employed by ongoing research programs and the instructions of longstanding traditions of mindfulness practice.

3. Two unpublished studies have found evidence that meditation training courses are associated with reduced markers of inattention during the SART (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2009; Wong et al., 2008).
4. Within our framework of defining mindfulness more narrowly as nondistraction, these additional qualities might be understood as precursors, concomitants, or consequences of mindfulness, rather than aspects of mindfulness per se. For example, many meditative traditions teach that the capacity for mindfulness is supported by lessened attachment to experiences, accompanied by a sense of “letting go” of the habitual pursuit of pleasurable experiences and avoidance of painful or boring ones. It is taught that in turn, as mindfulness becomes itself more habitual, attachment to experiences becomes even more diminished, and one is concerned less and less with “getting one’s way” all the time. Thus, nondistraction and the attitude of openness and acceptance toward one’s experience may arise together in a mutually supportive manner.

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Mindfulness

Deautomatization of Cognitive and Emotional Life

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Mindfulness, or a state of nonjudgmental awareness of the present moment, is generally associated with a wide range of psychophysical benefits, such as alleviating various clinical disorders and enhancing well-being (e.g., Chambers, Gullone, & Allen, 2009). However, the number of studies on its underlying mechanisms is more limited. The goal of this review is to consolidate existing empirical findings and theoretical propositions in order to create a model that describes how mindfulness works. Rather than being a single skill, mindfulness includes complex sets of cognitive and affective building blocks operating on multilevel mechanistic processing (e.g., Hölzel et al., 2011). We suggest that though distinct, all these mechanisms of mindfulness have a universal effect of deautomatization, a process in which one's previously established tendency to effortlessly and unconsciously engage in maladaptive behaviors becomes conscious and controlled.

We propose a framework that describes the mechanisms underlying mindfulness that lead to the discontinuation of maladaptive and automatic cognitive and emotional responses. We first elaborate on the concepts of mindfulness as it is conceptualized in two different traditions and discuss automaticity as we use these terms. We then discuss how four components of mindfulness (awareness, attention, present focus, acceptance) can each bring forth the necessary environment for deautomatization to occur. Specifically, mindfulness can instigate four broad subsequent mental processes, including reduction of automatic inference processing, enhancement of cognitive control, facilitation of metacognitive insight, and prevention of thought suppression and distortion. This deautomatizing function of mindfulness, in turn, can promote adaptive self-regulatory strategies and desirable health outcomes.

Meditation-Oriented and Mindset-Oriented Mindfulness

Mindfulness has at least two distinct meanings in psychology, which we refer to here as “mindset oriented” and “meditation oriented.” The conceptual framework on mindset-oriented mindfulness was developed within the Western scientific perspective, and it refers to openness to novel information in the present moment, while having awareness of multiple perspectives, by creating new categories (Langer, 1989, 1997). This understanding in turn enables less judgmental evaluation of others’ behavior (Langer, 1975; Langer & Abelson, 1972). Research on mindset-oriented mindfulness stemmed from the opposite concept of mindfulness, namely, mindlessness. Mindless behaviors tend to be automatic, resistant to change, and focused on a single perspective (Langer, 1989). Much of human behavior is based on mindless and unconscious processing, even in ostensibly “thoughtful” actions (Langer, Blank, & Chanowitz, 1978). As such, subtle changes in environmental cues can elicit different reactions in similar situations when people are not thoughtfully aware of their behaviors. Mindful individuals, on the other hand, are more likely to engage in conscious thinking and thoughtful actions, and therefore have a higher awareness of multiple perspectives that are context dependent (Langer et al., 1978).

Meditation-oriented mindfulness is derived from Eastern Buddhist meditation traditions and refers to a quality of mind that is practiced or cultivated during meditation (e.g., Kabat-Zinn, 1982). It involves placing one’s attention and awareness in the present moment with an attitude of nonjudgmental acceptance (Kabat-Zinn, Lipworth, & Burney, 1985). Though meditation-oriented mindfulness has long been practiced in the Eastern contemplative tradition, only in recent years has it been introduced to and integrated with Western scientific methodologies. Meditation-based mindfulness was shown to be effective first in the treatment of chronic pain (Kabat-Zinn, 1982), and subsequently in various other clinical disorders, including major depression (Teasdale et al., 2000), anxiety (Kabat-Zinn et al., 1992), and substance abuse (e.g., Bowen et al., 2006; Brewer et al., 2009), to list only a few.

Though these two conceptualizations of mindfulness do share various similar components, there are a few important distinctions that differentiate one from the other. For example, mindset-oriented mindfulness focuses on creating new categories, thereby examining old concepts in a new light (Langer, 1989). On the other hand, meditation-oriented mindfulness aims at blurring preestablished categories, especially those of self versus others (e.g., Gyatso, 1986). Furthermore, tasks designed to induce mindset-oriented mindfulness involve goal-oriented cognitive problem solving that requires consideration of information or situations from multiple perspectives to increase creativity and openness (e.g., Langer & Moldoveanu, 2000). In contrast, meditation instructions often include a nongoal-directed and nonjudgmental observation of internal and external stimuli (e.g., Kabat-Zinn, 1990).

Despite differences, both approaches to mindfulness share several common ingredients. First, both involve paying attention and being open to new incoming information with a flexible attitude of curiosity. Second, the acceptance component is important in both traditions. In mindset-oriented mindfulness, one welcomes new information without dismissing, and gives respect to different points of view. Similarly in

meditation-oriented mindfulness, one accepts the present moment without criticizing or judging. Third, and most importantly for the purpose of the present review, both approaches of mindfulness affect automaticity, the tendency to effortlessly and unconsciously engage in behaviors. Through both modes of mindfulness, one can allow the awareness of automatic behavioral patterns and then eventually learn to disengage from them (Kabat-Zinn, 1990; Langer, 1989). In other words, both conceptualizations of mindfulness enable the process of deautomatization. Indeed, investigators from both traditions of mindfulness suggest that deautomatization may be one of the central mechanisms of mindfulness (e.g., Deikman, 1966; Langer, 1989; Moore & Malinowski, 2009). Therefore, here we operationalize mindfulness as a general construct that encompasses both conceptualizations of mindfulness, especially given our focus on their common ingredient, deautomatization. We further note that our primarily focus is on mechanisms underlying meditation-oriented mindfulness. We chose to do this because our systemization of deautomatization involves all components pertaining to meditation-oriented mindfulness, but does not include all the components of mindset-oriented mindfulness.

Four Elements of Mindfulness

Mindfulness meditation practice is a form of cognitive training aimed at learning how and where to guide one's attention. This involves maintaining awareness of attention from one moment to the next. Whenever the mind wanders, it is gently but firmly escorted back to the initial target object. This practice trains the mind to be stable, letting it disengage from usual and automatized thought processes. Most discussions of mindfulness include the following four elements: (1) awareness, (2) sustained attention, (3) focus on present moment, and (4) nonjudgmental acceptance (e.g., Kabat-Zinn et al., 1985; Teasdale, Segal, & Williams, 1995). Here, we briefly define and discuss each of the four elements in turn.

Awareness

Awareness is having conscious knowledge of one's internal and external experiences, including bodily sensations, thoughts and emotions, and external events such as sights and sounds (e.g., Brown & Ryan, 2003). Awareness is contrasted with automatic mental reactions that often occur without conscious awareness. Intergroup biases, for example, represent overlearned cultural associations that are automatically and unconsciously activated in response to actual or symbolic categories (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000). A mindful individual with close awareness of her cognitive processes may be more likely to notice when intergroup biases occur, having accurate awareness of the nature of the bias.

Sustained attention

Sustained attention involves placing one's attention on the ongoing stream of internal and external stimuli. In the state of mindfulness, individuals bring their attention to the

target of observation. Whenever mind wanders, attention is gently but firmly brought back to the original target of focus. This component of sustained attention has been associated with positive mental health outcomes, including reduction in ruminative processes (Chambers, Lo, & Allen, 2008) and anxiety (Wells, 2002).

Focus on the present moment

Focusing on the present moment involves directing one's attention, with or without effort, to the internal and external phenomena occurring at each moment of awareness (e.g., Baer, 2003). It is contrasted with states in which the mind is preoccupied with thoughts about the past or the future, such as memories, plans, or fantasies. Rumination, which is associated with increased depressive symptom severity, is an example where perceivers lack focus on the present moment, preoccupied with automatically recurring thoughts from the past such as the causes and consequences of their feelings (e.g., Nolen-Hoeksema, 1991).

Nonjudgmental acceptance

Nonjudgmental acceptance involves experiencing thoughts, sensations, and events as they are at the moment they enter one's consciousness, without judging them as being good or bad, desirable or undesirable, important or trivial (Germer, Siegel, & Fulton, 2005). Acceptance is to allow all experiences—pleasurable, neutral, and painful—to arise without trying to change, control, or avoid them. Acceptance applies to all experiences, concrete (e.g., sensory pain) and abstract (e.g., feelings of rejection). Acceptance allows individuals to appreciate the experience, even in the presence of condemnatory self-evaluations (e.g., "I am a bad person"). When these evaluations do occur, acceptance allows individuals to embrace them as they are, without suppression or distortion (e.g., "Right now I am feeling as though I am a bad person").

Missing one or more components of mindfulness can result in "mindless behavior" (Langer & Piper, 1987). A mindless person has little awareness of the present experiences and is more likely to blindly follow daily routines and impulses. Unconscious processes are more likely to affect the mind when it is not in active control. For example, when mindless, our perceptions and judgments about a person are more likely to be influenced by superficial labels associated with that person (e.g., job title, political orientation). By contrast, a mindful person relies on conscious and deliberate thought processing by having an open and flexible attitude, which can lead to non-judgmental acceptance of multiple context-dependent perspectives. Acceptance further allows individuals to distinguish events from the thoughts or emotions evoked by them. Therefore, a mindful individual can further notice that some events are uncontrollable, whereas the responses can be controlled with practice. This increased sense of awareness can in turn help change the contexts in which events are experienced. Mindfulness does not necessarily confer greater mental control, but rather, enables an individual to better notice the presence of their own mental control by providing awareness of what is controllable and what is not.

Automaticity and Deautomatization

Much of our mental and emotional life is supported by automatic processes that are unconscious, spontaneous, and seemingly instantaneous (Bargh & Chartrand, 1999). People are often on “autopilot” in their behavior and decision-making, following habits or heuristic routines while their minds are occupied with other thoughts (e.g., Langer & Abelson, 1974). We define automaticity as the ability to effortlessly engage in behaviors without paying conscious attention to their operational details (e.g., LaBerge & Samuels, 1974). Automaticity is usually a desired result of learning that reflects a degree of habit or mastery. It is often adaptive, conserves limited attentional resources, and lessens the self-regulatory burden by freeing up one’s limited conscious attention from tasks in which they are no longer needed (e.g., Bargh & Chartrand, 1999). However, automatized mental reactions can also lead to a wide range of detrimental consequences. When an external event is followed by unconscious and automatic reactions, it may become difficult to separate the event itself from thoughts or emotions that it arouses. The automatic and quick reactions may reduce perceived control and lead to helplessness, which is commonly associated with a host of mental problems, such as anxiety disorders (Chorpita & Barlow, 1998), depression (Abramson, Seligman, & Teasdale, 1978), and addiction (Forsyth, Parker, & Finlay, 2003).

Whether automaticity is innate or acquired through learning, the field’s consensus has been that automatic reactions are difficult or even impossible to control (e.g., Devine, 1989). However, some recent findings suggest that deautomatization is possible. A highly automatic and unconscious activation and application of intergroup biases were deautomatized when counterstereotyping egalitarian goals were preemptively activated (Moskowitz & Li, 2011), or in positive rather than negative, stereotypic contexts (Wittenbrink, Judd, & Park, 2001). Hypnosis can also be used to initiate deautomatization. In a series of experiments, participants who were given hypnotic suggestion for alexia, the inability to read, showed a reduction or elimination of Stroop interference (Raz, Moreno-Iniguez, Martin, & Zhu, 2007). However, deautomatization that may occur through these paradigms is limited by a number of factors, including short-lived effects and potential difficulty of application in real life. We suggest that another way to instigate deautomatization while allowing perceivers’ introspection and control is through mindfulness. A mindful mental set can deautomatize previously established associative categories and other routine modes of behavior, a view that is supported by a growing body of empirical findings.

Mindfulness and Deautomatization

In this section, we discuss how the four integral elements of mindfulness—awareness, attention, focus on the present moment, and acceptance—can enable deautomatization by creating different layers of changes in human behavior, as schematized in Figure 9.1. In doing so, we emphasize that these components of mindfulness often operate in mutually dependent and reciprocal relationships to produce related outcomes,

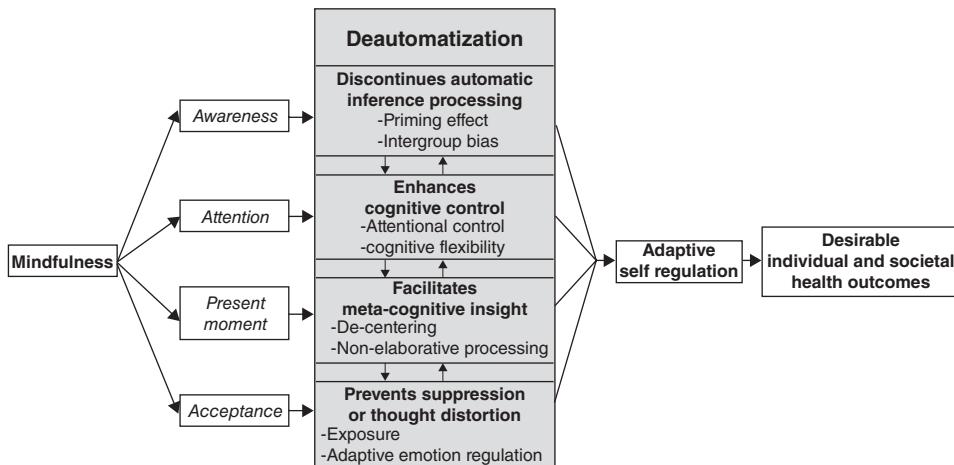


Figure 9.1 A model describing the mechanism of deautomatization facilitated by mindfulness.

and the outcomes often partially overlap. In the current paper, however, we intentionally separate the outcomes of each component for the sake of distinctness. Also, the framework we propose is by no means a comprehensive review on the mechanisms of mindfulness. Mindfulness is a complex phenomenon and probably involves multiple levels of mechanisms that work in independent or interrelated manners (Hölzel et al., 2011; Vago & Silbersweig, 2012), some of which will not be elaborated here for the sake of brevity.

Awareness and deautomatization

Automaticity is often adaptive in that it conserves our limited cognitive resources by utilizing information-processing strategies that are not taxing (Bargh, 1992). However, when our mind relies on automaticity, increased susceptibility to priming effects or reliance on simplifying tactics such as intergroup biases may result. Mindfulness, on the other hand, promotes awareness of the automatic ebb and flow of mental events (Wells, 2006). This awareness can be an important step to discontinue automatic inference processing, such as that which supports priming effect and intergroup bias.

Priming The priming effect occurs when a preceding stimulus, or prime, influences the perception of or response to a later stimulus (e.g., Salancik & Pfeffer, 1977). Priming effects occur when participants are not aware either of the prime itself or that the prime can affect their subsequent behaviors. For example, brief exposure to words related to elderly stereotypes led people to walk more slowly down the hallway when leaving the experiment than did control participants (Bargh, Chen, & Burrows, 1996). In this study, the words were presented for an extremely brief duration so that they were inaccessible to participants' awareness. In another study, incidental contact with a hot (vs. iced) cup of coffee affected impression formation, influencing people to perceive more (vs. less) interpersonal warmth in a stranger (Williams & Bargh, 2008).

Participants in this study were exposed to a temperature prime for a longer period of time but were not aware of the way it could affect their subsequent social perception.

Awareness of the presence of a prime and its potential effects on one's behavior can eliminate the priming effect. For example, the magnitude of the priming effect is inversely related to the length of exposure to the prime (Fazio, Sanbonmatsu, Powell, & Kardes, 1986), suggesting that priming information is most potent when presented so briefly that it is inaccessible to the perceiver's conscious awareness. In particular, Murphy and Zajonc (1993) showed that awareness eliminates the priming effect by presenting priming stimuli in the form of smiling or scowling faces either for an extremely brief duration or for a longer duration followed by novel Chinese ideographs. Participants preferred the Chinese ideographs that were presented immediately after smiling faces only when the smiling faces were presented for a very brief time and thus inaccessible to their conscious awareness. A very short exposure to priming information did not allow individuals' awareness to recognize that the affective information (faces) was unrelated to the later stimuli (Chinese ideographs). On the other hand, when the faces were presented for a longer duration, increased awareness allowed individuals to be capable of separating the affective information from their preference for Chinese ideographs.

A mindful person, who attends to the changing fields of sensations, thoughts, and feelings from moment to moment, may be less influenced by the priming effect, given an increased alertness to the here-and-now and heightened vigilance and clarity of awareness regarding internal and external processing of information. With increased awareness, mindful individuals may be more likely to notice the priming trigger or its psychological effect, bypassing automatic priming reactions. In support of this view, Radel and colleagues (2009) showed that individuals with higher levels of dispositional mindfulness as measured by the Mindful Attention Awareness Scale (Brown & Ryan, 2003) were less susceptible to a priming manipulation designed to activate goal motivations, compared to those with low mindfulness. Participants who were exposed to subliminal words related to autonomy (e.g., willing) performed better in a subsequent exam than those presented with non goal-related words. Importantly, this effect occurred only among those with low self-reported dispositional mindfulness. The authors conclude that mindful awareness can increase immunity against automatic guidance.

Intergroup bias Intergroup biases are often activated and applied by cognitive responses that are based upon automatic categorization, formed by a perceiver's knowledge, beliefs, and expectations about human groups (e.g., Hamilton & Trolier, 1986). The cognitive processes that initiate intergroup bias most often occur automatically and unconsciously (Devine, 1989; Pratto & Bargh, 1991), and thus intergroup biases are considered to be an inescapable and necessary by-product of the categorization process (Bargh, 1989). However, current models suggest that intergroup bias reduction is possible when people have awareness of their own bias. Simply being aware of one's mental states or processes—a key ingredient of mindfulness—can reduce these automatized categorizations of feature-related interpretations, such as "I am perceiving this female student to be math-incompetent because there exists a bias that women are incompetent at math" (e.g., Bargh, 1999). This suggests that

mindfulness can facilitate deautomatization by fostering awareness of one's presents thoughts and feelings. For example, mindfulness training based on acceptance and commitment decreased racial bias in a naturalistic classroom setting across two sessions and at one-week follow-up (Lillis & Hayes, 2007).

Langer and Moldoveanu (2000) further argue that active awareness permits appreciation of new perspectives and promotes context sensitivity, revealing that behaviors can be understood in multiple ways. For example, mindset-oriented mindful individuals are more likely to appreciate views other than their own, recognizing that there are as many different perspectives as there are different observers (Langer, 1989). This can lead to less judgmental attitudes and reduce bias. For example, experimentally inducing mindfulness in children reduced discrimination against physically handicapped individuals (Langer, Bashner, & Chanowitz, 1985). In another study, greater mindfulness induced by examining multiple (vs. single) aspects of a person reduced biased behaviors, such as slow walking speed activated by age-related bias (Djikic, Langer, & Stapleton, 2008). Whether increased multiple perspective taking or context sensitivity mediated the demonstrated efficacy of mindfulness on bias reduction, however, was not directly tested in these studies.

Collectively, the theoretical rationale and empirical results support the notion that awareness can deter automatic inference processing shown in priming and intergroup bias. We further suggest that awareness in the state of mindfulness is made possible by active control of attention. Mindfulness can promote deautomatization and help control automaticity by training one's attention regulation capacity, which is further illustrated in the following section.

Attention and deautomatization

We now discuss the way mindfulness training can facilitate deautomatization by enhancing attention regulation and cognitive flexibility. Mindfulness practice that involves focusing on a goal object while reducing distraction can enhance the ability to sustain attention on a target object (e.g., Chambers et al., 2009; Shapiro & Schwartz, 2000). In addition, mindfulness practice can offset deleterious effects of cognitive depletion in conditions of low resources (Friese, Messner, & Schaffner, 2012). Practitioners can cultivate the ability to direct their attention to a target of their choice with increased cognitive control, the ability to sustain attention without intentionally choosing the focus of awareness. This can eventually allow the specific focus to change from moment to moment, while maintaining an alert state. We review the effect of mindfulness on facets of cognitive control, including attention regulation and cognitive flexibility.

Attention regulation Attention is an information-processing capacity that enables selective focus on a particular feature of the environment while inhibiting other competing information. In a state of mindfulness, attention is placed on one specific aspect of goal-relevant information while inhibiting the array of other competing stimuli. Therefore, one critical change during mindfulness training is the enhancement of

attentional capacities, indexed by improved performance on tasks that require attention regulation. Mindfulness practice can improve the attention regulation capacity needed to sustain and inhibit attention and allocate attentional resource as intended. In particular, Chambers and colleagues (2008) found that mindfulness cultivates an ability to sustain and control the attentional focus. In this study, participants who underwent a 10-day intensive mindfulness retreat showed increased ability to maintain and shift their focus of attention. Another brief five-day integrative daily meditation program that used mindfulness-based approaches also improved inhibitory attentional control (Tang et al., 2007). Furthermore, a three-month intensive mindfulness retreat improved an ability to allocate attentional resource to task-relevant stimuli (Slagter et al., 2007).

Evidence strongly suggests that mindfulness may be one effective way to train the ability to guide and sustain one's attention in the face of previously established automatic reactions. There are some important similarities between mindfulness training and other attention interventions. For example, both meditation-oriented mindfulness and other attention-training programs emphasize the importance of repetition (e.g., Sohlberg & Raskin, 1996). Attention training and mindfulness both can involve difficulties associated with attempts to control one's internal experience against the mind's strong tendency to habitually wander, often unaware of its own lack of awareness (Langer, 1989). The emphasis of mindfulness on repetition is thus necessary in order to overcome mindlessness and achieve fluency at a task that was initially challenging (e.g., Sohlberg & Mateer, 1987). Similarly, as in attention training, practiced regularly over a longer period of time, the initially transient mindful states can convert into a more stable trait-like condition. Mindfulness training has elements that are also characteristics of an effective attention intervention, such as sufficiently gratifying reinforcement (Sohlberg & Raskin, 1996), as the reward of successful mindfulness training can be extensive with wide-ranging improvements of well-being (for a review, see Germer et al., 2005). In addition, successful attention training should use target stimuli that are common to both the training environment and the real world (Sohlberg & Raskin, 1996). Target stimuli commonly used in mindfulness training are one's breathing and related bodily sensations, and this readily available nature of target stimuli makes it easy to generalize what was learned during practice in a real environment.

Cognitive flexibility Cognitive flexibility is the ability to adapt information processing strategies and respond to novel and unpredicted information, allowing individuals to switch behavioral responses according to the changing context of the information (Cañas, Quesada, Antolí, & Fajardo, 2003). Mindfulness can increase cognitive flexibility by allowing flexible allocation of attention on the ever-changing landscape of moment-to-moment information (Langer, 1989). The ability to recognize multiple aspects of a target object and choose a task-relevant attentional set is often measured using the Stroop task, where attention has to be withdrawn from processing the over-learned and automatic information (word reading) and placed onto processing novel and relatively less practiced information (naming the ink color), a process of deautomatization. Some evidence indicates that mindfulness reduces Stroop interference. Self-reported dispositional mindfulness predicted enhanced Stroop performance (Galla,

Hale, Shrestha, Loo, & Smalley, 2012). Moore and Malinowski (2009) also report that cognitive flexibility is associated with meditation practice and self-reported levels of mindfulness. In this study, mindfulness meditators who completed at least six weeks of meditation sessions showed a better performance on the Stroop task than those who had no previous mindfulness experience. When a highly automatic reaction has become task-irrelevant, mindfulness meditators could flexibly redirect their attention to the new task-relevant information. Furthermore, Alexander, Langer, Newman, Chandler, and Davies (1989) found that performing 20 min of daily mindfulness practice twice a day over three months was associated with decreased Stroop interference among residents in nursing homes.

We reviewed literature suggesting that mindfulness meditation can improve attention regulation and cognitive flexibility, thereby enabling discontinuation of automatic cognitive processing. We suggested that the repeated training of directing attention in mindfulness meditation can enhance cognitive control, indexed by increased attention control and cognitive flexibility, which then can provide a basis for the deautomatization to occur.

Focus on the present moment and deautomatization

Mindful practice of repeatedly bringing attention back to the present moment can lead to realization that thoughts are simply patterns of the mind rather than accurate reflections of truth or reality. This process is called “metacognitive insight” (Teasdale, 1999), a transition toward regarding thoughts as transient mental events, rather than direct representations of reality. Mindful focus on the present moment can thus enable metacognitive insight, which becomes the basis for de-centering and nonelaborative processing.

De-centering De-centering involves stepping back from mental experiences and observing that thoughts are transient mental events and do not necessarily represent facts based in reality (Segal, Williams, & Teasdale, 2002). De-centering can allow individuals to have some mental distance from their problematic thoughts and emotions, allowing an opportunity to observe their habitual tendency to react automatically. This observation can further offer a sense of choice to respond consciously to an increased number of options instead of reacting unconsciously.

The process and outcomes of de-centering have strong implications in clinical disorders that are characterized by problematic automatized thought patterns. For example, Teasdale (1999) highlights that ruminative and negative self-focused thought patterns can perpetuate depressive episodes. A de-centered view can help reduce rumination by helping individuals to notice recurrent depressogenic thought patterns and respond within a different processing configuration. Specifically, negative thoughts are simply regarded as waves of mental patterns rather than reflections of reality. In support of Teasdale’s view, mindfulness-based interventions have shown efficacy in treating major depression (Ma & Teasdale, 2004; Teasdale et al., 2000) and bipolar disorder (Williams et al., 2008). De-centering is a process of changing an individual’s relationship to thoughts and feelings, rather than focusing on their details in an attempt to

modify them. This reconfigured relationship can free the mind from secondary elaborative processing (Bishop et al., 2004), which will be discussed next.

Nonelaborative processing A de-centered perspective, by enabling a suspension of conceptual meaning-based processing, can lead to nonelaborative thought processing (Wells, 2006). Nonelaborative processing of information related to physical and psychological pain is of particular importance in mindfulness. The expectation or experience of pain can lead to secondary elaborations on worries and aversion responses that are often unconscious and automatic, making it difficult to separate pain from suffering in the overall experience. With respect to pain, the Buddhist tradition observes that pain is not the same as suffering, as suffering occurs when negative thoughts and fear are projected onto pain sensations (Germer et al., 2005). Similarly, pain can be largely subjective and context dependent. For example, patients who taught themselves to reinterpret the hospital experience in nonthreatening ways took fewer pain relievers and sedatives, and tended to leave the hospital sooner than the untrained patients (Langer, Janis, & Wolfer, 1987). Studies on pain perception further suggest that the expectation of pain can influence the subsequent amplitude of an actual pain experience. For example, expectation of a painful stimulus, a secondary information processing that is purely based on psychological factors, amplified the actual experience of unpleasantness in response to an innocuous stimulus indexed by increased brain responses within areas associated with pain processing (Sawamoto et al., 2000). Siegel and colleagues (2001) also illustrate the way physical pain can be exacerbated by secondary elaborations that often arise automatically upon encountering the pain experience, such as worrying about longer-term consequences of pain. Affected individuals may in turn avoid physical activities altogether for the fear of worsening the symptoms, which can exacerbate psychological stress and muscle deterioration. Mindfulness may provide the initial impetus to discontinue the automatized chronic pain cycle by allowing recognition that a certain portion of the pain experience is self-generated and identify the source of pain that can be changed.

Rumination is another example of elaborative thought processing that involves a highly automatized and repetitive cycle of negative thought patterns and self-focused attention, where negative thoughts about a present problem further compound the condition (Nolen-Hoeksema, 1991). Metacognitive insight, brought about by mindful observation of ever-changing patterns of thoughts, allows relocation of attention from habitual passive thought fixation back to the intended primary focus of attention (Teasdale, 1999). Furthermore, paying attention to one's thought patterns can provide a sense of control over possible courses of actions. Instead of unconsciously following preestablished automatic reactions, a mindful person can consciously monitor emotional experiences, thereby preventing further cycles of rumination (Teasdale et al., 1995). Mindfulness practice was shown to reduce self-reported rumination, as measured by a trait rumination scale (Ramel, Goldin, Carmona, & McQuaid, 2004).

In the next section, we further discuss the concept of mindful acceptance, and how it prevents suppression or thought distortion, thereby facilitating benefits of exposure. Attitude of acceptance may also facilitate adaptive modes of emotion regulation, attenuating automatic reactivity to emotional stimuli.

Acceptance and deautomatization

In the state of mindfulness, the mind is attending to the ongoing stream of ever-changing present experiences with clear awareness. Resulting from these processes may be an enhanced level of acceptance (Chambers et al., 2008). Understanding the futility of trying to achieve permanence in the present moment, which is in a perpetual state of change, can lead to the fundamental insight of acceptance. In the state of nonjudgmental acceptance, all phenomena that enter awareness are observed carefully but not evaluated as good or bad. Instead, all events are experienced with an attitude of acceptance sans threat or defense. Mindfulness involves observing one's own reactive desire to avoid the fear-inducing stimuli without regarding them as harmful or undesirable. This detached stance helps individuals to actually experience fear, which in turn may make the object of fear less threatening. This process is very similar to that of interoceptive exposure.

Exposure Exposure used in therapy involves introduction to feared object or context in the absence of danger (Joseph & Gray, 2008). Mindfulness encourages a gradual orientation of attention toward fear as it arises, while exploring it with nonjudgmental acceptance. Mindfulness thus involves exposure to fearful stimuli without avoidance, which is a key ingredient for changing undesirable reactivity to fearful stimuli (Samoilov & Goldfried, 2000). Exposure reduces reactivity that would otherwise engender maladaptive automatic cognitive defenses (Baer, 2003). The nonjudgmental acceptance toward internal experience can introduce exposure and reduce anxiety severity by encouraging the experience of anxiety symptoms without attempts to control them (Kabat-Zinn et al., 1992). Kabat-Zinn (1982) also explains that undistorted exposure to the sensations of chronic pain in the absence of catastrophic consequences can lead to desensitization and eventual extinction of the maladaptive reactivity elicited by the pain sensations.

Emotion regulation Mindfulness cultivates an attitude of nonjudgmental acceptance toward all phenomena, allowing individuals to notice and appreciate all emotional experiences without clinging, whether they are positive or negative. This mode of emotion regulation reduces potentially detrimental emotional reactivity shown in other maladaptive emotion regulation strategies such as suppression or rumination. Arch and Craske (2006) showed that even a very brief 15-min mindfulness practice can help adaptively regulate emotions. Participants who underwent brief mindfulness exercise, compared to controls, were better at decreasing the intensity and negativity of emotional reactivity in response to the highly negatively valenced pictures. Self-reported dispositional mindfulness also is associated with lower arousal within the area of amygdala, an area implicated as a cortical and limbic marker of emotional reactivity, at the baseline (Way, Creswell, Eisenberger, & Lieberman, 2010) as well as during emotional threat (Creswell, Way, Eisenberger, & Lieberman 2007).

Nonjudgmental acceptance is distinct from other emotion-regulation processes, such as suppression, in which an individual attempts to inhibit thoughts that are unacceptable or aversive (Wegner, Schneider, Carter, & White, 1987), or reappraisal, in

which individuals reconstrue a situation in a different way than how it was originally experienced (Gross, 1998). Mindfulness does not involve systematic evaluations and cognitive alterations of irrational thoughts. Instead, individuals learn to observe the impermanence of their thoughts and notice that thoughts are not factual threats that call for escape or avoidance responses. This in turn may allow a more accepting and less judgmental stance towards all thoughts, including ruminative thoughts.

Acceptance enables individuals to observe their automatic reactivity to mental events without judging, which can discontinue undesirable automatized behaviors. No longer subjected to former reactive thought patterns, one gains an opportunity to better regulate thoughts and emotions, which can result in improved health outcomes. Indeed, Alexander and colleagues (1989) showed that mindfulness practice can promote psychological health and even predict longevity. Residents in nursing homes who engaged in 20-min mindfulness meditation twice a day for three months exhibited improved mental-health outcomes, measured by a question probing general improvement of mental health (rated by nurses blind to experimental condition) compared to a control group. Furthermore, mindfulness practitioners were more likely to be alive than controls three years after treatment ended. We suggest that acceptance can help regulate thoughts and feelings, contributing to the potentially powerful effect of mindfulness on health outcomes.

Conclusions and Future Directions

Many authors have discussed the deautomatizing function of mindfulness. We provide further elaboration on this model and propose that four core elements of mindfulness—awareness, attention, focus on the present moment, and acceptance—discontinue automaticity. Mindful deautomatization can further promote adaptive self-regulation strategies, which can enhance psychophysical well-being.

Our mental and emotional life is often a succession of automatic and habituated reactions to a constant flow of external and internal stimuli. Automaticity helps to process information process more efficiently than our limited attentional capacity can handle, but there are trade-offs. We reviewed the potential effect of mindfulness in reducing maladaptive automatic cognitive and emotional reactions. The proposed mechanistic approach can be helpful in deconstructing mindfulness and its deautomatizing function into algorithmic steps. Understanding essential components of mindfulness can provide a functional model to test the multifaceted construct of mindfulness, while preventing potentially misguided applications of mindfulness that result in limited or undesired outcomes. We further suggest directions for future research that we hope will flow from this deautomatization model of mindfulness. First, researchers can test whether mindfulness can deautomatize other highly automatic responses. Second, other mechanisms of deautomatization can be tested, such as changes in emotions. Mindfulness has been shown to increase daily experiences of positive emotions such as joy and gratitude (Tang et al., 2007) and decrease negative affect (Chambers et al., 2008). Increased experience of positive emotion facilitated by mindfulness may in turn enhance deautomatization. According to Fredrickson's (1998) "broaden-and-build" model, positive emotions broaden the possible thought-action repertoire by

unlatching the rigid processing of automatic operations. Unlike negative emotions that require preparation for a narrow range of specific actions, positive emotions sans threat do not call for quick reactions. Positive emotions thus may open up a mental space, a state where individuals can savor the moment-to-moment experience without mindlessly reacting to incoming stimuli.

Mindfulness practice in clinical or daily life settings can be a new cost-effective and noninvasive treatment or health-enhancement strategy. Both mindset-oriented and meditation-oriented perspectives on the efficacy of mindfulness have been investigated in recent studies, yet their specific underlying properties still remain underexplored. Assessing deautomatization as a potential mechanism of mindfulness can help shed light on better understanding and application of a more advanced contemporary utilization of the 2,500 year-old ancient practice of meditation.

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Toward a Mindful–Unmindful Cognitive Style

Lessons from the Study of Field Dependence–Independence

Jack Demick

In *Taking Sides: Clashing Views on Controversial Issues in Cognitive Science*, Mason (2004) has posed the question: “Is Mindfulness a Cognitive Style?” In support of the affirmative, she has presented Sternberg’s (2000) article on images of mindfulness while in support of the opposing view, she has employed Langer and Moldoveanu’s (2000) article on the construct of mindfulness. After comparing mindfulness to related constructs in psychology, namely, abilities, personality traits, and cognitive styles, Sternberg has concluded that “mindfulness has characteristics of all three but seems closest to being a cognitive style” (p. 11). In contrast, Langer and Moldoveanu (2000) have argued that

...the concept of mindfulness has some unique characteristics. We are not in complete agreement ... that mindfulness is most like a cognitive style because, in our view, a style is not expected to change over time and through different circumstances, whereas the essence of mindfulness is change. (p. 4)

As a student of the most wildly researched cognitive style to date (cf. Wapner & Demick, 1991), namely, field dependence–independence (FDI), I take the following position. The concept of mindfulness has the potential to be construed as a cognitive (or other) style were both Sternberg and Langer to consider the issues, and the lessons learned, from early and ongoing work on the FDI construct. As stated in their articles in 2000, both Sternberg and Langer and Moldoveanu have employed style conceptualizations that are to some degree inconsistent with contemporary work, some of which has been conducted within my own laboratory.

For example, Sternberg’s position that the concept of mindfulness would be enhanced by its association with the more general problem area of cognitive style seems, at first glance, promising for mindfulness researchers. However, his position is tempered by his subsequent statement that the cognitive style movement hit a

dead end in the 1970s for both theoretical and methodological reasons. Theoretically, cognitive styles, which have often been used to bridge the study of cognition and personality, have not been derived from nor led to any general theories of cognition and/or of personality, leading work on cognitive styles to become isolated from the rest of the psychological literature. Further, research has raised the issue of the generalizability of cognitive styles, namely, whether they are generalized characteristics of individuals or more contextually based. Cognitive styles have also often appeared similar to abilities with some investigators arguing that the poles of many styles may be construed as either more or less adaptive. For example, Sternberg exemplified this notion by citing the FDI cognitive style construct, which he argued has provided data showing that a field-independent (FI) cognitive style is better than a field-dependent (FD) one. Methodologically, he argued that measures of cognitive styles have not corresponded well to their conceptualization and, further, that component measures of a given style have not always corresponded well to each other. In defense of their position, Langer and Moldoveanu (2000) have argued that Sternberg's association of mindfulness with cognitive style categories is inadequate and much too restrictive for the current concept of mindfulness, which involves all senses and does not adhere to the notion of nonchangeability.

I now turn to a basic exposition of the FDI cognitive style construct, in both its original and contemporary forms, as means to consider how work on this particular cognitive style may inform those who wish to develop the concept of mindfulness as an empirically rigorous cognitive (or other) style free from previous criticisms. In doing so, certain of Sternberg's and Langer's assumptions about the nature of styles will be questioned toward arguing that Langer's work has the potential to fit nicely within the general (cognitive) style literature if the latter is accurately construed.

Lessons from FDI Cognitive Style Research

Initial conceptualization

Witkin (1967) introduced the notion of *cognitive style* as a “characteristic, self-consistent mode of functioning found pervasively throughout an individual's cognitive, that is, perceptual and intellectual activities” (p. 234). The particular cognitive style of interest to him was *FDI*. He saw this as a psychological dimension describing individual differences in whether, in space perception, people use cues from the visual field or from their own bodies (postural-kinesthetic cues). Specifically, FDI describes differences in ways of perceiving and structuring a field. FD performance is characterized by *global perception* where items are not well differentiated from the background when the field is structured and where there is a lack of the imposition of organization on the field when it is unstructured. In contrast, FI performance is characterized by *articulated perception* where items are readily disembedded from the surrounding field and where structure is imposed on an unstructured field.

Witkin and colleagues (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962; Witkin & Goodenough, 1981; Witkin, Lewis, Hertzman, Machover, Meissner & Wapner, 1954) have described individuals who are predominantly influenced by field cues

(e.g., visual cues) and who cannot easily disembed an object from its surrounding field as FD and individuals who rely primarily on bodily cues and who can easily differentiate objects from the field as FI. They have also found constellations of personality characteristics correlated with these perceptual styles. For example, FD individuals typically exhibit a *global body concept*, a *limited sense of separate identity*, and an *unusual sensitivity to the social surround*. In contrast, FI individuals characteristically show an *articulated body concept*, a *sense of separate identity*, and a *greater ability in analytic tasks*. It has also been documented by these and other researchers that: (1) there are stable individual differences in FDI over long periods of time; (2) over ontogenesis, there are changes from FD to FI and then a reversion to FD in older adulthood; (3) women are more FD than men; (4) FI individuals typically use structured, specialized controls such as intellectualization as a defense mechanism, whereas FD individuals typically employ repression and denial as defenses; also, both appear pathological in the extreme (lability/histrionics in FD, autistic tendencies/withdrawal in FI); (5) FD people are more socially oriented (e.g., more attentive to social cues, prefer being physically close to others, more open emotionally in interpersonal communication), while FI persons are not very interested in others and exhibit greater physical/emotional distancing from them; (6) hunting and gathering people are more FI than sedentary farming people; and (7) whether a particular cognitive style is good or bad depends on its adaptive value in a particular situation; that is, a cognitive style's value is relative to context.

In their early experiments, Witkin and colleagues (Witkin et al., 1954) assessed FDI by the use of three perceptual tasks: (1) the Rod-and-Frame Test or RFT (in a dark room, a subject adjusts to vertical a luminous rod embedded in a tilted square frame); (2) the Body Adjustment Test or BAT (a subject, seated in a chair that is projected into a tilted room, adjusts himself or herself in the chair to upright in the context of the tilted room); and (3) the Embedded Figures Test or EFT (on a paper-and-pencil task, a subject attempts to disembed simple figures from complex designs). Over time, some of the tasks were modified because of their cumbersome nature. That is, the BAT was eliminated, and a portable version of the RFT or Portable Road-and-Frame Test (PRFT) (Oltman, 1968) was developed for those who were unable or did not wish to use a large unlit laboratory. Further, although there was initially a variety of versions of the EFT employed related to subject characteristics and test conditions (e.g., the Preschool Embedded Figures Test or PEFT, the individually administered EFT, the group administered Group Embedded Figures Test or GEFT), the most easily administered GEFT became the norm partly related to the difficulty of obtaining the PEFT and EFT. Thus, in contemporary research, the RFT or more likely the PRFT is used to assess *perception of the upright* (visual vs. postural conflict), while the GEFT is employed to measure *cognitive restructuring ability* (see Demick, in press).

The first iteration of Witkin's research on FDI raised a number of theoretical and methodological issues that became paramount in subsequent work. Theoretical issues included: (1) initial confusion of this work with research assuming the person independent of the environment (e.g., biologically based trait theories); (2) the suspect relationship between FDI cognitive style and ability constructs (e.g., intelligence); (3) the nonvalue-free nature of the FDI construct; and (4) the lack of placing FDI research

within a larger theoretical framework. Methodological issues included: (1) whether the FDI construct represented one construct or two (perception of the upright, cognitive restructuring ability); and (2) whether methodological limitations (e.g., women being tested in dark rooms by men) were responsible for some of the classic findings (e.g., with women being more FD than men). These issues re-echo some of Sternberg's previous concerns, and all are relevant for advancing Langer's construct. Thus, each is discussed briefly in turn.

Theoretically, cognitive and other style theories, contrary to the beliefs of some researchers, are *not* similar to trait theories, which assume that the person is independent of the environment. Rather, cognitive styles exemplify interactional theories, which characterize behavior as occurring within a field of interfacing organismic and environmental forces. Theories of cognitive style are, thus, primarily concerned with classifying individuals in terms of the ways in which they construe the environment; a corresponding categorization of types of contexts is not made. Individuals are seen as behaving consistently across contexts as a result of their use of similar modes of construal or recognition of the environment. Little attention is given to explaining variability in an individual's behavior across contexts. Rather, the main focus is on accounting for consistency in behavior across contexts and variability between individuals in the same context. However, Witkin et al. (1962) argued that, unlike traits, the development of FDI was related to both biological-genetic factors and environmental-social factors (e.g., FD is related to socialization patterns emphasizing conformity and dependence on authority, while FI is associated with socialization patterns emphasizing autonomy and independence). Nonetheless, interactive (e.g., cognitive) style theories are characterized by the same strengths and weaknesses as biological style (e.g., temperament) theories, namely, efficiency in generating behavioral predictions, parsimony, issues in dealing with individual differences within a style category or accounting for individual variation in behavior across contexts, and difficulty obtaining empirical support for overly general predictions based on style.

Further, a positive relationship between FDI and intelligence has been argued to be of extreme theoretical importance, for it has led some critics (e.g., McKenna, 1984) to argue strongly that measures of FDI should be viewed more appropriately as measures of cognitive ability rather than of cognitive style. However, the empirical evidence supporting this generalization has been equivocal. Although the direction of the correlation is usually such that those who perform better on the standard FDI tasks, although often limited to the EFT, also perform better on intelligence tests, the correlations have never approached unity, suggesting that FDI tasks assess something more than intelligence tests measure. Although the EFT has correlated with the overall Wechsler scales, the correlations tend to be higher with the performance subtests than with the verbal ones. Although Witkin and Goodenough (1981) highlighted numerous correlations between FDI measures and academic achievement, specific correlations between the EFT and mathematics/science grades, though significant, were reduced to nonsignificance when a general ability measure was taken into account. When statistically controlling for general intellectual ability, some studies reported no relationship between FDI and intelligence, while others provided significant findings, although of varying magnitudes. These different strands of data for me convincingly demonstrate that FDI and intelligence are not the same construct.

The style-ability issue is also linked to the question of whether a value bias enters into the FDI construct. From Witkin's viewpoint, the FDI dimension is value-neutral in so far as each pole—interpersonal skills versus restructuring skills—has qualities that are adaptive depending on particular circumstances. The value-neutral character of the construct is also supported by correlations with educational choices and preference (e.g., FD is associated with careers in helping professions such as social worker and clergy, teaching areas such as social sciences and elementary education, and business occupations such as personnel, advertising, and sales, while FI is related to careers in mathematics, certain science professions such as physics and engineering, several healthcare professions such as medicine and dentistry, and distinct practical occupations such as carpentry and farming). In contrast, however, some researchers (e.g., Silverman, 1991) have found that, under certain conditions (e.g., states of uncertainty), FD individuals show more nonoptimal physiological responses (e.g., veins prone to spasm) than FI individuals. The issue has become further complicated because: (1) at the time of the initial research, analytic skills were valued more highly in society than interpersonal ones; and (2) the term “field dependent,” which most often characterized women, was seen then as biased and pejorative, and more recently as sexist. However, in light of society’s recent consideration of alternative forms of intelligence such as emotional intelligence (e.g., Salovey & Grewal, 2005), it is unclear as to whether researchers would still take such a strong stand against the dichotomy between cognitive and social-emotional skills. Further, the use of more value-free terminology to describe the two FDI styles (e.g., reversing FD and FI as field sensitivity vs. field insensitivity or, perhaps in an even more value-free manner, referring to FI and FD as self- vs. outer- directedness or articulated vs. global perception) might be developed. Finally, further exploration of alternative measures of social functioning than only those examined by Witkin and colleagues may lead to the possibility that the two groups exhibit interpersonal competencies although in different ways. For example, various aspects of interpersonal communication such as characteristic rate of speech and/or language stereotypy, the quality of interpersonal relationships, and transactions in close relationships are worthy of future empirical research.

Methodologically, if there is only one process involved in both test situations, then the correlations between measures from each should approach unity. If, as in fact, the correlations are of a magnitude that accounts for only a small proportion of the variance—even 36% (r values of magnitude of .60)—there are at least two possible explanations: (1) the correlations might approach unity, but moderator variables (e.g., sex, age, personality characteristics of experimenters and subjects) are not taken into account; or (2) unity of correlations, suggesting one process, does not in fact exist, although the two tasks may have some features in common. This has led some (e.g., Demick, 1991) to advocate strongly that FDI studies need routinely to combine measures from both the RFT and the GEFT into one larger index rather than relying solely on an overall measure from the more easily administered GEFT. Further, in light of the criticism that Witkin’s earlier work involved men testing women in dark rooms (RFT), which may have compromised women’s performance (cf. Matlin, 1989), Demick, Raymond, and Wapner (1990) uncovered no difference in the performance of undergraduate females related to whether they were tested by male or female experimenters. This finding was extended by Demick and Harkins (1999) to male and female adults across the life span.

Theory development

In response to critics (e.g., Zigler, 1963) who highlighted the atheoretical nature of Witkin's initial conceptualization, Witkin, Goodenough, and Oltman (1979) subsequently discussed FDI cognitive style in terms of Werner's (1957) concept of *psychological differentiation* (using his comparative and developmental theory in which the orthogenetic principle—describing changes over time from dedifferentiated, to differentiated, to differentiated and integrated—plays a prominent role). Specifically, as part of the conceptualization that individual development toward differentiation encompasses biological as well as psychological processes, Witkin et al. (1979) elaborated the differentiation construct by construing differentiation as the most general construct at the apex of a pyramidal structure with its qualities defined by second- and third-order structures. At one level below differentiation, there were three constructs: (1) *self-nonsel segregation* (FDI), which was manifest at a third lower order in restructuring skills and interpersonal competencies; (2) *segregation of psychological functions*, which was manifest at a third lower order in structured controls and specialized defenses; and (3) *segregation of neurophysiological functions*, which was manifest at a third lower order in hemispheric specialization.

However, this conceptualization—although based on the orthogenetic principle—was subsequently taken to task for omitting an essential feature of organization, namely, hierarchic integration. In essence, Witkin et al. (1979) seemed to take integration for granted and mentioned its role largely in terms of adaptation. This led other researchers (e.g., Missler, 1986) to suggest that, because of its placement in a differentiation framework, FDI theory became confusing to many.

Contemporary theory and research

When I began work on the FDI cognitive style construct at Clark University initially with Seymour Wapner, one of Witkin's earliest collaborators, I was perplexed by two issues that have occupied much of my attention to the present day, namely, how to portray FDI cognitive style in a more value-free manner and how best to demonstrate hierarchic integration within FDI performance, each of which will be discussed in turn.

The first issue involved the value-free nature of the two opposing styles, which researchers often did not believe. In response, I reasoned that additional research on more complex phenomena might demonstrate and thus heighten the construct's value-free nature. This is indeed what we found in two separate studies. That is, Demick and Harkins (1999) assessed cognitive style and driving skills in adulthood. Two hundred thirty-one individuals in four age groups (20–39, 40–59, 60–74, 75+ years) participated in two sessions (counterbalanced): one in the laboratory (assessing, e.g., driving history, FDI cognitive style, reaction time, selective attention, computerized driving skill) and one on the road (e.g., standard driving road evaluation by licensed instructors). The findings were striking. FDI is a better predictor of driving ability than age, and the two aspects of FDI differentially predict driving ability among the groups (e.g., perception of the upright predicts driving behavior in middle-aged adults, whereas cognitive restructuring ability predicts driving behavior in older adults). Even more striking, however, was the finding that both FD and FI

individuals exhibit driving problems although in different ways: FD drivers tend to follow the car in front of them (dependence on context), whereas FI drivers tend to scan the entire visual field and weave in and out of traffic (dependence on body/self) with both styles leading to the possibility of accidents. Not only did this study support the notion that perception of the upright and cognitive restructuring ability represent different constructs but also it identified an important, ecologically valid context (automobile driving) in which both styles may pose problems for drivers regardless of their age.

Finally, Ngnoumen and I (Ngnoumen & Demick, 2013) collaborated more recently on a study assessing the relationships among cognitive style, cognitive flexibility, and world hypotheses or general beliefs about the nature of the world and how reality is constructed (Pepper, 1961). Although not the main thrust of the study, an unexpected finding was that, on the World Hypothesis Scale (Harris, Fontana, & Dowds, 1977), FI individuals endorse world views focused on the person independent of context (formism, mechanism, organicism) while FD persons endorse world views that take context into account (contextualism, dialecticism, transactionalism). From the point of view of contemporary developmental psychology, that those individuals with an FD cognitive style exhibit more developmentally advanced, ecologically valid world views, this is a finding that suggests that the adoption of world views clearly works in favor of FD individuals.

With respect to the second issue, Witkin and Goodenough (1981) noted that despite the inverse relationship between interpersonal competencies and restructuring skills (with the former high and the latter low in FD and vice versa in FI), its magnitude "is sufficiently low to allow for the possibility that these patterns are not the only ones to be found, and that once present, they may be changeable" (p. 62). Though there is generally individual consistency, that is, individuals who are *fixed* (either FD or FI) in their cognitive style, they assumed that there were still others who had access to both characteristics. They designated these last individuals as *mobile*. Thus, I reasoned that, if individuals have the mobility to shift from FD to FI and/or from FI to FD, this state of organization implies hierarchic integration with one style subordinated to the other depending on the individual's goals and task demands. Empirical demonstration of this possibility combine Witkin's previously evoked construct of differentiation with that of hierarchic integration, now making FDI theory completely consistent with Werner's general developmental theory (specifically his orthogenetic principle) and by doing so perhaps reducing confusion on the part of others.

However, identification of the mobility-fixity issue created additional controversy in so far as some argued that, with FDI as a cognitive trait involving a single dimension (biological perspective), people at one end should be consistent, and people at the other end should likewise be consistent. However, others insisted that the trait argument fails to recognize that a large proportion of the variance is unaccounted for in correlations, even of the magnitude of .80 so that there may be systematic variation dependent on the context as well as on the person (interactional perspective). For example, an artist may show great flexibility when moving from the abstract while conceiving of the goal of a painting to responding physiognomically and concretely while executing the painting. Further, by varying the context, one might increase the precision of one's prediction by taking moderator variables into account.

This debate led to consideration of the question as to how to define mobility-flexibility operationally. Assuming that there will be variation in FDI depending on physical, interpersonal, and sociocultural features and demands of the environment in which the assessment occurs, one suggestion was to test subjects in two or more contexts followed by characterizing them as occupying a *range* on the FDI dimension rather than by a measure of average performance. Thus, fixed individuals should be characterized by a narrower range and mobile individuals by a broader range of performance over varied environmental contexts. The problem next became how to select the contexts to be used in such complex testing situations. For example, Reinking (1977) demonstrated that specialized instructions (e.g., alternating those emphasizing an internal or external search for problem-solving cues and vice versa) significantly affect RFT scores. Further, situations changing the interpersonal context of the assessment (e.g., use of experimenters of different sexes, personalities, and/or cognitive styles) might also be employed. More ecologically valid situations introducing different conditions requiring subjects to shift, for example, from the teacher onto the intellectual aspects of an academic task or vice versa or conditions varying the ease and difficulty in cognitive restructuring were also suggested. However, in all these cases, the measure advocated was a range measure based on performance over diverse conditions.

More recently, I (Demick, 2013) became interested in the mobility-fixity problem in the more general context of the study of resilience, a widely popular contemporary construct in developmental psychology over which there is also much controversy. For example, some researchers make a distinction between resiliency (traits of individuals leading to more general “steeling” or “inoculating” functions in future adverse situations) and resilience (dynamic processes leading to favorable outcomes for individuals following adversity), the latter of which seems akin to Rutter’s (1979) conceptualization of protective factors. In contrast, my theoretical approach, namely, holistic/systems developmental theory or HSDT (an elaboration and extension of Werner’s, 1957, organismic-developmental theory) led me to view resilience as a combination of the psychological trait of strength (cf. hardiness) and flexibility (mobility of cognitive style), the latter of which depends on situational demands and thus takes contextual factors into account.

Toward gaining support for this conceptualization, the following experiment was conducted. Undergraduates were brought into the laboratory and administered: the PRFT, the GEFT, the Stroop (1935) Color–Word Test (as quickly and as accurately as possible, the subject is asked: on Card A, to name 100 color words, e.g., “red” printed in black ink; on Card B, to name the color of 100 color patches; and on Card C, to name the color of the ink in which incongruous color words are printed, e.g., blue printed in “red” ink); the Big Five Personality Inventory (McCrae & Costa, 2012), and Connor and Davidson’s (2003) Resiliency Scale (CDRISC). On the basis of the first two tasks, subjects were divided into FD and FI groups. Following this, those FD and FI subjects scoring above the median on the Stroop interference factor (total time on C – total time on B, assumed to be a measure of cognitive flexibility) were considered FDI-mobile, while those below the median retained their original grouping as FD-fixed or FI-fixed.

Further, the Big Five personality traits were employed as proxy measures of psychological strength. That is, only those subjects who scored above the median on

each of the Big Five personality traits, namely, openness to new experience, conscientiousness, extraversion, agreeableness, and emotional stability (reverse scoring of neuroticism scale), taken one at a time, were employed in subsequent analyses. Each of the five analyses of variance indicated no main effects for cognitive style groupings (FD, FI, FDI) or personality factor groupings (high vs. low) on the CDRISC. However, analyses did reveal significant interactions of cognitive style by personality strength for three of five personality traits, namely, emotional stability, extraversion, and openness to new experience. In these three cases, follow-up analyses indicated that FDI-mobile individuals scoring high on a given trait exhibited higher resilience scores on the CDRISC than the FD- and FI-fixed groups. Thus, preliminary findings for our conceptualization of resilience were provided by our use of an FDI-mobile group in addition to the two fixed (FD, FI) groups.

Comparisons Between the FDI and Mindfulness Constructs

With close scrutiny and perhaps with some surprise, there are a large number of similarities between the constructs of FDI and mindfulness. These include the following and, since FDI has been described extensively above, relevant references to Langer's work will be cited where appropriate. First, the constructs of FDI and mindfulness may be termed *holistic* in so far as they both address and cut across aspects of the biological, psychological, and sociocultural levels of functioning and their interrelations. Second, both constructs emphasize the importance of *context*, which is part and parcel of every analysis. Third, both constructs are *multidimensional* with FDI consisting of perception of the upright and cognitive restructuring ability and mindfulness comprising openness to novelty, alertness to distinction, sensitivity to different constructs, implicit if not explicit awareness of multiple perspectives, and orientation in the present. Fourth, the approaches represented by the constructs may both be termed *interactional* in that they treat individuals' ways of relating to the environment. Fifth, both constructs employ a *dichotomy*—FD versus FI, mindfulness versus mindlessness—to understand individual differences in human functioning. Sixth, the approaches have both been used more specifically to study *organismic* variables inherent in basic psychological processes such as sex differences (e.g., Kawakami, White, & Langer, 2000), intelligence (e.g., Brown & Langer, 1990), language (e.g., Langer, 1992), decision-making (e.g., Langer, 1994), stereotypes (e.g., Levy & Langer, 1994), personality (e.g., Carson & Langer, 2006), psychopathology (e.g., Langer & Imber, 1980), placebo effects (e.g., Crum & Langer, 2007), and development especially during old adulthood (e.g., Langer, 2009a). Seventh, the approaches have both been concerned with the study of their constructs in terms of human adaptation in *ecologically valid contexts* such as education (e.g., Langer, 1997), intimate relationships (e.g., Burpee & Langer, 2005), and automobile-driving behavior (e.g., Demick & Langer, 2013). Eighth, both approaches espouse *mobility* in functioning as an area worthy of further investigation (cf. Langer, 2006, on mindfully negotiating the world of academics vs. art). Ninth, both have considered the *value-free nature*, or lack thereof, in their basic conceptualization with respect to terminology and content. Tenth, they have both considered the *best way to operationalize* their essence (e.g., Langer, 2004). Eleventh,

both approaches have demonstrated that *variation in instruction* provided to subjects has the potential to impact the phenomenon under investigation and often in powerfully positive ways (e.g., Langer & Piper, 1987). Finally, they both have implications for the *construction of more grand theories of human functioning with a focus on adaptation and well-being* (e.g., Langer, 2009b) as elaborated below.

Recommendations Toward Conceptualizing Mindfulness as a Cognitive (or Other) Style

Based on the previous review of the history and advancement of the FDI cognitive style, the following recommendations are offered to promote the construct of mindfulness similarly as a (cognitive) style. Theoretically, future research might assess whether mindfulness is stable over time and/or context dependent. It might also address such important issues as ontogenetic and cross-cultural factors inherent early on in development including the origins and course of mindfulness in different societal contexts. Further, consideration of additional individual differences in mindfulness (e.g., among those of differing socioeconomic statuses or SES) might shed light on important social problems, such as productivity in the workplace (e.g., do those of higher SES view work as mindful activity that should be enjoyed in and of itself, whereas those of lower SES construe their job less mindfully as a means to an end, i.e., as a way to earn a paycheck to be able to enjoy one's time off from work?). Future work might also attempt to explore ways to increase the value-free nature of the construct. For example, changes in terminology for its dichotomies—for example, mindfulness versus mindlessness might be renamed mindful versus unmindful (cognitive) styles or perhaps with even less value-laden labels—might be adopted. In line with this, relationships between mindfulness and unmindfulness as cognitive styles might be assessed through comparisons with other cognitive style constructs. For example, given the classic finding in the FDI literature that those with FD cognitive styles show an unusual sensitivity to the social surrounds, does this indicate that FD individuals are at times more mindful? Or might the highly mindful person be able to switch from FD to FI or vice versa, depending on task optimization (FDI mobility)?

Further, assessment of whether an unmindful style is at times more adaptive than a mindful style might contribute to a value-free conceptualization of the construct. For instance, Santostefano (1964) demonstrated that children who were facing surgery exhibited less anxiety and more optimal adaptation if their cognitive style was characterized by leveling (e.g., a preference for simplistic perspectives often leading to repression as a defense mechanism) versus sharpening (e.g., favoring complex perspectives difficult to be assimilated into one's present experience). Thus, a relevant question for mindfulness researchers might become whether an unmindful style may ever serve adaptive functions. Although Langer (1989, 1997, 2009a) appears to argue, based on 40 years of laboratory and field studies, that an unmindful style is never as adaptive as a mindful one since the latter is stress-free, consideration of more complex phenomenon, as occurred in the case of ongoing FDI research on its value-free nature, may counterintuitively uncover that an unmindful style or at least a combination of mindful and unmindful styles may serve some sort of positive function(s). For

example, my daughter, a professional dancer, has suggested that the ability to engage automatically (unmindfully) in a dance piece frees the dancer to focus (mindfully) on other performance variables (e.g., freedom of expression, communication of enjoyment, delivery of emotionality), the latter of which are perhaps more important in the context of dance performance. However, this more general construal may be antithetical, perhaps unacceptable, to Langer's perspective, which may then become the biggest stumbling block in viewing her approach as representative of a cognitive style in its most classic sense.

Methodologically, the review of the collective work on FDI suggests for mindfulness researchers that it is often necessary to employ, refine, and/or eliminate different tasks with diverse measures to capture the essence of a construct, particularly a multidimensional one. Thus, the ongoing attempts of Langer and colleagues to develop a paper-and-pencil assessment of mindfulness, although both admirable and already productive, might be furthered by complementing this approach with more standard laboratory techniques that address all levels of organization (biological/physiological, psychological, sociocultural) and their interrelationships.

Conclusions

Although Sternberg (2000) argued that Langer's concept of mindfulness has characteristics of related psychological constructs such as abilities, personality traits, and cognitive styles, he concluded that mindfulness was most akin to cognitive style. However, he then went on to point out the seemingly insurmountable difficulties inherent in contemporary cognitive style theory and research, leading Langer to counter that, given its unique characteristics that involve all senses, the construct of mindfulness is much broader in scope than that of cognitive style. In reaction to common misunderstandings regarding the general nature of cognitive styles, work on the most widely researched cognitive style to date, namely FDI, has been presented to highlight the powerful similarities between mindfulness and FDI given their shared underlying theoretical assumptions (e.g., including holism, contextualism, multidimensionality, change and mobility, integration, ecological validity). Regardless of whether one prefers to view the construct of mindfulness as constituting a classic cognitive style or a more general style, researchers are strongly encouraged to incorporate the powerful heuristic potential of mindfulness within whichever theoretical orientation they employ and however they wish (e.g., alternatively as an ability, a personality trait, or an altogether different construct). As I see it, mindfulness theory—similar to cognitive style theory—represents a viewpoint and an alternative mode of analysis that are extremely helpful in understanding *any* psychological phenomenon. Similar to cognitive style theory, mindfulness theory, as Langer has demonstrated, is relevant not only to social psychology but also to all other subfields of psychology (e.g., cognitive, developmental, educational, clinical, personality, organizational). With further theoretical systematization and development, mindfulness theory—perhaps including a conceptualization of a mindful versus unmindful (cognitive) style—has the potential to become one of our most important psychological theories (cf. Demick, 2000). Mindfulness theory will help us all to conceptualize problems that are more in line

with the complex character of everyday life functioning. It will also help psychology both to see itself and to be seen by others as a unified science, one concerned not only with examining isolated aspects of human behavior and experience but also with the study of problems that cut across various aspects of individuals and their environments as well as across various subfields of our discipline (e.g., not only social but also clinical, developmental, cognitive, and organizational). This is crucial for psychology to maintain its status as a holistic entity rather than to be subject to the increasing forces of fragmentation and specialization that currently threaten to eliminate its very existence (Demick & Wapner, 2013).

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The Motivated and Mindful Perceiver

*Relationships Among Motivated Perception,
Mindfulness, and Self-Regulation*

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In 2011, the American Psychological Association surveyed Americans about their life goals. The majority reported that they wanted to improve in several domains. Fifty-two percent of respondents steadfastly resolved to save more money. Likewise, 77% of adults set goals to eat a healthier diet, 75% intended to exercise more, and 58% intended to sleep more. In the same survey, however, 73% acknowledged that they did not have the willpower to actually meet the goals they set. They are likely right. Although many people recognize that balancing the number of calories consumed against daily activity levels is one of the most important aspects of fitness, only 15% of Americans say they count calories (Consumer Reports, 2011). Of those overweight individuals who need it the most, only 20% exercise the amount they should each day to be fit (Mendes, 2009). And over the past 30 years, the percent of Americans acknowledging that they get insufficient amounts of sleep each night continued to rise (Centers for Disease Control and Prevention, 2011). Even after people set important life goals, are committed to pursuing them, and are aware of steps to take to meet them, people still come up against challenges that thwart their efforts to pursue and achieve these goals.

When faced with problems that threaten goal progress, people call upon strategies to help manage their goals. Often, these strategies are deliberate, calculated, conscious, and cognitive ones. For instance, 55% of people say they find ways to remind themselves of their long-term goal, 50% actively force themselves to resist temptations, and 40% talk to themselves in encouraging ways (American Psychological Association, 2012). Unfortunately, these deliberate tactics are not always helpful. Because they require effort, intention, and ability, these strategies may be difficult to enact when people are tired, depleted, or cognitively taxed. As a result, conscious strategies sometimes fail to produce meaningful changes in behavior. Despite the deficiencies of some cognitive strategies, people do succeed at some goals sometimes. In this chapter, we discuss a strategy that may complement explicit cognitive approaches to goal pursuit.

Namely, we describe how a nonconscious phenomenon, known as *motivated visual perception*, may assist in some aspects of self-regulation.

Motivated perception is a phenomenon in which one's desires, goals, and needs produce biased visual experiences (Balceris & Dunning, 2006; Dunning & Balceris, 2013). Motivated perceivers can and often do see their surroundings in ways that support their goals. In this chapter, we discuss properties that suggest motivated perception can be a functional tool used to assist in the effective management of goals. We draw parallels between qualities of motivated perception and qualities of another phenomenon known to assist in goal pursuit—mindfulness. We discuss three qualities common to both motivated perception and mindfulness: *active construction*, *heightened awareness*, and *flexibility*. We propose that these qualities may be particularly useful tools in the pursuit and attainment of goals. Moreover, we suggest possible sequential and simultaneous effects of motivated perception and mindfulness. Mindfulness may lead to motivated perception, and mindfulness may interact with motivated perception in the service of successful goal pursuit.

The first quality of motivated perception, common to mindfulness as well, is *active construction*. Perception is not a passive process. Instead, people actively and creatively form visual representations of their world that support their goals. Motivations, in particular, lead to the construction of rose-colored perceptual experiences. The specific form of active construction that motivated perception takes allows people to view some contents of the world as they would like them to appear (see Balceris & Lassiter, 2010). Likewise, states of mindfulness create an openness for new information (Langer, 1997; see Langer, Blank, & Chanowitz, 1978, for work on mindlessness and a lack of information gathering), which fosters an ability to create novel categories and to new conclusions from the information provided (Langer & Moldoveanu, 2000). Both motivations and mindfulness lead people to make sense of information in novel ways. Motivated perception and mindfulness are related to an active construction of the world, and motivated perception in particular shapes those constructions to align with desires.

The second quality descriptive of motivated perception and mindfulness is *heightened awareness*. Motivations direct attention (Dijksterhuis & Aarts, 2010). People preferentially attend to visual information that can help goal pursuit. Motivations also create a perceptual sensitivity for information related to desired end states. People are quicker to detect visual information that is relevant to active goals. In a similar fashion, states of mindfulness lead people to be aware of more of their environment and direct attention to various parts of it (Langer, 1989). Both motivated perception and mindfulness are related to increased attention to and greater resources for the processing of goal-relevant visual information.

The third quality descriptive of motivated perception and mindfulness is *flexibility*. Motivations produce perceptual experiences that shift adaptively in accordance with changing goals or changes in one's ability to pursue those goals (Dijksterhuis & Aarts, 2010). Indeed, perception is responsive to changing goals. Likewise, mindful states lead people to engage in the present and respond to contextual demands (Langer, 2000). Both motivated perception and mindfulness are related to the flexible adaptation of representations; both change in accordance with current contextual demands. In sum, like states of mindfulness, motivated perception is an active, constructive

process that directs attention to opportunities for goal pursuit, as goals shift and change. Active construction, heightened awareness, and flexibility are three qualities that ultimately assist in the pursuit of goals.

This review holds the following objectives. We will first describe the phenomenon of motivated perception. We focus on research that attests to three of its qualities: active construction specifically of rose-colored glasses, heightened awareness, and flexible adaptation. We use these three qualities to suggest parallels between motivated perception and mindfulness. Finally, we conjecture on the relationship between motivated perception and mindfulness, and discuss whether they may work in collaboration to affect self-regulation.

Defining Motivated Perception

Perception is not a product; it is an active process. Perception combines bottom-up features of the outside world with top-down influences specific to perceivers. Sensory information, including light, edges, curves, and textures, stimulates receptor cells in the eyes and brain. Quickly, but not quite immediately, related thoughts, feelings, and previous experiences come to mind, often outside of awareness or conscious monitoring. These accessible psychological states are combined with physical sensations to create a perceptual experience. As noted by psychologists (Bruner, 1957), philosophers (Wittgenstein, 1968), and those who defy singular categorization (James, 1890), sensation is a passive process of gathering visual stimulation from the environment, but perception is more; perception is the process of actively combining sensations and concurrently activated cognitions. Perception is created with input from both current sensory experiences as well as psychological experiences specific to the perceiver.

Multiple psychological states may inform perceptual experience. For example, beliefs stemming from political affiliations influenced perceptions of Obama's skin tone prior to the 2008 election; American voters who agreed with Obama perceived his skin tone to be lighter than those who disagreed with him (Caruso, Mead, & Balcetis, 2009). In another study, the underlying inclination to maintain self-esteem led people to see their own faces as more attractive than they actually were (Epley & Whitchurch, 2008). However, psychological processes involved in social comparison led people to see their own faces as less attractive after looking at photographs of beautiful models (Zell & Balcetis, 2012). Psychological states impact people's perceptual experiences.

While several types of psychological experiences may influence perceptual processing, this chapter discusses one specific factor that has the ability to powerfully shape perception. Specifically, the goals that perceivers pursue and motivational states that accompany those goals influence visual experience (Balcetis & Dunning, 2006; Dunning & Balcetis, 2013). For instance, people literally see a glass of water as larger when they have goals to satisfy their thirst compared to when they do not (Veltkamp, Aarts, & Custers, 2008). People's desires, needs, interests, and aspirations help to clarify vague or muddled visual information, direct attention, and prioritize processing to influence visual experience. This phenomenon is termed motivated visual perception.

At the very early stages of information processing, as people first look at the world around them, perception may be systematically altered in accordance with active goals. These perceptual biases occur quickly and often outside of awareness, without requiring conscious effort. In the sections that follow, we will discuss empirical evidence suggesting that motivated perception can be defined by three qualities—active construction, heightened awareness, and flexibility. In concert, these qualities suggest motivations influence perception in ways that assist in meeting active goals.

Motivated Perception as Active Construction of Rose-Colored Glasses

Seeing the object of one's desire can satisfy a goal. In a metaphoric sense, people who wear rose-colored glasses, and see the contents of the world in ways that align with their wants and wishes, may find their goals satisfied. Longing to spot a celebrity while visiting New York, the weary tourist sitting down for pancakes at a diner might find her goal satisfied when she spots a fellow diner who appears to be, or is a convincing enough doppelganger for, Donnie Wahlberg, the singer-turned-B-list-actor 15 years past his prime. Likewise, the anxious graduate student preparing for his first departmental presentation might have a strong goal to impress his difficult-to-please advisor. He might find his goal satisfied when he scans the audience during his talk and interprets the slight upward curl of his advisor's lips as a smile. People's motivations, wants, and desires shape the ways in which they identify people, objects, or other information that might be seen in multiple ways.

In order to facilitate goal pursuit, the visual system actively constructs perceptual experiences that appear to advance people's wants, desires, and needs. We have provided empirical evidence for these claims. In one study, we experimentally manipulated people's goals and thereby created desires to see an image in a particular way (Balceris & Dunning, 2006, Study 2). Specifically, participants knew that they might taste delicious, gourmet Jelly Belly candies. They also knew that they might instead taste disgusting, partially liquefied canned beans mashed together in a Ziploc bag. We told participants that neither they nor the experimenter would choose which food they would eat. Instead, a computer program would randomly choose one picture of an animal. The type of animal presented would determine which of the two foods participants would consume. Some participants were told that if the computer randomly presented an image of a farm animal, they would eat the candies, but if it presented an image of a sea animal, they would eat the canned beans. These outcome pairings were reversed for other participants. Thus, in this paradigm, we experimentally created the goal for participants to eat the candy instead of the beans, and with the particular outcome structure we assigned, we manipulated the desire for participants to see one type of animal rather than the other.

After inducing these goals, we presented participants with an image of an animal. Although it appeared like a random selection, the computer always presented participants with the same bistable, ambiguous image for 100 ms. The image could be interpreted as either the head of a horse or the body of a seal. When participants had

the desire to see farm animals, 67% saw the image as a horse, and when participants had the desire to see sea animals, 71% saw the image as a seal. The goal to eat delicious jellybeans instead of disgusting canned beans and the desire to see a specific animal that could satisfy the goal influenced perceptual categorization of the ambiguous image. People saw what they wanted to see. The goals and desires people held influenced their perceptual construction of an image that could be interpreted in multiple ways.

Of course, it is possible that participants simply lied or misrepresented what they actually saw. For example, one might wonder whether observers had actually seen both interpretations of the image and then simply chose to report only the one that best served their goals. We tested this alternative possibility. Again, we presented participants with the ambiguous image that could be interpreted as either a horse or a seal (Balcetis & Dunning; Study 5). Participants learned that they would sample freshly squeezed orange juice if the computer presented them with a farm animal or would sample a repulsive, pickle-scented gelatinous veggie smoothie if the computer presented them with a sea animal. For other participants, the outcomes were reversed. Again, participants saw the ambiguous image for 100 ms. However, before perceivers reported what they saw, we staged a computer error. The computer seemed to crash and the experimenter feigned surprise. The experimenter quickly conjectured that the error was because the outcome pairings actually should have been switched. Although the experimenter had originally told participants that farm animals were paired with orange juice, the mistake was that sea animals were supposed to be paired with orange juice. What the experimenter effectively did at that point was switch participants' goals and desires, but, importantly, only after the ambiguous image disappeared from view. After making this switch, the experimenter asked participants whether the computer presented anything before the crash.

We predicted that the goals and desires we originally created for participants at the beginning of the session would influence their perceptual categorization of the ambiguous drawing. That is, we predicted that at the time they saw the object, people's goals would influence their perceptions. However, an alternative possibility is that participants might have seen that the image could be interpreted in multiple ways and, when given the chance, might instead choose to report the interpretation that represented the new outcome structure. In this paradigm, participants were capable of and given free rein to report the interpretation that served their current goals rather than the original goals if they had actually seen multiple interpretations. However, the data suggested participants did not do so. Instead, participants overwhelmingly reported seeing an animal that reflected their original desires. In fact, 100% of participants who originally held the goal to detect farm animals reported seeing a horse, even though this meant that they all would sample the less desirable veggie smoothie as a result. That is, their goals and desires at the time the ambiguous figure appeared on the screen influenced how participants perceptually constructed the images. Even when they had the opportunity to switch their reports, they could not do so because they had seen only one interpretation. Goals, desires, and motivations actively shaped production of conscious visual experiences.

Motivated perception is the result of an active process of perceptual construction that incorporates the goals of the perceiver with sensory input from the environment.

While visual information related to unwanted outcomes could have been seen or the bistable nature of the figure could have been recognized, they were not. Instead, motivations led people literally see what they want to see. Motivations lead people to understand multifaceted, inexplicit, and ambiguous visual information in ways that assist in meeting active goals.

Motivated Perception Heightens Awareness of Goal-Relevant Opportunities

Successful goal pursuit requires identifying and attending to information, locations, and objects that might help people accomplish goals. For instance, when looking for a relationship partner, one needs to notice attractive and viable companions. The lonely divorcee hoping for a new chance at love may find an opportunity to pursue her goals when noticing that the striking gent across the bar has winked in her direction. Motivations increase awareness of people, objects, and information related to goals.

Motivated perception heightens awareness of opportunities for goal pursuit by increasing the ease with which people attend to and detect information that can assist in effectively reaching goals. Specifically, multiple visceral and social goals direct and hold visual attention to objects related to these active motivational states. Moreover, the process by which attention is directed to goal-relevant objects is automatic and does not require conscious intent (Vogt, De Houwer, Moors, 2011; Vogt, De Houwer, Moors, van Damme, & Crombez, 2010). Motivations direct attention quickly and efficiently without requiring effort or awareness.

Visceral motivations direct attention. For example, in our lab, we found that activating the goal to satisfy one's thirst directed participants' visual attention to beverages (Balceris, Cole, & Sherli, 2012). Some participants consumed a serving of dry, salty pretzels constituting 40% of their daily intake of sodium, while others were invited to drink water until they felt their thirst was quenched. We then presented participants with an image of an array of objects, which for some participants included a bottle of water, on a computer screen. Using hidden eye-tracking technology that covertly monitored eye gaze outside of participants' awareness, we found that thirsty people spent more time looking at the bottle of water than a similarly sized control object. Quenched participants, on the other hand, showed little attentional preference for the water. The goal to reduce thirst directed visual attention to the goal-relevant object.

In addition to basic physiological motivations, social goals can also direct attention to objects that can assist in goal pursuit. For instance, interpersonal goals to connect with others direct visual attention. People who frequently engaged in casual sex and visualized sexual fantasies experienced an active goal to find an intimate partner; these people then found their attention drawn to and fixated on physically attractive members of the opposite sex (Maner, Gailliot, Rouby, & Miller, 2007; Study 1). Likewise, when people are lonely, the active goal to restore social connectedness directs visual attention. Participants who received feedback that they were likely to experience

a future of loneliness and exclusion spent a greater percentage of time subsequently looking at photographs of smiling faces compared to faces depicting other expressions (DeWall, Maner, & Rouby, 2009). This attentional bias for smiling faces occurred more for the group of people who felt alone compared to people who learned their future would bring about unfortunate injuries or those who learned their future would be filled with rewarding relationships. Although participants in these two control conditions experienced equally strong affective responses, it was only people in the exclusion condition, who held a goal to restore feelings of connectedness, who directed their attention to the smiling faces that in some way could reestablish those feelings.

The goal to protect one's own relationship from outside threat can also direct attention. Participants in romantic relationships who felt jealous of their partner's other friendships experienced a goal to protect their long-term relationship against threats. These jealous partners found their attention fixated on physically attractive members of their own sex who might act as potential rivals (Maner et al., 2007; Study 3). Those people who felt less jealous or threatened did not fixate on the attractive others.

Goals to regulate emotions also direct attention. In the lab, participants were told to suppress the feelings that might come from seeing appealing and disturbing pictures (Xing & Isaacowitz, 2006). Using eye-tracking technology, the researchers found that participants who had the goal to control their emotions devoted far less attention to negative than positive images. They literally looked away from the images they found disturbing and toward the images they found pleasant. Motivations can direct attention to aspects of the environment that can help achieve goal states.

Even when direction of eye gaze is fixed and attentional orienting constrained, motivations facilitate the detection of goal-relevant information. That is, motivations may increase perceptual sensitivity for goal-relevant information. Motivations may reduce the strength of the input or stimulation required for the formation of a perceptual conclusion. For example, a lost hiker looking down the unfamiliar path and desperately searching for a clue as to the way out of a dark forest might notice the faint reassuring glow of a tiny candle flickering up ahead. On the other hand, a confident hiker looking down the well-known path might only notice the light if it is beaming from a strong flashlight. Even when one's eyes are fixed on a location, motivations may increase perceptual sensitivity for goal-relevant objects or visual information.

We empirically tested whether motivations increase perceptual sensitivity by exposing participants to a perceptual experience known as binocular rivalry (Balcetis, Dunning, & Granot, 2012). Binocular rivalry is an artificial phenomenon that occurs in the lab when researchers present two incompatible images to participants simultaneously, one to each eye. For instance, we presented a letter to participants' left eyes and a number to their right eyes, or vice versa. To do this, we had participants wear goggles containing different colored lenses covering each eye that filtered one particular color. For instance, some participants wore a red lens over their left eye, and when they had the experience of looking with only their left eye, they could not perceive any red-colored stimulus. All participants wore one red lens and one green lens, and we presented a number and a letter, in either red or green font. The number and the letter were fairly transparent and layered on top of one another. When the

images were presented for a short duration, instead of seeing a muddled composite image, perceivers actually consciously experienced seeing only one of the two images—either the letter or the number—and had no awareness that another image could have appeared.

We demonstrated that goals and desires predicted which image reached conscious awareness under conditions of binocular rivalry. In one experiment, we experimentally induced goals by associating letters with possible financial gain and numbers with financial loss for some participants (Balci et al., 2012). Other participants received the reverse reward structure. Participants knew that if they saw more letters than numbers, they would earn tickets for a raffle that included substantial cash prizes; if they saw more numbers than letters, they would not earn the chance to participate in the raffle. Thus, participants had an active goal to win money and thus a desire to see letters rather than numbers. While viewing the images, participants wore the colored goggles that filtered out different elements of the stimulus for each eye. As a result, one eye was presented with a letter, and the other eye was presented with a number.

To test whether participants consciously perceived the rewarding or costly visual information, we presented the rivaling images for 300 ms. This presentation duration was long enough for participants to experience perceiving either the letter or number but was not long enough for them to consciously perceive the other stimulus. The desire to see the image associated with reward influenced their perceptual experience. Participants were more likely to consciously see the image associated with financial gain rather than loss. These data suggest that desires created a perceptual sensitivity that prioritized the recognition of rewarding, goal-promoting rather than costly, goal-hindering visual information.

Motivated perception increases awareness of goal-relevant objects and information in the environment. To be successful at goal pursuit, people must gather information and recognize when they are involved in situations that afford the pursuit of goals (Webb & Sheeran, 2004). By directing attention to and increasing perceptual sensitivity for objects that are capable of satisfying goals, motivated perception allows people to identify, detect, and eventually act on opportunities for goal pursuit more quickly. Thus, motivated perception may assist in successful self-regulation by increasing awareness of available opportunities for goal pursuit.

Motivated Perception as a Flexible Strategy

For perception to assist effectively with goal pursuit, perceptual experiences must shift quickly as goals change. Holding steadfast to one plan or set of behavioral intentions will do little good if opportunities change, the situation requires adaptation, or one's goals shift. The quarterback who in the huddle called a specific play, but after getting to the line of scrimmage sees a defensive lineup he was not expecting, is better able to meet his team's goals by calling an audible and changing the play. When situational demands change, plans, behaviors, and intentions must shift quickly and easily. Successful self-regulation requires flexibility.

To assist in goal pursuit, perceptual experiences should change quickly in accordance with shifting motivations. To test this, we tweaked the binocular rivalry paradigm described above. In one study (Balcetis et al., 2012, Study 3), participants knew that whether numbers or letters appeared would have consequences for the money they would win or lose. But in this study, they also learned that this reward structure would affect them in only half of the blocks. In the other blocks, the financial gains and losses would affect someone sitting next door—a person whom participants were compelled to dislike. Prior to the binocular rivalry experience, we gave participants false information about this supposed next-door neighbor. We implied that the neighbor was overwhelmingly confident in their abilities, eager to win, and unwilling to cooperate to help the participant's financial outcome. Participants earnestly reported their subsequent dislike for this person. Thus, every minute or two, the recipient of the rewards or costs would alternate between the participants themselves and a disliked other. Participants' motivations would shift; we tested whether their perceptions would also shift.

Participants' desires to increase their own financial gain and their disinterest in helping the neighbor influenced the perceptual experiences they had during binocular rivalry. Specifically, when the rewards benefited themselves, participants for whom numbers were associated with financial gain saw 19% more numbers than letters in the rivaling stimuli. However, when the same reward structure would instead benefit the disliked neighbor, that perceptual bias disappeared completely. These data suggest that perceptual experiences changed as goals shifted every few minutes.

Motivated perception is flexible and responsive to quickly changing goals that the situation specifies. As goals shift, so too do people's perceptual experiences. People maintain multiple goals simultaneously and, as a result of limited resources, must prioritize and flexibly shift the pursuit of one goal over another (Johnson, Chang, & Lord, 2006). Visual perception is sensitive to such shifting priorities. Indeed, attention is allocated to those goals that are the most valued or hold the highest expectancy of success—qualities that shift depending on perceivers' needs and the resources available for pursuit of particular goals (Vogt, De Houwer, & Crombez, 2011). Such flexibility is an important component of successful self-regulation. Furthermore, given research that suggests perceptual experiences flexibly shift with changing goals, motivated perception may be an apt tool for self-regulation.

Is Motivated Perception a State of Mindfulness?

We have defined and described motivated perception through three qualities and suggested how these qualities may assist in self-regulation. First, motivated perception is an active process of construction in which people organize visual information in novel ways that allow them to see what they desire to see, which can assist in accomplishing goals. Second, motivated perception is marked by an increased awareness for opportunities and objects that will assist goal pursuit. Third, perceptual experiences transform quickly as goals shift, and situational demands require change.

These three qualities that describe motivated perception also describe states of mindfulness. Mindful approaches to information processing are also marked by active

construction and incorporation of psychological experiences, heightened awareness of the environment, and flexibility as opportunities and means change. We conjecture that motivated perception may be likened, in some sense, to a state of mindfulness.

Effects of Mindfulness on Motivated Perception

While no research has explicitly, directly, and strictly tested the overlap between motivated perception and mindfulness, some circumstantial evidence speaks to the relationship between the two. One line of research studied people considered experts in mindfulness, who gained their expertise through the practice of Buddhist meditation. Researchers tested whether Buddhist meditation would affect perceptual experience (Hodgins & Adair, 2010). They found that people who regularly engaged in Buddhist-based meditation experienced less bias in their perceptual conclusions. For example, meditators more quickly detected alternative interpretations of ambiguous figures. They recognized that a bistable image could be categorized as both a saxophone player and a woman's profile, suggesting they constructed perceptual experiences that were less constrained by active thoughts. Meditators also directed attention to more aspects of the visual scene than people who did not meditate. When focusing their attention on the number of times players passed basketballs, meditators were more likely than nonmeditators to also notice that a person dressed in a gorilla suit walked through the game. Meditators' attention was less directed and less selective. From these data, the researchers concluded that mindfulness eliminated perceptual bias and as a result reduced motivated perception. Further, they inferred that motivated perception is a result not of mindfulness but of mindlessness.

We caution against these two conclusions for multiple reasons. Hodgins and Adair (2010) tested whether Buddhist meditation attenuated perceptual bias, and their data suggested it did. However, the conclusion that the specific phenomenon of motivated perception itself was reduced through meditation-induced mindfulness is circumspect if not erroneous. To be sure, meditators compared to nonmeditators formed a fuller, richer, and more complete representation of the visual information in question. General perceptual bias was reduced. However, left untested in this line of research was the interaction between meditation and motivation. The experimenters did not manipulate goal states or activate motivations. If anything, both meditators and nonmeditators held the same single goal—to report accurately what they saw. From the fact that meditators actually performed better than nonmeditators, as measured by accurately reporting more of the visual information, we assert that the data may actually suggest that meditation *exacerbates* motivated perception. In other words, the only goal active for all participants was the goal to report what appeared, and meditators seemed to do this better.

That said, one cannot conclude that states of mindfulness that accompany meditation attenuate or accentuate motivated perception, as motivations were not manipulated. That meditators saw the world more completely could itself be evidence of motivated perception if they had the goal to do so, or it could be evidence of some third variable not tested in the study. Thus, the data Hodgins and Adair (2010)

collected do suggest that perceptual bias is reduced, but from those data, one cannot make causal statements as to whether meditation or mindfulness affects motivated perception.

Perceptual Accuracy From Mindfulness or Motivated Perception

Another line of research also tested the relationship between mindfulness and perception. Ellen Langer and colleagues (Langer, Djikic, Pirson, Madenci, & Donohue, 2010) tested whether mindfulness increased perceptual accuracy. In their paradigm, some participants adopted the mindset of a mindful airline pilot. Results suggested that these mindful perceivers were better able to accurately identify smaller letters on an eye chart compared to energized people who were simply excited and worked up after exercising.

While it is possible that mindfulness causes increased perceptual accuracy, we propose that another possibility exists; mindful information processing may simultaneously activate the phenomenon of motivated perception. We posit that the mindful pilot manipulation may have also increased the motivation to accurately perceive the full contents of their environment, given the importance of doing so for pilots. Participants in the control condition, who were energized after just exercising, did not have a strong active goal to perceive accurately. Certainly, the mindful state improved perceptual accuracy. It is also possible that motivations improved perceptual accuracy, and in so doing served the relevant self-regulatory challenges faced by the perceiver. Did mindfulness, motivated perception, or their interaction lead to perceptual accuracy, and did these factors serve the self-regulatory needs of the perceiver at that moment? By simultaneously testing the effects of both states, future research might suggest more strongly whether mindfulness and motivation work in concert to manage goals.

Circumstantial Evidence Relating Motivated Perception, Mindfulness, and Self-Regulation

In our lab, we have taken preliminary steps to outline the relationship between mindfulness and the self-regulatory functions served by motivated perception. Before we describe how we have tested the relationship between these two constructs, we must first explain a specific perceptual domain that is affected by motivations. Specifically, motivations influence the perception of distances in the environment (Balcetis & Dunning, 2010; Cole, Balcetis, & Zhang, 2013). Why would motivations influence distance perception? Emerging theories build upon classic goal gradient work to suggest that biased perceptions of the environment encourage action. Actual proximity to a goal-relevant object mobilizes goal-directed behaviors (Hull, 1932). As physical distance to goal-promoting objects decreases, goal-directed approach behavior increases (Dollard & Miller, 1950). For instance, rats' rate of running speed increased as they

physically approached a food reward (Crespi, 1942). Similarly, rats exerted more effort against a restraining harness when they were in close physical proximity to food or water (Brown, 1948). Actual distance to goal-relevant objects plays an important role in regulating action in the service of goal pursuit.

We suggest that just as actual proximity relates to goal-relevant action, so too may the mere misperception of proximity. If a goal-relevant object simply appears close, people may be more likely to act in ways that will assist goal pursuit. In other words, hungry people might move faster to grab a sandwich if the food looks close. People might run harder in the last few meters of a race if the finish line appears like it is just ahead. If an object that can help people reach an active goal appears close, people may work harder and faster to reach that object. The appearance of proximity may increase people's attempts to reach, acquire, or grab hold of goal-relevant objects.

If this is true, then when a goal is active, an object that is capable of satisfying the goal should be misperceived as closer than that same object when the goal is not active. Evidence suggests that this is in fact the case. We asked participants to consume many pretzels or to drink as much water as they could (Balceris & Dunning, 2010; Study 1). Then, we asked them to estimate the distance to a bottle of water. The same bottle of water appeared 10% closer to the thirsty people than to people who quenched their thirst. This evidence suggests that objects appear closer when they will help achieve an active goal. Further, we have conjectured that this is because proximity increases action tendencies.

If proximity encourages action, then the reverse may also be true; elongating actual distances, or simply increasing the perception of distance, should discourage action. The discouragement of action is especially important when there are temptations that may threaten goal progress in the environment. Increasing the distance between the self and temptations may help discourage people from giving in to those temptations. Indeed, lay knowledge and general intuitions seem to concur with this conjecture. People routinely push their plates away to avoid overeating. They also walk across the street from the bakery to avoid purchasing tempting sugary snacks. Nutritionists and weight-management programs routinely advise dieting clients to literally increase the distance between themselves and tempting objects to avoid giving in to them (Beck, 2012). In addition, some empirical research suggests that people are fundamentally predisposed to increasing the distance between themselves and temptations; people were faster to respond to temptation-related words by making a pushing motion away from the words (Fishbach & Shah, 2006). As the researchers noted, "people secure attainment of goals by keeping a distance from tempting objects ..." (p. 821). When tempting objects are located further away, people should be less likely to act on them.

If it is true that goals are best pursued if temptations are actually located far away, then a successful self-regulatory strategy would be to misperceive temptations as further away. If motivated perception serves self-regulatory functions, then the distance between oneself and tempting objects that thwart goal pursuit should appear great for people who have strong goals. Furthermore, if mindfulness assists in self-regulation in the same way as motivated perception, then mindfulness should also relate to distance perception in similar ways. More mindful people should misperceive tempting objects that hamper goal pursuit as further away.

In ongoing research in our lab, we tested whether motivations and mindfulness led to perceptions of tempting food objects as further away. We exposed dieters and nondieters to a table full of salty and sugary snacks (Cole & Balcetis, 2012). Consistent with the claim that motivated perception assists self-regulation, perceivers who had strong dieting goals perceived the table to be further away than did perceivers who were not dieting. In addition, we tested whether mindfulness predicted exaggerated perceptions of distance to temptations. Participants completed Langer's Mindfulness Scale (Langer, 2004). Our results are consistent with the claim that mindfulness and motivated perception together assist self-regulation. We found a significant positive correlation between scores on the mindfulness scale and perceptions of distance to the unhealthy snacks. More mindful dieters estimated that the distance between themselves and the temptations that would thwart their healthy eating goals was greater than less mindful dieters.

This work serves as the first simultaneous test of the motivated perception (specifically distance perception), mindfulness, and self-regulatory functions. If actual proximity encourages action, then objects that can help achieve goals should appear closer than those same objects when goals are not active. Likewise, if actual remoteness discourages action, then objects that have the potential to thwart active goals should appear further away. In fact, it seems that temptations that could undermine goal pursuit do appear further away, especially among more mindful people.

A Call for Future Research

Although existing research provides circumstantial evidence suggesting the relationship between mindfulness and motivated perception, we caution against the conclusion that mindfulness heightens, reduces, or causes motivated perception. We believe that conclusions of these sorts are premature simply because the proper experimental design has not yet been used in the literature to warrant these inferences. To be sure, mindfulness is often assessed through self-reports of personal tendencies to meditate or measures of chronic individual differences in mindful approaches to information processing. Indeed, our own research has only tested mindfulness as a chronic individual difference measure. The problem is that individual differences in the propensity to be mindful may correlate with other factors that experimenters do not measure. Thus, experimental manipulations of mindfulness are needed to make causal inference. However, strong experimental manipulations of mindful states are difficult to produce in the lab. Indeed, theorists conjecture that successful mindfulness may require extensive practice. Only when experimental manipulations of both mindful states of being and goal states are empirically and rigorously tested can alternative explanations be ruled out, causal effects be measured, and the interaction of both psychological effects be tested. Researchers must independently manipulate mindful states and goal states to determine whether mindfulness and motivated perception work independently, assist one another, or impair one another in the service of self-regulation.

Because of the absence of experimental paradigms, the similarities between motivated perception and mindfulness are still conjectured ones at this point. Very little empirical research has examined the relationships between the two, and the research

that has may be open to alternative interpretations. Additional rigorous work is needed to fully explore the relationships between the two. If empirical research does support these relationships, strategies and interventions could target inducing both mindful and motivated states in order to change how people represent the world around them in ways that aid successful self-regulation.

Conclusion

While on a camping trip, former Senator Barry Goldwater of Arizona reportedly saw it as shaving cream. Inventor George Washington Carver saw it as axel grease for a truck. But most hungry American children grow up identifying that thick, gummy brown substance as peanut butter. Similarly, WD-40 began its life as a top secret formula to be applied as an antirust coating on intercontinental ballistic missiles, before people like company founder Norm Larsen saw the sprayable oil as a steadfast remedy for keeping squirrels out of birdhouses. Some people look at everyday concoctions and see them in very different ways than do others. They construct novel labels, categories, uses for, and ideas about how the items may serve their current goals. Maybe these unorthodox reconstruals occur through a mindful approach to life and business, or perhaps they are the result of motivated perceptual biases.

It is possible to liken motivated perception to a mindful state of being. Both phenomena appear to serve self-regulation, and may do so through three similar processes. Indeed, both are states of *active construction* where people situate themselves in the present and find their experiences are the result of active, fleeting psychological states. Both are states of *heightened awareness*. People scour the environment and find themselves sensitive to information related to their current psychological states. Finally, both mindfulness and motivated perception are marked by flexible responses to changing situational demands and variant needs. While just a sticky mess to the mindless, motivated and mindful perceivers may take a jar of Jiffy, slather it on their faces, and see a new world of possibilities.

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12

Mindfulness, Interest-Taking, and Self-Regulation

*A Self-Determination Theory Perspective on the
Role of Awareness in Optimal Functioning*

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For the past quarter century, there has been a steady escalation of interest in mindfulness, along with the circumstances that facilitate it, and its psychological, behavioral, and health-related outcomes. Across this work, the construct of mindfulness has been variously defined (e.g., see Baer, Smith, & Allen, 2004; Brown & Ryan, 2003; Langer, 1978), contingent on scholars' line of research or theoretical perspective. Although differing in other respects, definitions of mindfulness across these schools of thought commonly recognize that the basic elements of mindfulness include attention to present-moment experience along with an attitude of receptivity and openness. Furthermore, in all instances, mindfulness is seen as a state of high-quality awareness that can enhance self-functioning, explaining the burgeoning popularity of mindfulness concepts, practices, and interventions.

In this chapter, we delve into the connections between high-quality awareness and self-regulation as researched and studied within our work on *self-determination theory* (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000), an established empirically based theory of human motivation and optimal self-functioning. In considering this issue, we discuss two forms of awareness considered within SDT to exemplify open, receptive, and nondefensive processing, and which have been shown to facilitate integrative self-regulation.

The first of these is *mindful awareness* viewed as an open and receptive awareness of what is presently occurring (Brown & Ryan, 2003; Ryan & Rigby, in press; Schultz & Ryan, in press). In mindfulness, what is occurring in the present is observed without being grasped, manipulated, or actively processed. Instead, one allows experiences, thoughts, and perceptions to pass before one without attachment or judgment. Mindfulness so defined has been linked in numerous studies to enhanced self-regulation and wellness (Brown, Ryan & Creswell, 2007).

A second form of open and receptive awareness is a more focused form of mindful attention we label *interest-taking* (Ryan & Deci, 2008a; Weinstein, Przybylski & Ryan, 2012). Whereas mindful awareness as defined in Brown & Ryan (2003) emphasizes an open and receptive mode that is heavily influenced by Buddhist conceptions of mindfulness, interest-taking is drawn from early studies within SDT of self-regulation and growth that described “relaxed interest” and reflectivity (e.g., see Deci & Ryan, 1985). In interest taking, one actively reflects in a curious and non-defensive way upon a selected phenomenon. Because the mind is actively engaging and exploring an “object” of focus, interest-taking is distinct from many definitions of mindfulness outlined within Buddhist traditions. However, both mindfulness and interest-taking share a receptive, open attitude—one that is free from ego involvement and other forms of judgmental thinking. The concept of interest-taking also shares interesting parallels with Langer’s (1989, 1997) conception of mindfulness as creative cognitive engagement with an object of interest, in which one is open to information and multiple perspectives, as portrayed in multiple chapters within this volume.

What connects mindful awareness and interest-taking within SDT is that both entail high-quality awareness, which, because of its nondefensive nature, allows for more informed and congruent self-regulation. In fact, trait measures of mindfulness and propensities toward interest-taking are highly correlated (e.g., $r = .57$, Weinstein et al., 2012), suggesting their shared characteristics. SDT further proposes that, albeit in somewhat distinct ways, both mindful awareness and interest-taking: (1) facilitate more autonomous self-regulation; (2) potentiate greater satisfaction of basic psychological needs by enhancing people’s experiences of autonomy, competence, and relatedness; and (3) conduce to more investment in intrinsic (e.g., growth, intimacy) versus extrinsic (financial success, fame) life goals and aspirations. Herein we discuss research supporting each of these three propositions, as well as the processes through which these potentiating relations occur, thus illustrating some of the major psychological pathways through which mindful awareness and interest-taking are connected to enhanced self-functioning, high-quality relationships, and the positive life outcomes associated with them. First, however, we provide an overview of how high-quality awareness came to be studied within SDT, and how it interlaces with the concept of self-regulation.

Awareness and SDT: Overview of Their Connections

Although mindful awareness as a foundation for self-determined functioning was discussed early on in SDT (e.g., Deci & Ryan, 1980), more refined theory and research coordinating concepts of awareness and motivation within SDT began in earnest with the work of Brown and Ryan (2003). Hypothesizing that quality of awareness relates to the quality of self-regulation, Brown and Ryan sought to provide an operational definition of mindfulness that could be used in furthering research on this relation, and in exploring the many other salutary effects of mindfulness. In developing their Mindful Awareness and Attention Scale (MAAS) Brown and Ryan drew heavily on Buddhist thought in both the Zen and Tibetan traditions. These Eastern traditions

have commonly described mindfulness as a core, “natural” state of mind characterized by open and receptive awareness that conduces towards greater self-regulation and well-being. Thus, Brown and Ryan conceptualized (and operationalized) mindfulness as an attribute that could be assessed in all individuals, regardless of whether they engaged in specific mindfulness-cultivating practices (Brown, Ryan, Loverich, Biegel, & West, 2011). They also operationalized mindfulness both as a dispositional, or individual difference, variable (capturing propensities to be more or less mindful) and as a state variable that fluctuates from situation to situation (showing the vulnerability of mindfulness to contexts). That is, mindfulness is understood as an attribute that varies both between persons and within person (see Brown & Ryan, 2007).

In line with their thesis that mindfulness supports autonomous regulation, Brown and Ryan (2003) used an experiencing sampling methodology to show that at both dispositional and state levels of analysis, mindfulness was indeed associated with more autonomous functioning. Specifically, in both adult and college samples, participants were asked at varied points within their day to rate their current mindfulness, mood, and other state-related variables, as well as to complete a measure assessing their relative autonomy in the moment. Results revealed that the more mindful the person was, both in general and in any given moment, the more they experienced their actions as autonomously undertaken and volitional (see also Levesque & Brown, 2007). These findings thus lent support to the overall thesis that mindful awareness supports autonomous functioning. However, this is a complex relation, about which we shall need to elaborate further.

In their conceptualization of mindfulness, Brown and Ryan (2003) specifically delineated between *awareness* and *attention*, both of which can be more or less mindful. Awareness refers to the subjective experience of internal and external phenomena; it represents the pure perception of the field of events that encompass our reality at any given moment. At its fundamental level, awareness can be understood as a cognitive process whereby phenomena are simply perceived. Such perceptions are occurring constantly in our minds: We sit on a park bench reading a book as our peripheral vision senses the branches of a nearby tree swaying in the breeze and simultaneously feel the air brushing across our cheek. After some time, our ears pick up the distant rumble of an approaching storm. All of these perceptual inputs constitute the field of awareness that our senses bring to us moment to moment.

Attention, by contrast, is an aspect of consciousness whereby we select from this rich field of perceived phenomena an object of focus (Brown & Ryan, 2004). Attention is thus a conscious engagement with selected phenomena that enter awareness, marked by focusing that awareness on a certain phenomenon that emerges in the field of awareness. Simply put, what we perceive in our minds—our awareness—presents an opportunity space of phenomena from which we can then select for focused attention.

One form of mindful attention has recently been described within SDT through the concept of *interest-taking* (see Deci, Ryan, Schultz, & Niemiec, in press; Ryan & Deci, 2008a; Weinstein et al., 2012). Like mindful awareness, interest-taking is conceptualized as a relaxed attention that is open and receptive. But whereas, in mindfulness, one is actively aware of phenomena as they occur without actively choosing and exploring from said phenomena, in interest-taking awareness is directed (i.e., actively focused) on specific phenomena that may be salient in the individual’s experience.

Interest-taking is thus a focused receptivity or detached curiosity and wonder about something that arises. Through mindful awareness, people receive what is occurring and observe what unfolds in experience without being strongly focused or selective; through interest-taking, people bring relaxed interest and a receptive attention actively to bear on selected inner or outer events of significance (see Deci et al., *in press*; Ryan & Deci, 2008a).

For instance, Weinstein (2009) performed an experiment in which participants wrote an essay about their qualities as a friend, and then were rejected by another (confederate) participant, leading to negative feelings. In her experiment, Weinstein had participants write about a distracting topic, write about their feelings and reactions, or write about feelings and reactions while “taking an interest” in what occurred for them. The latter “interest-taking” condition was assumed to conduce toward a more reflective, nonjudgmental perspective on inner and outer events. Participants in all conditions were then given the friendship profiles of both the person who rejected them and a neutral participant uninvolved in previous tasks. Although participants in all conditions rated the rejecter negatively, only those in the “interest-taking” group showed no transfer of this negativity to the “innocent” participant, suggesting more integrated self-regulation in this emotional context. They also showed less distress as an aftereffect of rejection.

Both of these types of high-quality awareness can be occupied with outer sensory activations, such as sights and sounds in our environments. But of course this is not the only source of experience: Internal processes also generate phenomena that, like the stimuli in the external world, we are aware of only to varying degrees. As we sit with our book on the park bench, a nostalgic daydream might arise sparked by the words we read. In this case, there is a sixth source of perception, which is the mind itself—or, more specifically, the fount of thoughts and emotions that arise endogenously in the mind and felt somatically (e.g., heart pounding from joy). Proust (2003) referred to such risings of thought and emotion as “involuntary memory” via a phenomenon called the “Madeleine effect,” in which he described the example of a rich stream of memories being sparked spontaneously simply by the act of dipping a cookie (a madeleine) into his drink. Thus, awareness and attention are not limited only to perceptions arising through the five senses; we can also more or less mindfully observe thoughts and feelings as they rise within us. Even strong emotions that many times we see as inexorably part of the self can be observed as they wax and wane. Because such thoughts and emotions need no proximal external stimulus, they cannot be reduced to merely the reaction to something occurring through the primary senses. Put differently, even without any immediate sensory input, thoughts and emotions spontaneously arise.

Yet what arises can be illuminated with more or less high-quality awareness or attention, a point particularly relevant to the discussion of mindfulness (Epstein, 1995). For example, consider that we can experience an emotion without being attentive, or sometimes even aware, of that emotion. We may, for example, feel angry without conscious attention that “I am angry.” In fact, anger may not even be recognized, especially if that might represent a threat to one’s self-image (Ryan, Deci, Grolnick, & La Guardia, 2006). Alternatively, rather than being swept away by anger, or balling up one’s fists in denial, a person can allow awareness of anger to become clear and/or

bring active attention to the emotional experience itself. Being aware of the emotion, however, it is different than judging it as bad or good or having positive or negative reactions to this affective state; it is simply a neutral, receptive openness. If done with the observant mode associated with mindfulness, the person may, in fact, gain enhanced emotion awareness.

Brown and Ryan (2003) illustrated this facilitating effect of mindfulness on emotion awareness. They assessed participants' current emotional states using both an explicit (self-report) scale and an implicit measure based on the Implicit Association Test (IAT; Greenwald & Farnham, 2000). They found that whereas people low in mindfulness showed no correlation between self-reported and implicitly measured emotion states, those high in mindfulness showed robust positive correlations between these indicators. This suggests that mindful persons have greater awareness of their background emotional states.

Similarly, with regard to interest-taking, Roth (2013) recently reported on two experiments in which people were exposed to a highly emotional film sequence. Roth then had them suppress their emotions, reappraise their emotions, or "take-interest" in what they experienced. He then had them return to the laboratory days later to reexperience the film. Of the three groups, the interest-taking group showed lower arousal, both subjectively and physiologically assessed, even while demonstrating better memory for the film. Put differently, taking interest in one's emotions seems to have inoculated against being "tossed about" by those emotions, while also allowing for a clearer mental processing of the film itself.

Indeed, important in both SDT research and work on awareness is the notion that shows that people can be unaware, or only dimly aware, of their inner preferences and motives, which leads them to more controlled forms of regulation. For example, Weinstein, Ryan, et al. (2012) showed that people vary in their awareness of sexual preferences, such that some persons did not consciously report preferences for which they showed an affective proneness. Those persons tended to come from homes where parents were controlling or authoritarian. Similarly, Niemiec et al. (2010) showed that persons low in mindfulness were more likely to act defensively when faced with existential threats. In contrast, people higher in mindfulness more fully processed existential threats and thus were less subsequently affected by them when making judgments about others. These data suggest that a low quality of awareness can lead to compromised, controlled, and defensive functioning, whereas mindfulness can supply a protective or ameliorative factor.

Awareness: The Qualitative Concept of "Openness"

Kabat-Zinn (1990) and many others have described mindfulness as having an *attitudinal* or qualitative component. This qualitative component of mindfulness is often referred to as a state of "open" awareness or "receptive" attention. Yet what is meant by open or receptive in this context is not always clear. As noted by Brown, Ryan, and Creswell (2007), openness describes a state of consciousness most associated with *observing* rather than *controlling*. It is a bare display of what is taking place at any given moment. Self-control, by contrast, involves a state of consciousness during which we

are not observing, but directing, our energies towards a desired goal. When observing, we are conscious of the *self as a process* (Brown & Ryan, 2004; Ryan & Rigby, in press) and are primarily focused on allowing perceptions to unfold without constraining or shaping them towards a specific goal or outcome. Openness, therefore, refers to a quality of consciousness that is not evaluative or actively shaped by preexisting ideas or intentions, but is fully receptive to allowing the experience to simply occur “as it is.” It is for this reason that the concept of observing (rather than shaping) is used to define the experience of *open awareness*.

Taking on the role of the “observer self” also implies a conscious state in which we are not only openly observant of experiences as they are perceived through our five senses, but similarly positioned as an observer of our own thoughts and emotions as they arise—either in response to specific external precipitants or as they spontaneously arise by themselves. Situated as an observer that is “openly aware,” we are mindful and fully cognizant of thoughts and emotions as they occur, but are not controlled or “caught up” within them. For example, a nostalgic memory does not carry us away into a reverie (pleasant or otherwise) that shifts our focus away from the present moment, nor does a strong emotion gain such a tight grip on us that we are no longer an observer but are driven by the emotion in how we interpret an experience, or in the actions we take, potentially crowding out the flexibility and openness to the experience as it exists without such emotional clouding.

This is easier said than done! Moreover, it presupposes a number of psychological capacities associated with emotion regulation (Ryan et al., 2006). Specifically, within mature emotion regulation, emotional phenomena are allowed as *informational* inputs—they provide important information. In less mature emotion regulation, emotions are *controlling* inputs—one’s behavior is driven or controlled by feelings or reactions (Vansteenkiste & Ryan, 2013). One can see from this description how mindful awareness and attention to what is occurring allow emotions to be treated as more informational input. One can be aware of what one feels without “attaching to it” or feeling compelled to identify the feeling with oneself, a huge aid in self-regulation. The distinction between consciousness (context) and mental content, also referred to as *decentering* and *desensitization* (Martin, 1997), enhances autonomous self-regulation because behavior is guided by authentic awareness rather than distorted self-cognitions. This is one reason why mindfulness training has become an important element in treatment of impulsive disorders, such as borderline personality (Ryan, 2005).

Self-Determination Theory and Mindfulness: The Three Propositions

The continuum of motivation and mindfulness

As we have noted, SDT sees the quality of awareness as foundational to autonomous functioning, and thus as integrally associated with quality of self-regulation. Within SDT, motivational quality is understood in terms of a continuum of relative autonomy (Ryan & Connell, 1989) with more autonomous forms of self-regulation

associated with greater well-being and positive performance outcomes (e.g., Blais, Sabourin, Boucher, & Vallerand, 1990; Gagné & Deci, 2005; Reeve & Jang, 2006; Ryan, Patrick, Deci & Williams, 2008). We now consider some of the forms of self-regulation along that continuum and how they are more or less infused with mindfulness.

Intrinsic motivation Intrinsic motivation is defined by having deep interest and enjoyment in activities themselves. There is a here-and-now component to most intrinsically motivated activities that is also conducive to mindfulness. For example, the present centered attention to what is occurring that one might experience in playing tennis can be conducive to both performance and a mindful and positive experience. The focus on immediacy can even feel transcendent, especially if it is absent of judgment and instead is open and perceptual, as articulated famously in Gallwey's depictions of the "inner game" (Gallwey, 1974), and Csikszentmihalyi's depictions of "flow" (Csikszentmihalyi, 1990). It is this quality of experience that leads people to pursue such activities; it is simply for the enjoyment they bring without the need for any additional incentive or outcome. This, too, conduces to mindfulness, in so far as, when being mindful, agendas and instrumental investments must be suspended. Thus, it is important to both mindful states and intrinsic motivation that one's engagement is not shaped by extrinsic agendas, whether they be tangible rewards or some attainment of nirvana.

At the same time, intrinsic motivation and mindfulness are distinct constructs. For instance, one can be intrinsically motivated and not particularly in a mindful state. This happens when one is "lost" or absorbed in experience without the observant capacity to oversee the flow of events. In immersion, one can be mindless with respect to what is occurring in and around one. In such absorption, we find that individuals can make poor choices, such as playing video games for too long (Przybylski, Rigby, & Ryan, 2010; Rigby & Ryan, 2011). That is, absorption, and sometimes flow states, can be marked by an immersion that can pull one out of mindful awareness. Thus, while a person can be both intrinsically motivated and mindful (and these are generally positively correlated), these are not identical.

Beyond intrinsic motivation, many things we pursue are not done purely for their own sake. They are instrumental in achieving some other outcome, and can thus be said to be extrinsically motivated. Simply put, we are "doing X to achieve Y." Here, the notion of motivational quality becomes quite relevant, as the instrumental reasons for pursuing activities can vary greatly with respect to their motivational quality. Self-determination theory outlines four distinct types of extrinsic motivation (or regulation) that fall along a continuum of motivational quality, and each of which is differentially related to mindful awareness.

External regulation External regulation refers to a person's behavior being regulated by purely external contingencies, such as pursuing a reward, or acting to avoid an explicit punishment, and it represents the least autonomous form of behavioral regulation. Here, one has no personal investment or valuing of the activity, and because action is merely a means to an end, motivational quality for the activity is typically

quite low. The person often invests the minimal energy required for outcome attainment, and behaviors are not easily maintained or transferred to environments unless contingencies remain operative (Ryan & Deci, 2000). As understood within SDT, in external regulation there has been little or no internalization, upon which maintenance and transfer depend.

Because external regulation is characterized by controlling contingencies, the focus of attention is instrumental and at the same time draining of energy because it involves self-control. In fact, considerable evidence shows depletion and loss of vitality as consequences of external regulation (e.g., Ryan, Bernstein, & Brown, 2010; Ryan & Deci, 2008b). In short, external regulation is not conducive to mindful awareness, in part because it both directs and constraints awareness and attention, and in addition entails active internal control over competing propensities.

Introjected regulation Introjected regulation occurs when one has internalized some of the reasons for pursuing the activity but has not yet identified with the activity as being valuable or interesting. Instead, in introjection, the individual is motivated to sustain feelings of worth and esteem. Thus, they are driven to attain self- and other-approval, and to avoid feelings of guilt, shame, or anxiety associated with failure at introjected goals or standards. Thus, while there is no explicit contingency controlling the person, intrapsychic pressures control behavior. There is some internalization, but it is also accompanied by inner conflict, pressure, and ego depletion.

A particularly important way in which introjection has been studied within SDT is through the concepts of *ego involvement* (Ryan, 1982) and contingent self-esteem (Roth, Assor, Niemiec, Ryan, & Deci, 2009). Ego involvement entails a motivated form of perception in which the individual is focused on maintaining or enhancing feelings of self-worth. Ego involvement is thus a form of engagement and attention shaped by our ego needs, rather than representing a position of being fully open to experience (Niemiec, Ryan, & Brown, 2008). The dynamics of ego involvement are largely incompatible with having a relaxed interest in, or open, receptive, and detached focus on the relevant experiences because one is instead defensively focused on self-esteem maintenance. In fact, when mindful, self-esteem is not an issue (Ryan & Brown, 2003), and when one becomes mindful of potential ego involvement, ego involvement itself tends to dissipate.

Identified regulation Identified regulation occurs when one personally values the goals they are trying to attain through acting, even if the activity itself is not inherently interesting. Here, motivational quality is significantly higher than in introjected or external forms of regulation, as there is a more personally relevant and valued reason for pursuing the behavior in question, leading to better performance and persistence (Burton, Lydon, D'Alessandro, & Koestner, 2006). Yet identifications can be more or less *compartmentalized* (Ryan & Deci, 2008aa), and thus the relationship of identified regulation to mindfulness is complex. Persons higher in mindfulness are likely less prone to compartmentalization, in so far as greater mindfulness would allow one to observe one's actual valuing processes, and identify activities and domains of value and that are more truly self-congruent and internally consistent. Nonetheless,

identifications, even when volitional, can be absorbing, and like intrinsic motivation their moment-to-moment pursuit can be more or less mindful.

Integrated regulation Integrated regulation is considered to be the highest quality form of regulation within SDT's continuum of regulatory styles. Integrated regulation is in evidence when one not only values an activity, but also finds that activity congruent with one's other values and propensities. Here, both mindful awareness and interest-taking can play a central role, allowing one to better detect discrepancies and conflicts inherent in one's actions and thoughts. In other words, this open awareness provides a self-compatibility check to avoid incongruent behaviors or to blend congruent behaviors with values that are already part of the self. One may, for example, not only see exercise as personally valuable to overall health, but also recognize how it increases one's vitality and energy for spending time on other valued pursuits such as caring for work and family. Integration of an activity with other aspects important to the self is conducive to a more balanced and fulfilled life because all these different values and behaviors may help to harmonize need satisfaction (Milyavskaya et al., 2009). In contrast, when a specific regulation is strongly identified with, but not integrated, one can let it predominate over other valued activities (e.g., exercise taking over family time), leading to distress.

Processes of internalization Within SDT, the process of moving from more external or introjected forms of regulation towards identified and integrated forms of regulation is called *internalization*, and it is assumed that under supportive conditions, people are prone to increasingly internalize and integrate social norms and regulations. The one proviso is when these social norms or regulations are inherently in conflict with basic need satisfactions and the sentiments related to them (Deci & Ryan, 2012). Further, as we have mentioned, greater internalization is positively related to mindfulness (e.g., Brown & Ryan, 2003; Weinstein, Pryzbylski, & Ryan, 2013), as well as other indicators of positive functioning.

Higher quality regulatory styles—such as identified and integrated functioning—are largely a function of finding the personal value in experiences and activities, and “leaning forward” into these behaviors because one truly takes an interest in the benefit they have to one's self. Mindful engagement with life experiences naturally conduce towards this process of internalization and more autonomous functioning by removing the ego involvements that cloud one's ability to be open and receptive to the potential value of experiences. In addition, the open awareness that is the hallmark of mindfulness would be expected to aid in deeper integration of experiences into the self by enhancing one's ability to see new points of connection and relevance between what is happening in the moment with other held experiences and values. In sum, mindfulness is expected to promote higher quality motivation and greater autonomous functioning by facilitating the process of internalization and decreasing the experience of control that arises by higher levels of ego involvement and introduction.

Thus, both theories of mindfulness and self-determination theory contain qualitative dimensions. In mindfulness theory, we have discussed the importance of the qualitative dimension of receptive openness. In SDT, we can see the importance of

autonomy as a qualitative distinction in the continuum of self-regulation. We also see that openness and nondefensiveness, as entailed in mindful awareness and autonomy, are positively correlated (Hodgins & Knee, 2002; Schultz & Ryan, in press), and as one moves up SDT's continuum of autonomy, mindfulness is increasingly implicated.

We shall now turn to the relations between mindful awareness, interest-taking and two other core aspects of self-determination theory, namely basic need satisfaction (Deci & Ryan, 2000; Deci et al., in press) and the emphasis people put on intrinsic versus extrinsic goal pursuits (Kasser & Ryan, 1996).

Awareness as potentiating basic need satisfaction

A core tenet of self-determination theory posits that just as humans are governed by basic physiological needs—such as those for food and water—they also have some basic psychological needs that are universal and cross-developmental in nature. When persons pursue activities and relationships that are satisfying these needs, they are more persistent and experience greater integrity and wellness. Conversely, when social contexts or inner conflicts thwart or frustrate satisfaction of basic psychological needs, negative consequences including lower motivation (Deci & Ryan, 2000) and vitality (Ryan & Deci, 2008b) accrue.

Specifically, SDT specifies three basic psychological needs (although the list remains open) that fulfill the criteria of essential nutriments for the maintenance of growth, integrity, and wellness. The satisfaction of these needs invariably yields greater well-being and positive psychological, social, and physical outcomes. We next discuss each of these needs, namely the needs for competence relatedness and autonomy, and how mindful awareness and interest-taking can play a key role in potentiating their satisfaction.

Competence Competence refers to our basic need to feel effective and successful in what we undertake (Deci & Ryan, 1985; Harter, 2012; White, 1959). Going further, competence is satisfied by the process of growth and elaboration of our skills and abilities. We have the desire not simply to succeed, but to grow by undertaking new challenges that stretch our abilities without overwhelming us. This is often achieved through pursuing optimal challenges that enable us to grow and increase our capacities and skills (Deci & Ryan, 1985).

A key contributor to experiencing greater competence satisfaction occurs when one perceives they are receiving strong *informational feedback* on performance (Deci & Ryan, 1985). Feedback is seen as informational when it is perceived to be directly useful to the individual in improving their performance and assisting in personal growth. By contrast, *controlling feedback* is experienced when feedback is perceived as judgmental or evaluative rather than supporting future growth or success, and is thus less useful in helping individuals improve their mastery.

Here, mindfulness plays an important potentiating role: by attenuating the tendency to engage in ego-protection and freeing up one's mental energy to focus and assimilate all possible information, mindfulness greatly facilitates the capacity to absorb information in an open fashion. This receptive state allows for feedback to enhance

mastery (competence) and increase success and growth. Put differently, it is expected that mindfulness will lead to a greater propensity to perceive feedback on performance as being informational (rather than controlling), because (1) one is less predisposed to feel ego-involved in the feedback itself and (2) one is more receptive to all sources of information that are occurring in the moment, and can be potentially used for growth and improvement. By contrast, when less mindful and more ego-involved, information that could be helpful for growth is curtailed as the individual selectively attends or filters information in order to protect self-esteem. Thus, we can see direct relations between mindfulness and competence need satisfaction.

Autonomy A second basic psychological need postulated by SDT is the need for autonomy. Autonomy literally means “regulation by the self.” The need for autonomy is thus best understood as the need that supports propensities to self-regulation; the need to feel volitional, integrated, and congruent in acting. When autonomous, the individual endorses the actions she or he is taking, and the path being traveled. By contrast, autonomy is thwarted when the person feels controlled, or experiences pressure, manipulation, or undesired constraints compelling their actions. Controlled actions thus feel alien (or “heteron”) as covered in the word heteronomous.

It is important within SDT to distinguish autonomy from the concept of independence (Ryan & Lynch, 1989; Van Petegem, Vansteenkiste & Beyers, 2013). Independence concerns nonreliance on others. There are many circumstances in which one can be autonomously dependent on others—that is, to willingly rely on them—a fact that is true across cultures (Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005). It is also the case that one can be compelled to rely on others or to be nonautonomously dependent. Similarly, one can be autonomously or heteronomously independent, depending on why one is acting without social help or support.

In any case, many factors have been shown to facilitate autonomy satisfactions, including factors that are both developmental and situational. In terms of situations, feelings of autonomy can be enhanced or thwarted by factors such as how requests, goals, or rules are presented, how messages are framed and “incentivized,” and how meaningful are the options and opportunities for choice. With more controlling messages, salient surveillance or evaluation, and contingent use of rewards or sanctions, decreased experiences of autonomy and lower levels of motivation and vitality can be expected. By contrast, when more autonomy supportive communications and practices are used, opposite effects are had, as evidenced in multiple domains such as education (e.g., Black & Deci, 2000; Reeve, Ryan, Deci, & Jang, 2007), sports coaching (e.g., Bartholomew, Ntoumanis, Ryan, Bosch, & Thogersen-Ntoumani, 2011), and work environments (e.g., Baard, Deci & Ryan, 2004). Results consistently show that when individuals perceive greater support for their autonomy (and less controlling environments), they manifest a wide range of positive outcomes, including greater well-being, and vitality, a result shown across diverse cultures (e.g., Jang, Reeve, Ryan, & Kim, 2009).

As previously noted, situational mindfulness covaries with situational autonomy (Brown & Ryan, 2003, 2007). In addition to these situational factors, research has shown that feeling more autonomous in life is also a trait-level variable (e.g., Deci & Ryan, 1985; Weinstein et al., 2012). Simply put, individuals appear to have different

baseline levels of autonomous functioning, with those exhibiting greater autonomy showing the positive benefits outlined above. Most importantly, for this discussion, researchers have found a consistently strong relationship between dispositional autonomy and dispositional mindfulness (Brown & Ryan, 2003; Weinstein et al., 2012).

As with our discussion of competence, there are several potential mechanisms through which mindfulness may significantly bolster greater autonomy satisfactions. First and foremost is through the pathway of decreased ego involvement discussed previously: When one is not able to bring an openness to the perception of events, and is constrained by feelings of defensiveness, rigidity in thinking, or other preconceptions in order to protect or enhance the “me-self,” there is a higher likelihood of feeling more controlled forms of regulation, including external regulation and, in particular, introjected regulation marked by feelings of internal guilt, pressure, or compulsion (Mageau, Carpentier & Vallerand, 2011; Vansteenkiste & Ryan, 2013). These are states of mind that are in contrast to feeling autonomy satisfaction and integrated, harmonious regulation.

In many circumstances, controlling pressures and the potential for thwarted autonomy (e.g., from teachers, managers, parents, etc.) can be quite high. This is particularly true where people feel threats to security (Grolnick, 2003) or pressures from above (e.g., Assor, Kaplan, Kanat-Maymon, & Roth, 2005; Pelletier & Sharp, 2009). However, if mindfulness is active, such ego involvements will not dominate the interactions between manager/teacher and subordinate, nor overwhelm the person’s functioning. For example, Schultz, Niemiec, Legate, Williams, and Ryan (2013) recently assessed dispositional mindfulness in a heterogeneous sample of working adults, surveyed online about the conditions of their work, adjustment, and well-being. Results showed that although controlling work climates were associated with need thwarting in employees and more negative mental and physical wellness, mindfulness moderated that relation. Specifically, when conditions were autonomy supportive, those high and low in mindfulness benefited similarly. But under the adverse conditions of controlling supervision or management, mindful people displayed less psychological need thwarting, and in turn less distress. This is in keeping with experimental studies showing that mindfulness buffers people in stressful situations, through both less threatening appraisals of and more active coping with difficult circumstances (see Weinstein, Brown, & Ryan, 2009).

Relatedness Relatedness is the final basic psychological need postulated by SDT, referring to people’s fundamental need for interpersonal connections that are experienced as supportive and meaningful (Ryan, 1995; see also Baumeister & Leary, 1995). While today it is increasingly easy to use social networking technologies to connect and share the details of our lives with a multitude of individuals, relatedness satisfaction requires something more substantial: relatedness satisfaction is not just a function of the *quantity* of interpersonal connections, but the *quality* of these connections. That is, we want to feel that “I matter” to others, and in turn that others matter to us. It is characterized by relationships in which we feel understood, supported, and cared about.

A key aspect to creating this kind of qualitatively meaningful connection is the capacity to be emotionally available and present for others (Deci, La Guardia, Moller,

Scheiner, & Ryan, 2006; La Guardia & Patrick, 2008). Given that mindfulness is largely defined by the state of “open awareness” we have outlined above, it follows that the capacity for meaningful connection to others—connections in which we are fully present and available to support and communicate—will occur when we are able to be fully in the moment, unburdened by “rigid” beliefs, defensive ego-protections, or other preconceptions that we bring to our interactions. By remaining flexible and open to what we are hearing from those around us, we are in the optimal position to respond in ways that are relevant and reflect empathy and a fuller understanding of the circumstances at hand. In this way, mindfulness contributes directly to potentiating greater opportunities for relatedness satisfaction.

Consider, for example, the important role of autonomy support in the experience of relatedness. Research has shown that relatedness is enhanced when an individual feels that another is supportive of their autonomy, a dynamic that spans from infancy (e.g., Whipple, Bernier, & Mageau, 2011) through adulthood (e.g., Baard et al., 2004) to old age (e.g., Kasser & Ryan, 1999). Barnes, Brown, Krusemark, Campbell, and Rogge (2007) found that mindfulness, assessed by the MAAS, predicted greater relationship satisfaction and investment. In this research, partners discussed a salient conflict. After the discussion, partners higher in mindfulness showed less negativity, anger, hostility, anxiety, and withdrawal. In addition, mindfulness positively predicted higher reports of love, commitment, and support for the partner following the discussion. Other studies have demonstrated that mindfulness is related to higher empathy and compassion for others (Beitel, Ferrer, & Cecero, 2005; Brown et al., 2007; Shapiro, Schwartz, & Bonner, 1998). It thus seems that this open receptiveness to internal and external cues, which defines mindfulness, may allow persons to be more present and responsive in interpersonal settings, enhancing relatedness satisfaction and connectedness.

Although we have focused on mindful awareness as potentiating relatedness need fulfillment, evidence points to the facilitating impact of interest-taking as well. For example, Weinstein et al. (2012) measured interest taking, along with other aspects of autonomy, and showed that it was associated with greater need fulfillment both between and within levels of analysis. Moreover, interactions with more interest-taking partners were characterized by greater closeness, empathy, and satisfaction.

Mindfulness as potentiating intrinsic versus extrinsic goal pursuits

In an attempt to understand how differing life goals and aspirations may influence behavior and well-being, a minitheory was developed within SDT called Goal Content Theory (GCT; Ryan & Deci, 2002). This is based on the empirically derived distinction between intrinsic and extrinsic goal contents (e.g., Kasser & Ryan, 1996), and the hypothesis that these different types of goals would influence well-being in different directions as a function of their relations to basic psychological need satisfactions (e.g., Ryan, Sheldon, Kasser, & Deci, 1996).

Several decades of research have confirmed that, indeed, not all goals in life are created equally: Intrinsic goals such as pursuing personal growth, community, or intimacy with others are inherently more likely to satisfy basic psychological needs, especially

for autonomy and relatedness, and thus foster wellness; whereas extrinsic goals such as strivings for wealth, fame, or image (Sheldon, Ryan, Deci, & Kasser, 2004) can actually interfere with basic needs fulfillment. This was shown in a longitudinal study of postcollege young adults. These adults tended to get what they wished for—those with strong extrinsic goals attained such goals, and those with intrinsic goals also attained theirs. Yet, whereas intrinsic attainments enhanced wellness, extrinsic attainments did not. In addition, extrinsic attainments were associated with increased symptoms of ill-being, while intrinsic goal attainment was associated with lower ill-being. Therefore, the pursuit of intrinsic goals yields benefits to happiness and well-being, whereas extrinsic goals, even when attained, can result in fewer wellness benefits and increased risk for ill-being.

Just as mindfulness is seen as intensifying basic need satisfactions regarding competence, autonomy, and relatedness, we likewise see mindfulness as playing a facilitating role in emphasizing intrinsic goals and aspirations over extrinsic ones. If one is holding more open awareness of an experience, and is more in touch with one's feelings, thoughts, basic needs, and reactions, it follows that the greater satisfactions that are derived from intrinsic goals and aspirations will be recognized and create a stronger value for these activities (and, subsequently, greater motivation and sustained engagement).

Indeed, initial research has shown positive relations between intrinsic goals and both mindful awareness and interest-taking. For example, Brown and Kasser (2005) showed that people assessed as high in mindfulness behaved in ways that were more ecologically responsible, reflecting the intrinsic aspiration of community contribution. Brown, Kasser, Ryan, Linley, and Orzech (2009) found that people higher in mindfulness were less susceptible to consumerist messages, less dissatisfied with their current economic circumstances, and less stressed by aspirations for more. Mindfulness is also associated with placing more emphasis on close relationships, another intrinsic goal (Brown & Kasser, 2005). Similar to these findings with mindfulness, Weinstein and colleagues (2012) found a positive relationship between interest-taking and more intrinsic values. It thus appears that people who are more mindful tend toward the principles of living reflective of Buddhist ideals, which derive from recognition of how all things are interdependent, and implicate our responsibilities for compassionate living (Hanh, 1998).

Conclusion

Various approaches to well-being and performance have concluded that mindfulness is a positive state, and agree that mindfulness contributes to self-regulation and well-being of the individual, and of those around him or her (e.g., Brown et al., 2007). In this chapter, we have been focusing on the integration of mindfulness with one well-established theory of human motivation and personality development, namely self-determination theory (Ryan & Deci, 2000). SDT concerns the conditions under which we experience greater well-being, vitality, and personal growth. As discussed, achieving such positive outcomes is largely related to functioning in autonomous rather than controlled ways, obtaining the satisfaction of basic psychological needs

for competence, autonomy, and relatedness, and pursuing goals that are consistent with the optimal satisfaction of these needs. We argued herein that mindfulness has been shown to have positive relations with all three of these processes (Ryan, Huta, & Deci, 2008). That is, mindfulness is a psychological state that facilitates autonomous self-regulation, and potentiates the satisfaction of basic psychological needs as well as the personal importance of intrinsic versus extrinsic goals and values. Moreover, SDT also points to an additional, more actively focused yet open and receptive mode of awareness, namely interest-taking, as also facilitating better behavioral and emotional regulation.

Underlying these potentiation effects of mindful awareness and interest-taking is the fact that these high-quality states of awareness are characterized by open awareness and a lack of ego involvement and biases, allowing one to have greater clarity about what is happening in the moment. This further enables the informational use of feedback and perceptions for growth and success (competence satisfaction), identification of meaningful and interesting paths of response that are truly of value to the self (autonomy satisfaction), and the ability to be more fully “present” in interactions with others (enabling greater relatedness satisfaction). When more mindful, persons also cope better with stressors and adverse conditions (Schultz et al., 2013; Weinstein et al., 2009). Finally, when mindful, one has a greater awareness of the value of intrinsic goal pursuits, which in turn yields increased basic need satisfaction and well-being, and a lessened emphasis on extrinsic goals, which are also related to higher levels of ego involvement and contingent self-esteem. This linkage between mindfulness and more intrinsic, and less materialistic goal contents is important in a world where needs and wants can be readily confused, and where the globe’s scarce resources can be better used for human wellness.

Much interesting work lies ahead in understanding the relations between mindfulness and interest-taking in greater detail, potentially leading to process models that bring greater clarity to their relations. It is possible that the openness and receptivity present in mindfulness facilitate interest taking by allowing for salient events to come into awareness more easily and with greater clarity. Interest-taking may subsequently supplement this with a more active, integrative engagement with what arises. Although both constructs have shown similar positive relations to basic need satisfaction and well-being, such hypothesized relations between the two concepts await further experimental and qualitative study.

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13

Mindful Mindlessness in Goal Pursuit

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The great thing, then, in all education is to *make our nervous system our ally instead of our enemy.*

(James 1890/1950, p. 122)

Mindfulness is the process of drawing novel distinctions (e.g., Langer 1992). Processing information mindfully requires that attention be administered as devoid of preexisting appraisals and categories as possible. In doing so, the mindful individual is able to make direct contact with the external world rather than experiencing stimuli through the lens of a preexisting filter. Mindlessness, on the other hand, is the process of using preexisting rules and routines without considering aspects of the current situation that may be different from those prescribed by the preexisting schema.

To practice mindfulness, one must create new categories, be open to new information, and maintain awareness of more than one perspective (Langer, 1989). By the creation of new categories, problems are solved effectively and creatively. For example, a mindful approach to the question of who to hire as a computer programmer in a noisy work environment may bring to light that a deaf applicant may be better qualified than a hearing applicant of equal programming ability (Langer, 1989). Mindfulness can also manifest as freeing oneself from functional fixedness such that one is able to see multiple, creative uses for an object that is typically used only for one: a bicycle bell is a doorknob, a key can function like a knife. When one is mindful of the environment, it's not that one has a hammer and everything is a nail, so to speak, but rather, with mindfulness, everything is a Swiss army knife.

When one is open to new information, categories do not have to be considered exclusive definitions. For example, in teaching students the definition of a concept or a word, it is better to replace the common definition structure of “X is Y” with “X can be Y” to allow students to draw novel analogies and conjure up clever examples of the phenomenon instead of only those most common or prototypical (Langer,

1989). For example, if a student understands studying to be memorization, that student may fail to recognize when academic pursuits call for conceptual understanding or novel idea generation and thus fail to try to study when different methods are required.

When one maintains awareness of multiple perspectives, interpretations of a given situation proliferate. A lily can be a subject of study to a botanist, something to avoid for someone allergic, a collection of cells and proteins to a molecular biologist, a present to a romantic, and a symbol of the Virgin Mary to an art historian. A pointed question in a scientific talk can sound like constructive criticism to some and acerbic attack to others. Once these multiple perspectives are considered, individuals can better solve misunderstandings and resolve conflicts. Remembering these disparate perspectives may also help reduce the correspondence bias, and allow for the consideration of others' negative behavior as well intentioned or merely unintentional.

In defining mindfulness, it is important to note that it is not just self-awareness (e.g., Duval & Wicklund, 1972); when objects in the environment such as a mirror, tape-recorder, or the sound of one's own voice, are present in the environment, they are reminders of the self-as-object and so draw the focus of attention of the individual as "Me." The highly objectively self-aware individual regards the self as an entity in the environment that can be evaluated as any other. Mindfulness is a state of conscious awareness in which the individual as "I" actively constructs categories and distinctions. In contrast, mindlessness is a state of mind characterized by an over-reliance on categories and distinctions drawn in the past—it is not simply taking the "I" out of experience. The individual is context-dependent and as such oblivious to novel (or simply alternative) aspects of the situation. Mindlessness is seen as similar to more familiar concepts such as habit, functional fixedness, overlearned and automatic (vs. controlled) processing where controlled processing is the conscious processing of information within a given context. Mindlessness is insensitive to novel aspects of a familiar situation (Langer, 1992); and as opposed to habit, it is not dependent on repetition—exposure to a rigid definition can lead to mindless information processing upon the very next exposure, causing uncritically accepted information to lead to premature cognitive commitments (Chanowitz & Langer, 1981).

While the mindfulness/mindlessness distinction seems similar to the distinction between conscious and nonconscious action, it does not map perfectly onto it. The distinction between conscious and nonconscious action has been with psychology since William James, under many different names. In *The Principles of Psychology* (1890/1950), James discusses habit and the will in two separate chapters. On habit (by which he means to pick out those actions that are initiated without a conscious act of the will), James discusses skill acquisition and the way in which experts, such as marksmen and pianists, are able to perform complex sets of smaller actions that comprise the greater action of hitting the target or playing a score. According to James, we can see evidence for automatic action when the first in the set of actions triggers the next, and so on, until the full act is complete, and the initiation of each of the composite actions does not require an act of conscious awareness to initiate. For the purposes of this chapter, we will adopt a similar definition, with the caveat that nonconscious goal pursuit is to be differentiated from the modern definition of habit, in

which situational context cues a particular action independent of goals (Neal, Wood, Labrecque, & Lally, 2012).

With regard to the will, James describes acts of the will as those actions that were predicted by the conscious intentions of the actor, and these actions are meant to serve as a contrast to what James believed were the primary actions of man, the automated ones. While the majority of contemporary research on motivation and goal pursuit has focused on these actions (and so not treated them as secondary), we have learned much about the antecedents, determinants, and potential strategies for maximizing conscious goal pursuit. More recently, however, there has been a surge in research on automatic behavior and, in particular, automated goal-directed behavior, or nonconscious goal pursuit.

Mindfulness and modern automaticity research share a fundamental theoretical thread: the environment plays a powerful role in the generation of human behavior, and social psychology tends to overestimate the role of the individual's mental states or intentions. Bargh and Chartrand (1999) made this connection explicit at the beginning of their paper "the unbearable automaticity of being" in which they both summarize and spark research on priming and automaticity. In particular, the authors cite Langer's (1978) chapter "Rethinking the role of thought in social interaction," in which Langer argues that many of the theories of attribution popular in the 1970s assumed mindful individuals carefully observing the scenes they were in and actively considering the minds of those around them. In accordance with this observation, Bargh and Chartrand (1999) argued that our behaviors, judgments, and goals can also be activated outside of awareness, and that historically this fact either has been regarded as a negative aspect of human nature or, more commonly, has been down-played by psychologists. While much research published after this article has focused on automaticity in goal pursuit, in many ways both folk and empirical psychology of the will or conscious goal pursuit has remained focused on the causal efficacy of a conscious agent.

In order to further clarify the link between mindfulness/mindlessness and nonconscious goal pursuit, we will discuss the current state of research of both similarities and differences between conscious and nonconscious goal pursuit, also raising the question of what happens when consciousness is brought back to bear on actions that have already been automated. However, before we address these issues, we will discuss two prevalent problems of conscious goal pursuit. In goal selection, there is the challenge to commit to and strive for goals that are not only attractive but also feasible. To meet this challenge, research has proposed to engage in mental contrasting (summary by Oettingen, 2012), which means mentally juxtaposing a desired future with obstacles of present reality. In goal implementation, there is the challenge of weakness of the will, which occurs when one has set an appropriate goal but fails to effectively strive for it. To meet this challenge, research has proposed forming if-then plans called implementation intentions, linking a given critical cue with a goal-directed response (Gollwitzer, 1993, 1999). We will argue that both of these self-regulation strategies capitalize on mindful as well as mindless processes, and thus allow for mindful mindlessness in goal pursuit (i.e., selecting goals and planning their implementation). Finally, we will discuss the importance of turning a mindful eye to the common distinction psychology makes between conscious and nonconscious goal pursuit.

Conscious Goal Pursuit

Conscious goal pursuit may be subdivided into two primary component parts: goal selection and goal implementation. Goal selection involves deciding on and committing to an intention, and research in this domain has mostly focused on the determinants of goal selection (Bargh, Gollwitzer, & Oettingen, 2010). If individuals act mindlessly, these determinants may or may not predict goal selection. As of yet, there is only one theory that provides a self-regulation strategy that allows mindful goal selection. According to Fantasy Realization Theory (Oettingen, 2012), mental contrasting allows for the mindful selection of goals by contrasting the desired future with the obstacles in present reality. Goal implementation, on the other hand, comprises the deployment of behaviors aimed at bringing about the desired outcome specified by the goal. Research has focused on determinants of goal implementation and their varied effects on goal attainment. As with goal selection, there is research on one extant self-regulation strategy (i.e., furnishing goal intentions with implementation intentions) that allows for the mindful planning out in advance of how a chosen goal is to be implemented.

Determinants of goal selection: Desirability and feasibility

Research on goals has focused on the factors both at the individual and at the contextual level that predict goal selection. To approach goal selection mindlessly is to fail to consider carefully which goals are both desirable and feasible. Undesirable goals are worth only little time and effort to complete, and unfeasible goals lure individuals to spend time and energy on a future that may not be possible. Moreover, mindless goal selection may be driven by individual and contextual determinants (e.g., habits, peer pressure) without any consideration of new perspectives or possibilities. In other words, in mindless goal selection, suboptimal determinants for success may take the reins.

One central determinant of goal selection is an individual's perceived desirability of a goal. According to Ajzen and Fishbein (1980; Fishbein & Ajzen, 1975), high perceived desirability is the sum total of the perceived possible positive and negative consequences associated with the attainment of the goal. Each valenced assessment is weighted by its perceived likelihood of coming to fruition. While it is commonly assumed that individuals select desirable goals (Bargh et al., 2010), as suggested by Bandura (1977, 1997), feasibility concerns play an important role in forming goal commitments as well. Individuals recognize the importance of the likelihood of goal attainment in goal selection, meaning they consider whether they feel that they can perform the behaviors relevant to the desired goal. Thus, self-efficacy beliefs (or, according to Ajzen, 1991, "control beliefs") contribute much to perceived feasibility. To harbor high self-efficacy beliefs, people benefit from successes in the past, but they do not need to have previously made successful responses; rather, beliefs can also be based on observing similar others making similar responses (Bandura, 1977).

Practically, however, individuals may not let themselves be guided by the relative perceived desirability and feasibility of potential goals, but rather act independently

of these beliefs. Unfortunately, this means that mindlessness may lead people to put too much effort towards nearly impossible outcomes and thus prevent people from pursuing goals that are both worthwhile and within their grasp. Acting according to perceived desirability or feasibility, however, can be promoted by engaging in mindful reasoning (Oettingen, 2012).

Mindful goal selection

As of yet, there is one theory that spells out what type of mindful reasoning makes people respect expectancies or feasibility criteria, thereby strategically guiding their own goal selection and subsequent goal striving (i.e., goal pursuit). According to Fantasy Realization Theory (Oettingen, 2012), there are four primary strategies for thinking about a desired future. First, there is mental contrasting in which the desired future is contrasted with obstacles in the way of realizing that future. This strategy allows for commitment to attractive goals that are also feasible, and to disengage from those that are unattainable. In contrast, dwelling, thinking only about the present reality, and indulging, thinking only about the positive future, lead to moderate commitments no matter whether the goal is perceived as highly feasible or unreachable. Finally, reverse contrasting, in which the present reality is acknowledged first and the desired future second, also does not allow for feasibility-dependent goal pursuit.

Mental contrasting pulls commitment and performance to match expectations (i.e., feasibility). By using mental contrasting, the individual is able to identify a discrepancy between the desired future and the present reality. This in turn activates expectations (i.e., the question of “Can I reach the desired outcome?” is raised). If expectations for success are high, people will experience high goal commitment and the affective, cognitive and behavioral consequences that come with it. If expectations are low, individuals will experience low goal commitment, having recognized that the discrepancy between fantasy and reality is not worth the effort it would take to close it or that it cannot be closed; these individuals will disengage from turning desired outcomes into goals and thus protect their resources. Indulging and dwelling protect a person’s resources less than mental contrasting because they do not allow for the allocation of resources in an expectation-dependent manner; the former strategies lead to an unchanged, medium level of engagement even when no engagement (in the case of low expectations of success) or full engagement (in the case of high expectations of success) would be the resource-efficient way to act.

Various studies have tested the effects of mental contrasting as compared to indulging and dwelling on goal commitment and goal striving (Oettingen, 2000; Oettingen, Höning, & Gollwitzer, 2000; Oettingen, Mayer, Thorpe, Janetzke, & Lorenz, 2005; Oettingen, Pak & Schnetter, 2001; summary by Oettingen, 2012). For example, in one study, freshmen enrolled in a vocational school for computer programming (Oettingen et al., 2001; Study 4) first indicated their expectations of excelling in mathematics. Then, they named positive aspects they desired that would come from excelling in mathematics (participants named aspects such as feelings of pride and increasing job prospects) and aspects of present reality that might hinder their success (participants named aspects such as getting distracted and feeling lazy).

Students were then randomly assigned to one of three conditions: In the mental contrasting condition, participants had to elaborate on two aspects of the desired future and two aspects of present reality, in alternating order, starting with an aspect of the desired future. Participants in the indulging only condition elaborated on four aspects of the desired future; in the dwelling condition, they elaborated only on four aspects of present reality. Afterwards, participants indicated how energized (e.g., active, energetic) they felt. Two weeks after the experiment, participants' teachers reported how much effort each student had exhibited over the last two weeks and provided each student with a grade for that time period. Participants in the mental contrasting group with high expectations of success felt the most energized, invested the most effort, and received the highest grades. Conversely, participants in the mental contrasting group with low expectations of success felt the least energized, invested the least effort, and received the lowest course grades. Participants in the indulging and dwelling conditions felt moderately energized, exerted moderate effort, and received moderate grades independent of their expectations of success.

Spanning various life domains, a multitude of studies replicated these results. For example, experiments reveal the benefits of mental contrasting when studying abroad (Oettingen et al., 2001; Study 2), learning a second language (Oettingen et al., 2000; Study 1), getting to know an attractive stranger (Oettingen, 2000; Study 1), finding a balance between work and family life (Oettingen, 2000; Study 2), cigarette-smoking cessation (Oettingen, Mayer & Thorpe, 2010), and pursuing important individual interpersonal wishes (e.g., establishing a good relationship with one's mother; Oettingen et al., 2001; Studies 1 and 3). Strength of goal commitment has been assessed by cognitive (e.g., making plans), affective (e.g., feeling responsible for the desired ending), motivational (e.g., feelings of energization), and behavioral indicators (e.g., invested effort and markers of success). Indicators were measured via self-report, other-reported observations, or physiological measures directly after the experiment, weeks later, or both. Across studies, the results reveal the same pattern: participants in the mental contrasting group with high expectations showed the strongest goal commitment and goal striving. For those in the mental contrasting group with low expectations, people showed the least goal commitment and goal striving. Participants who indulged in a desired future or dwelled on present reality showed unchanged, medium-level commitment independent of their expectations of success, and this was also true for reverse mental contrasting. By mentally contrasting a desired future with the obstacles of present reality, individuals effectively become open to new information regarding whether to pursue the desired future, mindfully opening themselves up to the possibility of goal disengagement or creating a new categorization for an old wish: a goal that is high on desirability but also on feasibility.

A mindless mechanism

Though engaging in mental contrasting requires drawing mindful contrasts, the processes by which mental contrasting facilitates smart goal selection rely on changes in implicit cognitions. Mental contrasting facilitates the anchoring of the desired future onto the present reality and the formation of a link between them; from this mental

exercise, individuals are able to see what it is in their current situation that stands in the way of their wishes—they form a relational link “X stands in the way of Y.” When reverse contrasting, the desired future has nothing to hang onto, and so no “standing in the way” relationship is formed between the obstacle (X) and the future (Y). In other words, by relinquishing old associations with a desired future and replacing a relational “standing in the way” link between the future and reality, expectations become activated and guide behavior accordingly.

Recent work has directly investigated the mechanisms behind the effects of mental contrasting. In one set of studies, Kappes, Singmann, and Oettingen (2012; Study 1), used a primed lexical decision task to measure the strength of associations between obstacles and instrumental behavior following mental contrasting as compared to reverse contrasting (thinking about the present reality prior to the desired future) and an irrelevant content control exercise. In Study 1, participants listed both an interpersonal concern and a health concern, and used mental contrasting or reverse contrasting on the interpersonal concern only. Individuals’ idiosyncratic desired futures and obstacles were put into a primed lexical decision task. Only those participants in the mental contrasting condition with high expectations showed a facilitation effect in classifying their instrumental behavior target as a word when it was preceded (primed) by their obstacle. This effect did not hold for health goals, which none of the participants elaborated on, or for participants in the mental contrasting condition with low expectations, reverse contrasting, and irrelevant contrast conditions.

In the second study, Kappes et al. (2012; Study 2) tested whether the strength of the association between perceived obstacle and instrumental behavior would mediate the expectancy-dependent change in that behavior. In this study, participants are told that a common obstacle to maintaining health in college is taking the elevator instead of the stairs. This set up the desired future as feeling healthy, the obstacle as using the elevator, and their instrumental behavior as taking the stairs. As in the previous study, there were three conditions: mental contrasting, reverse contrasting, and an irrelevant contrasting condition. In the same primed lexical decision task, only those individuals in the mental contrasting condition with high expectations showed a faster classification time in identifying the target word “exercise” as a word (as opposed to a nonword) after seeing the word “elevator.” After the strength of this associative link was measured, participants were told that the second part of the study would take place on another floor; whether participants took the stairs to and from the other part of the study served as the behavioral measure. As predicted, the stronger the association between the obstacle in present reality and the behavior to overcome it, the more likely that participants were to take the stairs, suggesting that newly created associative links drive the positive effects of mental contrasting for goal commitment and subsequent goal enactment (Kappes et al., 2012). Further research has shown that this is also true for associative links that mental contrasting creates between the desired future and the obstacle of present reality (Kappes & Oettingen, 2012).

Using mental contrasting to select goals allows for the formation of new insights about one’s desired future. Mental contrasting creates implicit associative links between the desired future and relevant obstacle of reality, as well as between obstacles and instrumental behaviors to overcome them. Note that the associative links have been formed on the basis of mindful reasoning; that is, they were formed on the basis

of extensive elaborations of both a nonexisting desired future and an existing negative reality, and thus the resulting associations should be relatively trustworthy. Once individuals have used mental contrasting to select an attractive and feasible goal, they can be confident that mindless behavior toward that goal, that is, behavior that is initiated from implicit cognition (i.e., strong associative links), will be aimed at this goal.

Determinants of goal implementation

As with goal selection, if individuals do not mindfully plan goal implementation, they may leave the outcome of goal pursuit to the influence of individual and contextual determinants. In other words, there are many factors that determine how a given goal will be pursued, and many of these factors are outside of the individual's awareness or control. Research on goals has focused on the factors both at the individual and at the contextual level that predict successful goal implementation. To approach goal implementation mindlessly is to act in ways usually associated with these factors. Often, these factors are common features of the person and the situational context—for a health-conscious individual, an apple in a store becomes an opportunity to meet the goal to eat more fruit. Without considering familiar aspects of the context in a new way, goal implementation will likely proceed according to its individual- and context-level determinants.

But situational contexts can promote or hamper goal attainment. Over time, individuals may come to associate a particular cue in their context with a particular action simply because the two have been coactivated repeatedly, and these actions can be antagonistic to the actions required to meet one's goals. According to Wood and colleagues (Wood & Neal, 2007; Neal, Wood, and Quinn, 2006), habitual behaviors are cued directly by context and do not depend on goals. These actions are perfectly mindless—they are behaviors that are associated with context and so are deployed without consideration. For example, in one study, people were given a bag of either fresh or stale popcorn before entering a movie theater. Among individuals who do not usually eat popcorn during movies, those with fresh popcorn ate more than those with stale popcorn. Among individuals who regularly eat popcorn while they watched movies, popcorn was consumed regardless of quality (Neal, Wood, Wu, & Kurlander, 2011). While this phenomenon is specifically not goal-related, it clearly demonstrates the potential for powerful associations between context and action to affect a person's behavior when encountering a particular context. Without planning in advance or mindfully reconsidering familiar contexts, old habits reign, and unfortunately these habits often run counter to individuals' explicit goals. Mindless goal strivers will thus likely fall prey to these individual- and contextual-level predictors, which in turn determine whether people successfully implement their goals.

As of yet, there is one strategy for reinterpreting cues from one's context to make them actionable, and which can capitalize on the mind's ability to associate an action with a feature in context. Forming implementation intentions (Gollwitzer, 1993, 1999) requires that individuals understand aspects of their context from a new, more goal-relevant perspective, and in doing so they can form new associative links between contextual cues and goal-directed behaviors to maximize goal attainment.

Mindful planning

If an individual takes a mindless approach to goal implementation, letting former, unconsidered associations between contextual cues and behaviors take the reins, goal attainment may prove impossible. Research on goal pursuit has identified many types of challenges that people may encounter during goal implementation that can result in failure to achieve the selected goal. These include: failing to get started, getting derailed, not calling a halt to ineffective behavior, ceasing goal striving too soon, and overextending oneself (Gollwitzer & Sheeran, 2006). Succumbing to any of these challenges is typically referred to as weakness of the will (Holton, 2009). One way to maximize goal striving in the face of these problems is to make mindful plans that construe familiar contextual cues as opportunities for goal striving and to link these cues with goal-directed behavior (i.e., form implementation intentions).

Furnishing mere goal intentions with implementation intentions optimizes goal striving. For example, if one has the goal intention to read more books, forming plans that delineate the when, where, and how of the goal-directed behaviors will help goal attainment. It is particularly effective to form such plans as an “if–then” statement, such as “If I encounter situation X, then I will perform goal-directed behavior Y!” or, more specifically, “If I am getting into bed for the night, then I will open my book!” Numerous studies suggest that furnishing goal intentions with implementation intentions leads to higher goal-attainment rates than goal intentions alone.

People can break longstanding habits by forming strong implementation intentions (e.g., if–then plans that spell out a response contrary to the habitual response to the critical situation; Holland, Aarts, & Langendam, 2006). Cohen, Bayer, Jaudas, and Gollwitzer (2008; Study 2) used implementation intentions to counter dominant responses in a Simon task. In this task paradigm, participants are asked to respond to a nonspatial aspect of a stimulus (i.e., whether a presented tone is high or low) by pressing a left or right key, and to ignore the fact that the stimulus appears on the left or right side of the screen, and so a key on either the same or opposite side of the stimulus is needed. The difficulty of correct responding is high when the location of the tone (e.g., right) and the required key press (e.g., left) are incongruent, as the dominant response is to press the key that corresponds with the side that the stimulus appeared on.

Similarly, other automatic responses, such as stereotyping, can be blocked by implementation intentions designed to run counter to them. For example, Mendoza, Gollwitzer, and Amodio (2010) have added to findings that implementation intentions can also be used to suppress the behavioral expression of implicit stereotypes (see also Stewart & Payne, 2008). In their study, individuals completed the Shooter Task paradigm in which individuals choose whether or not to simulate shooting at Black or White targets holding guns or nongun objects. In a correct response, individuals shoot at threatening, gun-wielding targets, and not innocent targets who merely have their hands full. In Study 1, individuals were given no task instructions or a goal intention to ignore irrelevant information, or formed an implementation intention aimed at ignoring irrelevant information. Individuals with implementation intentions made fewer errors than either those with goal intentions alone or no further instructions. In Study 2, the target of the implementation intention was facilitation, and so they

formed the strategy “If I see a target holding a gun, then I will shoot at it!” These participants also outperformed participants with a goal intention containing the same strategic information and participants with no further instructions (Mendoza, Gollwitzer, & Amodio 2010).

Implementation intentions not only override dominant or habitual responses, but generally facilitate goal implementation. In a recent meta-analysis (Gollwitzer & Sheeran, 2006), the overall impact of furnishing goals with implementation intentions on goal attainment was $d = .65$, based on 8,461 participants in 94 tests. These tests were on a wide variety of samples, including children with ADHD, adults with schizophrenia, the elderly, and heroin addicts, and tested a wide variety of goals, including taking vitamins, performance on a Stroop task, negotiation outcomes, academic performance, and exercise (Gollwitzer & Sheeran, 2006).

A(nother) mindless mechanism

Implementation intentions capitalize on the associative structure of the mind. The if-then plan forms a strong associative link between a contextual cue and the goal-directed response. Research investigating the mechanisms of the success of implementation intentions identified changes in how individuals regard the context and the linked behavior. Due to the formation of implementation intentions, the relevant contextual cue becomes mentally activated and so more highly accessible (Gollwitzer, 1999). For instance, Webb and Sheeran (2004; Studies 2 and 3) observed that implementation intentions improve cue detection (fewer misses and more hits), without engendering false alarms. Moreover, using a dichotic listening task paradigm in which participants had to listen to two strings of verbal information, one in each ear, Achtziger, Bayer, and Gollwitzer (2012) asked participants to focus attention on one or the other stream. Achtziger and colleagues found that words describing the critical situation specified in the “if” part of the implementation intentions were highly disruptive to focused attention in implementation-intention participants compared to mere goal-intention participants, demonstrating the heightened accessibility of the contextual cue.

The success of implementation intentions in maximizing goal striving derives from heightened accessibility not only to contextual cues but also to the formation of a strong associative link between the contextual cue and the specified goal-directed behavior (Webb & Sheeran, 2007, 2008). These associative links seem to be stable over time (Papies, Aarts, & de Vries, 2009) and allow for the activation of the representation of the goal-directed response even by subliminal presentation of the specified contextual cue (Webb & Sheeran, 2007). In other words, the associative link between the representation of the specified if-component and then-component exhibits features of automaticity, including immediacy, efficiency, and redundancy of conscious intent (Gollwitzer, 1999). If-then planners act more quickly (e.g., Gollwitzer & Brandstätter, 1997; Experiment 3), deal more effectively with cognitive load (Brandstätter, Lengfelder, & Gollwitzer, 2001), and do not depend on conscious intentions to act in the specified situation (Bayer, Achtziger, Gollwitzer, & Moskowitz, 2009).

Using implementation intentions to implement goals allows individuals to open up their understanding of their context to a new, more goal-relevant perspective. Aspects of the context that might have previously gone entirely unnoticed gain heightened accessibility. Moreover, implementation intentions capitalize on the associative quality of the mind. Once people form implementation intentions, they have created a strong associative link between the contextual cue and the goal-directed behavior, such that the context triggers the behavior automatically. As with mental contrasting, the mindless mechanism behind this strategy does not carry the same dangers of other (not mindfully planned) behaviors.

It is important to note, however, that the authors are not advocating for completely mindless goal pursuit that may cause individuals to miss novel opportunities in the environment or evidence that goal disengagement is the best course of action. Instead, we recommend the combination of mental contrasting and implementation intentions, which allows for mindful goal selection and mindful goal implementation via mindless mechanisms—even the automaticity associated with these mindless mechanisms allows for flexibility in action to some degree, such as the ability to respond to feedback (Rosenbaum, Vaughan, Meulenbroek, Jax, & Cohen, 2009) and learn implicit rules (Eitam, Hassin, & Schul, 2008), which will be discussed in more detail later in this chapter. In other words, mental contrasting with implementation intentions allows for mindful mindlessness in goal pursuit via mindful goal selection and the mindful planning of automatic goal implementation.

Mindful mindlessness in goal pursuit

The authors recommend combining the two strategies for effective goal pursuit, mental contrasting for mindful goal selection with subsequent effortful striving, and implementation intentions for mindful planning of goal implementation. When combined, mental contrasting with implementation intentions (MCII) provides a strategy for maximizing goal pursuit that capitalizes on the notion of strategic automaticity. Moreover, because mental contrasting allows for the recategorization of the desired future and the reality in a manner that respects expectations, and implementation intentions allow for reinterpreting aspects of the context as opportunities to act, both strategies utilize aspects of mindfulness. At the same time, however, both strategies for goal pursuit rely on automaticity and the notion that mindfully formed links are then followed strictly based on their association (i.e., mindlessly). The two strategies together can be described as a mindfully mindless self-regulation strategy.

More specifically, MCII leads to greater rates of goal attainment than either mental contrasting or implementations alone (Adriaanse et al., 2010; Christiansen, Oettingen, Dahme, & Klinger, 2010; Stadler, Oettingen, & Gollwitzer, 2009, 2010; review by Oettingen, 2012). The two strategies complement each other, as mental contrasting facilitates the pursuit of goals with high expectations for success and fosters high goal commitment and effortful goal striving, while implementation intentions work best on goals to which individuals are highly committed (Sheeran et al., 2005; Study 1). Moreover, mental contrasting allows for the identification of idiosyncratic obstacles, which can then be specified in the if-component of implementation intentions as a critical contextual cue, thus creating a maximally tailored self-regulation strategy.

In two studies demonstrating the power of MCII, Adriaanse and colleagues (2010) found that mental contrasting with implementation intentions led to greater reduction in unhealthy snacking compared to controls who only listed healthy snack options (Study 1) and mental contrasting alone or implementation intentions alone (Study 2). Together, the two strategies target both goal selection and goal implementation to optimize goal attainment; mental contrasting relies on the formation of a new insight into the contrast between one's desired future and the present reality, changes the meaning of the present reality towards being an obstacle, and implicitly links the obstacle to instrumental means. Forming implementation intentions provides a new, goal-relevant perspective on one's context and explicitly links goal-relevant opportunities (e.g., obstacles) to instrumental means. This creates strategic automaticity, the delegation of control of goal-directed behavior to contextual cues.

Not only does MCII allow for personally tailored strategies, but the general mental procedure can be taught, making MCII a metacognitive strategy applicable to multiple domains. For example, Stadler, Oettingen, and Gollwitzer (2009) taught participants the MCII technique. This intervention allowed participants to apply MCII independently to any desire of their choosing. When participants applied MCII to their individual health concerns, they exercised more often than individuals who were only provided with health-related information. Participants in the MCII group exercised nearly twice as much as before the intervention, and positive effects began to appear directly after the intervention and remained throughout the 16-week study. Finally, MCII has been tested beyond the health domain and was found to successfully promote adolescents preparing for standardized tests (Duckworth, Grant, Loew, Oettingen, & Gollwitzer, 2011; review by Oettingen, 2012). In summary, MCII works with both aspects of the mind—the so-called conscious controller uses mental contrasting to select and strive for expectancy-respecting goals and forms implementation intentions in advance of encountering the critical context, while the automatic “unconscious self” takes over after these mindful steps have been completed.

Nonconscious Goal Pursuit

As previously mentioned, many models of human motivation assume an agentic conscious controller, but much research over the past two decades has focused on the automated will, the activation of goals outside of the awareness of the agent. Much like the birth of mindlessness research, this surge in research derives from the observation that the current state of a given body of research (attribution for mindlessness, motivation for nonconscious goals) overemphasizes mental content and underemphasizes the direct causal power of context on an individual's actions.

According to Langer (1989), much of the research on attribution assumed that individuals were constantly assessing what was going on in the minds of those around them, but in reality, it is likely that those individuals were not giving any thought to their surroundings at all. The fundamental attribution error, then, was not a failure to consider the situation with regard to the causal factors contributing to the actions of others, but rather a failure to consider any cause at all. As a result of this observation, Langer and colleagues conducted a now classic experiment in social psychology in

which a confederate asked someone waiting in line at a fax machine if they could skip them in line either because they were “in a rush” or because they needed to “make a copy.” She argued that if participants were paying attention to the content of the request instead of the format, they would not allow the person who explained that they needed to make a copy cut in line. If people were only paying attention to the form or using a preexisting schema, they would allow the person with a nonexistent reason for cutting the line to pass (Langer, 1978).

First generation of research: Similarities regardless of awareness

According to the Auto-Motive Theory, goals may be activated indirectly (i.e., outside of awareness) through the repeated pairing of a given situation and its related goal; the contextual cues eventually activate the goal through the established associative link (Bargh, 1990; Bargh & Gollwitzer, 1994). This model predicts that both conscious and nonconscious activation of goals should lead to similar goal-attainment rates and qualities of goal striving (Bargh, Gollwitzer, Lee-Chai, et al., 2001). Accordingly, nonconsciously activated goals exhibit hallmarks of goal pursuit. In particular, nonconscious goals lead to goal-directed action, stay active until completed, produce persistence in the face of setbacks, and promote resumption after interruption (Bargh et al., 2001). We are able to see evidence for such hallmarks by the use of priming, in which goal-related words are either embedded in a seemingly unrelated task, as in a supraliminal (“above the threshold of consciousness”) priming procedure such as a word search puzzle, or flashed on the screen below the level of awareness as in subliminal priming (Bargh & Chartrand, 2000).

In line with Auto-Motive Theory, the first generation of research on nonconscious goal pursuit has focused on the similarities between conscious and nonconscious goal pursuit (Bargh et al., 2001; review by Gollwitzer, Parks-Stamm, & Oettingen, 2009). For example, participants with both conscious and nonconscious goals experience the phenomenon of goal projection (Kawada, Oettingen, Gollwitzer, & Bargh, 2004) in which an active goal in the agent leads to the perception of others having that same goal. Moreover, both conscious and nonconscious goals have similar effects on affect following success and failure. In particular, participants primed with an achievement goal, who succeeded on a task, experienced greater positive affect than those who completed the task without having been primed, and those primed with achievement who failed at the task experienced greater negative affect than those who were not primed (Leander, Moore, & Chartrand, 2009).

More recently, research has focused on whether nonconscious goals exhibit equivalent flexibility in goal striving as conscious goals. Much evidence has supported the flexibility of nonconscious goal striving as compared to no goal controls. For instance, participants with a nonconscious goal to achieve perform better than participants with no goal on implicit and unintentional learning tasks, in which success requires adapting to a dynamic environment, as well as the Wisconsin Card Sorting Task and the Iowa Gambling Task (Eitam, Hassin, & Schul, 2008; Hassin, Bargh, & Zimmerman, 2009). Such evidence is in line with cognitive work on perceptual motor acts, in particular, Feedback Control Theory, in which feedback from the environment determines

whether a motion has departed from the current goal or not (summary by Rosenbaum et al., 2009).

In a more recent study (Gantman, Gollwitzer, & Oettingen, 2012), we asked the question of whether nonconscious goals are as flexible as conscious goals. We found that participants with conscious and nonconscious goals alike exhibit optional flexibility: they spontaneously discover simpler means more frequently than participants with no goal. In addition, both conscious and nonconscious goal striving allowed for the fast discovery of a new solution when such flexibility was mandatory for task completion (i.e., mandatory flexibility). Taken together, these studies highlight a similarity between conscious and nonconscious goal striving—both allow for flexibility, either by incorporating feedback from the environment or by recognizing novel opportunities for success.

Second generation of research: Awareness-based differences

Follow-up research has also addressed differences in conscious versus nonconscious goal striving. For instance, Govorun and Payne (2006) found differences in capacity, such that conscious goal striving is more subject to ego-depletion effects than nonconscious goal striving. Given recent research suggesting that knowledge of ego-depletion may be related to the emergence of the phenomenon (Job, Dweck, & Walton, 2010), it is possible that this difference in goal striving may be dependent on awareness of the goal in conjunction with the belief that self-regulatory resources are limited. After all, it does not make sense to bring the notion of limited self-regulatory resources in goal striving to bear on a situation in which one does not think there is goal striving in the first place.

Other work (Oettingen, Grant, Smith Skinner, & Gollwitzer, 2006) more directly investigated the difference in awareness of the goal in conscious and nonconscious goal pursuit. While this difference seems obvious, no preceding work has focused on potential affective consequences of this difference or what happens when nonconscious goal strivers are made aware of their (nonconsciously activated) goal-directed behavior. In order to study this question, Oettingen and colleagues (2006) provided participants with a task that required cooperation and induced either a conscious or a nonconscious goal of competitiveness (associated with expected, norm-conforming behavior and unexpected, norm-violating behavior, respectively). The participants given the nonconscious goal of competitiveness showed heightened negative affect as a result of their conflicting, norm-incongruent behavior (namely, acting competitively in a cooperation-based task) compared to those with a conscious goal to act competitively. Apparently, participants in the nonconscious condition could not explain their behavior. The authors call the phenomenon of people faced with their own unexpected behavior the “explanatory vacuum.”

A later study by Parks-Stamm, Oettingen, and Gollwitzer (2010) hypothesized that the increased negative affect in the nonconscious goal condition arose specifically from the lack of explanation for the behavior. The authors found that the heightened negative affect in the nonconscious goal condition could be reduced when a plausible explanation for primed competitive behavior (in this case, acting too quickly was equivalent

to acting competitively) was made available. More precisely, the authors replicated the previous study with the addition of a prior, seemingly unrelated study that asked half of the participants to perform quickly and half to perform accurately. Of the participants in the explanatory vacuum, those who engaged in the prior speed task showed less negative affect than those in the accuracy task, suggesting that when primed goal-directed behaviors can be explained (i.e., by having just done a task as quickly as possible) the negative affect associated with the explanatory vacuum does not arise. While this is preliminary evidence suggesting that people when primed with nonconscious goals may at times feel the need to explain their nonconscious goal pursuit, much research has investigated the effects of explicit awareness of goal-directed behavior, specifically when it has detrimental effects on performance.

Explicit awareness of goal-directed behavior

Explicit awareness of the goal to perform well is associated with the pressure to excel (Bargh et al., 2010), which can lead to the phenomenon called “choking under pressure.” According to the *explicit monitoring theory*, performance pressure leads people to attempt to exert conscious control over the execution of physical behaviors (Baumeister, 1984; Lewis and Linder, 1997). In particular, Beilock and Carr (2001) proposed that “choking” in a behavioral task occurs when performance pressure leads people to attempt to exert conscious control over the execution of physical behaviors that have become automated.

When behaviors have automated, consciously monitoring the enactment of learned physical skills results in suboptimal performance as the behavior no longer requires conscious direction. Empirical demonstrations of the detrimental result of adding conscious control have included golf putting (Lewis & Linder, 1997), squash (Masters, Polman, & Hammond, 1993), and basketball played before a home audience (Baumeister & Steinhilber, 1984). Masters and colleagues (1993) called this tendency to exert conscious control over automated behaviors “conscious reinvestment.” They created a Reinvestment Scale that measures this tendency to exert conscious control under pressure and found that individuals who scored highly on this scale performed worse at a golf-putting task under pressure than those who were low in reinvestment and under pressure, despite evincing equal skill level in the no-pressure condition (Masters et al., 1993). This work suggests that awareness of the goal to perform well (operationalized as pressure) may recruit thoughts that are detrimental to successful performance.

Other recent research by Bijleveld, Custers, and Aarts (2011) has focused on the nonconscious presentation of rewards. The Attentional Blink is a task in which focused attention devoted to the details of the task hurts performance (Arend, Johnston, & Shapiro, 2006; Dale & Arnell, 2010). These authors presented high-value versus low-value monetary rewards for performance on the Attentional Blink paradigm either consciously or nonconsciously. Bjileveld and colleagues found that nonconscious high-value rewards were associated with improved performance on Attentional Blink trials, while the effect of a high-value incentive disappeared when it was presented consciously.

For test anxious college students, forming implementation intentions was found to ward off the tendency to consciously reinvest in the task at hand, thus facilitating performance on a math exam. In particular, implementation intentions aimed at ignoring distracting thoughts improved performance over and above those designed to facilitate task performance, suggesting that test anxiety hinders math test performance because it is distracting. Apparently, implementation intentions allow for the strategic automation of control over distracting thoughts so that conscious reinvestment is no longer a problem (Parks-Stamm, Gollwitzer, & Oettingen, 2010). Given that conscious awareness of performance goals may lead to detriments in performance, and that people may experience negative affect at the recognition of behavior elicited by counternormative nonconscious goals (i.e., experience an explanatory vacuum), it seems that the boundary between conscious and nonconscious goal pursuit is permeable and would benefit from further consideration.

A Mindful Perspective on the Conscious/Nonconscious Dichotomy in Goal Research

Finally, the notions of conscious and nonconscious goals in psychological research may benefit from the look of a mindful eye, particularly on the ways in which we use strong words with minimal thought. With regard to nonconscious goal pursuit, especially when conducting studies involving the use of supra- or subliminal priming techniques, it is easy to refer casually to the participants in the study who will receive the nonneutral form of the manipulation as the “unconscious group” (vis-à-vis the “conscious” or the “control group”). While this shorthand is in most cases harmless, in the context of goal pursuit it obscures something important about those participants in the “unconscious” group; they are not, in fact, unconscious. When we fail to think about what else might be going on in the minds of our primed participants, we not only fail to understand something important about priming but fail to fully grasp the meaning of priming in the real world.

Not only are those participants in the “unconscious” (sometimes referred to as “nonconscious”) priming conditions aware, in the sense of phenomenal consciousness,¹ but also they are able to think about the behaviors that they have been presumably primed into performing. Moreover, can we induce thinking about these behaviors, and are these behaviors regarded differently from those that have not been directly primed in a laboratory setting? Future research would benefit from considering these issues.

There are two basic possible responses to this question. The first is simply that we act based on primed behavior much more often than we realize, and so whatever the regular, lay conception of action is, that is how we regard primed behaviors. On the other hand, particularly with regard to the priming of goals outside of awareness (Bargh et al., 2001), it may be the case that, as individuals are capable of forming explicit goals and subsequently (at least sometimes) carrying out the actions that follow from those goals as the result of a deliberate plan (Gollwitzer & Oettingen, 2011), people may find the possibility of acting on a goal that has been activated outside of awareness unsettling.

The explanatory vacuum phenomenon suggests that there might be resistance to this idea not only by scientists (as suggested by Bargh and Chartrand, 1999) but also at least by college undergraduates. Parks-Stamm, Oettingen, and Gollwitzer (2010; Study 2), conducted a follow-up explanatory vacuum study to determine whether finding an explanation for one's unexpected (and, in this case, primed) behavior happens reflexively, or whether individuals acting in an explanatory vacuum need to be prompted to notice that they lack an explanation for their behavior. They found that when participants were given extra time to reflect about their goals in the study, this had no effect on negative affect; only those participants with a prior goal to explain their behavior showed reduced negative affect as compared to those whose prior goal could not. In other words, it is possible that participants reflexively search for explanations for norm-violating behavior, suggesting that, even unprompted, students seek to understand the origins of unexpected primed behaviors in their minds and are likely unsatisfied by answers more in line with the concept of nonconscious goal pursuit.

The strong dichotomy between conscious and nonconscious goal pursuit in the field and its matching folk psychology seems to be embedded in the way that people think about themselves and their own behavior; if individuals spontaneously think about the origins of their actions when they could not have been predicted by the individuals' conscious intentions, it may be to repair or bolster beliefs in the conscious controller or to undermine concerns about the lack of controllability of one's own actions. We can see, however, from the self-regulation literature and the benefits of using mental contrasting with implementation intentions to maximize goal attainment that conscious and nonconscious goal pursuit can be strategically combined. If we dissolve the distinction, especially given that the unconscious seems quite increasingly capable of doing what consciousness can (Hassin, *in press*), we can begin to better understand the way in which we are agents and how to maximize our agentic efficacy. Once we expand our ideas of these two categories, we, both as psychologists and as lay theorists, can expand the concept of the agentic self to include our nonconscious actions.

Summary and Conclusion

In this chapter, we have introduced the idea of mindful mindlessness in goal pursuit or strategic automaticity. We have argued that individuals select and implement their goals based on the influence of individual and contextual determinants that may include mindless associations. There exist two strategies for moderating the influence of these determinants on goal pursuit. For goal selection and effortful goal striving, individuals who mentally contrast the desired future with present reality gain insight into and respect their expectations for success. For those with high expectations of success, future and negative reality (obstacle) become linked, and the reality (obstacle) becomes linked to instrumental behavior, resulting in new implicit, associative links that may be acted on mindlessly. For goal implementation, individuals who furnish mere goal intentions with implementation intentions select opportunities in their context and specify how to act on them. The if-then structure (best combined with high goal commitment and fitting obstacles) forms a strong link between the eliciting

situation and the relevant goal-directed behavior. This, too, results in an implicit link between opportunity and relevant action that can be mindlessly followed to successful goal pursuit. Such faith in these associative links is, of course, only warranted by the mindful manner in which they were set.

In this chapter, we have also reviewed literature on both similarities and differences between conscious and nonconscious goals. Of note is the fact that individuals acting with nonconscious goals are unaware of the purpose of their purposeful behavior, and if that behavior is norm-violating, negative affect arises. This behavior is lower on the spectrum of awareness of automated behavior than the phenomenon of “choking under pressure” or the tendency to consciously reinvest attention in the task at hand when it can be successfully performed automatically. In these cases, it seems that explicit awareness of the goal leads to a decrease in goal-attainment rates compared to individuals without this tendency. By taking a mindful approach to these findings in the literature, we can shine new light on the distinction between conscious and nonconscious goal striving, suggesting that to retain an understanding of this dichotomy in a strong sense may keep further research from fully understanding goal pursuit more broadly.

Note

1. Not to be confused with the fact that priming can be considered a case where there is access but not phenomenal consciousness of *the particular stimuli* (Block, 2002).

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14

Mindful Versus Mindless Thinking and Persuasion

Andrew Luttrell, Pablo Briñol, and Richard E. Petty

Although the construct of mindfulness has seen diverging definitions in the field of psychology (Gethin, 2011), general themes among these definitions are relevant to attitudes and persuasion. One of these accounts of mindfulness, representing a more Western approach, is that provided by Langer (1989; Langer & Moldoveanu, 2000). In this account, mindfulness is seen as bringing one's full resources to a cognitive task by using multiple perspectives and attending to context, which creates novel ways to consider the relevant information. As we describe in this review, this active process of elaboration can be linked to the concept of the *central route* to persuasion. In contrast to mindfulness, the persuasion literature views mindlessness as a way of approaching the same cognitive tasks with reduced attention and a reliance on previously developed means of interpreting information. This second approach, based on reliance on mental shortcuts, associative inferences, and heuristics, can be linked to the concept of the *peripheral route* to persuasion. Briefly stated, mindful engagement in a task is characterized by openness and elaborative thinking, whereas mindless engagement is characterized by rigidity and less elaborative rule-governed behavior.

Other definitions of mindfulness stem more from the Buddhist practice of mindful meditation. Like Langer's formulation, this view of mindfulness involves openness centered in the present moment, but there are additional processes inherent in these conceptualizations of mindfulness that are not components of Langer's approach. These more Eastern formulations emphasize various mental processes that characterize the state of mindfulness (Bishop et al., 2004; Brown & Ryan, 2003; Kabat-Zinn, 2003). Of most relevance to the persuasion processes that will be reviewed later are openness to current experiences, shifting perspectives of self, and the nonjudgment of thoughts. Simply put, people experiencing a state of mindfulness are those who demonstrate an openness to the present and have experiences unburdened by personal concerns, previous events, or future possibilities (e.g., Bishop et al., 2004; Brown & Ryan, 2003; Hölzel et al., 2011; Martin, 1997). Shifting perspectives of self refers to

a tendency to see oneself as changing, following from Buddhist beliefs regarding the impermanence of the self (Hölzel et al., 2011). The nonjudgment of thoughts refers to the act of noticing one's thoughts and letting them pass without personalizing or evaluating them (Bishop et al., 2004; Dreyfus, 2011; Kabat-Zinn, 2003; Shapiro, Carlson, Astin, & Freedman, 2005). As we describe shortly, the characteristics of mindfulness from these theoretical perspectives are applicable to the domain of attitudes and persuasion.

The study of attitudes and persuasion is one of the key elements of social psychology and beyond (e.g., marketing, political science, etc.). Attitudes refer to people's evaluations of a target, which can be an object, a place, an issue, oneself, or another person. Attitudes are important because a person's attitude can often predict their relevant behavior. Persuasion refers to the processes by which a person's attitude can change. After encountering persuasive messages of any type, one's attitude toward the topic of the message can shift. There are a number of variables that can either facilitate or inhibit persuasion. The extent of mindfulness is one such variable.

Mindfulness and Attitude Change

Persuasion can occur at all levels of mindfulness. That is, some processes of persuasion can occur when people are in a relatively mindless state, and others can occur when people are in a more mindful state, and everywhere in between. First, many social influence variables operate under conditions of mindlessness. For instance, in their classic study, Langer, Blank, and Chanowitz (1978) examined people's compliance with a simple request that followed the familiar structure of acceptable persuasive requests (i.e., including a reason) and varied whether or not the content of the request was compelling. Specifically, an experimenter approached people who were about to use a photocopier and asked to use the machine first. This request came with a reason that conveyed no real information and was vacuous (i.e., "because I have to make copies"), a reason that did convey information (i.e., "because I'm in a rush"), or included no reason at all for the request. Their results revealed that people were more compliant with the request when it was accompanied by some reason than when the request was made in isolation, even if the reason was vacuous. Importantly, the persuasive advantage of providing a vacuous reason was present under relatively mindless conditions. Under conditions characterized by increased thought, Langer et al. (1978) found that including a vacuous reason was no more persuasive than merely making the request alone. Thus, under conditions of mindlessness, simple heuristics such as provision of a reason can enhance a communication's persuasive impact.

In a similar vein, research using a traditional persuasion paradigm showed that increasing the number of arguments for a position—whether strong or weak—can increase persuasion when thinking was low. However, when thinking was high, only increasing the number of strong arguments increases persuasion. Increasing the number of weak arguments reduced persuasion when people were being thoughtful (Petty & Cacioppo, 1984).

Other influence techniques also have been explicitly identified as persuasion variables that operate primarily under mindless conditions. For example, the

“That’s-Not-All” technique in which persuasion increases when initial offers are followed either by a reduced price or by the inclusion of an upgrade on the offer has been shown to be more effective under conditions of mindlessness (Pollock, Smith, Knowles, & Bruce, 1998). Additionally, some researchers have argued that other compliance strategies are successful because they *induce* a state of mindlessness (Dolinski & Nawrat, 1998; Fennis & Janssen, 2010), including the Foot-In-The-Door technique (Burger, 1999), the Door-In-The-Face technique (Cialdini et al., 1975), and the Fear-Then-Relief technique. That is, some have argued that these techniques work because they reduce the ability and/or motivation for people to think mindfully about requests. In these cases, mindful consideration of a request could *undermine* the persuasiveness of the request as people might generate reasons to deny the request; however, if an influence technique prevents people from reaching a state of mindful consideration, a request might be agreed to without much thought.

The persuasion literature is replete with examples of people succumbing to simple strategies when they are not thinking much. For example, people might go along with an authority without much thinking because experts are presumed to be correct (e.g., Chaiken, 1980; Petty, Cacioppo, & Goldman, 1981), or they might become more attracted to a restaurant if the parking lot is full rather than empty, taking the apparent popularity of the place as social proof that it must be good (Cialdini, 2001), or because that restaurant is going to be open only for a limited, restricted period of time (Lynn, 1991). Indeed, people often do not have the time or mental resources to think about every request and persuasive appeal that passes by them each day or every decision they must make. As a result, everybody can fall prey to simple decision rules or triggers that can operate in a fairly automatic manner. However, persuasion does not *always* operate in a mindless way.

There are many other processes that guide persuasion when people operate mindfully. In fact, the very same variables that can lead to mindless change can also produce mindful change under different circumstances. Petty and Briñol (2012) argued that variables such as those mentioned above (scarcity, authority, and social consensus) can operate in different ways, depending on the situation. For example, consider the general social influence principle of liking. The dominant understanding of why people tend to be persuaded by people they like is that it operates as a fairly automatic heuristic (e.g., I like this person; therefore, I should go along with their proposal). However, in accord with contemporary multiprocess theories of influence such as the elaboration likelihood model (Petty & Cacioppo, 1986) and the heuristic-systematic model (HSM; Chaiken, Liberman, & Eagly, 1989), it is now clear that variables such as source attractiveness and processes such as liking affect judgments in different ways depending on how motivated and able people are to think about the appeal or request. That is, depending on the message recipient’s motivation and ability to think, factors such as liking or attractiveness can influence persuasion in multiple ways, including not only serving as a simple cue, but also by some other more mindful processes. We describe these next.

Mindful Change

As noted, attitudes can change through automatic, mindless processes as well as through more deliberative, mindful mechanisms. Although both mindless and mindful

processes are possible, the consequences of those processes are different. According to the ELM, attitudes formed or changed through low thinking processes typically associated with mindless approaches are less persistent, resistant to change, and predictive of behavior than attitudes changed via high thinking processes linked to mindfulness. This is because elaboration typically involves accessing relevant information from both external and internal sources, scrutinizing, making inferences, generating new arguments, and drawing new conclusions about the merits of the attitude object (Petty & Cacioppo, 1986). These mental activities involve people adding something of their own to the information available and are likely to lead to the integration of all relevant information into the underlying structure for the attitude object, therefore making the adopted evaluation not only stable, but also coherent and resistant. Thus, deliberative attitudes based on high amounts of thinking are *stronger* than attitudes based on little thought (see Petty, Haugtvedt, & Smith, 1995, for a review). The mental operations associated with elaborative thinking share a number of similarities with what has been proposed for mindful thinking. The components of mindful thinking of most relevance to the concept of elaboration include the tendency to think about alternatives, being open to new information, perceiving change, and the nonjudgment of one's thoughts.

First, mindfulness has been described as a tendency to think flexibly (Langer & Moldoveanu, 2000). In social psychology, similar tendencies have been examined in work on creativity and divergent thinking and in the proposed function of positive emotions (e.g., Fredrickson, 1998, 2001). Within the field of persuasion research, this tendency can relate to the thoughts that people have in response to a persuasive message and to the evaluative information used when reflecting on an attitude. Regarding message-evoked thoughts, *cognitive response theory* (Greenwald, 1968; Petty, Ostrom, & Brock, 1981) proposed that persuasion is driven by a person's own thoughts evoked by a persuasive message. This approach stood in contrast to the prior focus on the extent to which these messages were simply learned (see McGuire, 1985). According to the research derived from cognitive response theory, a person can have both thoughts relevant to and thoughts irrelevant to a persuasive communication. The relevant thoughts can also vary in the extent to which they are positive, negative, or neutral toward the message. Some research has even demonstrated that when people are directly asked to generate thoughts of a particular valence in a persuasion context, they can spontaneously generate *unrequested* thoughts of the opposite valence, which also inform resulting attitudes (Tormala, Falces, Briñol, & Petty, 2007). This phenomenon may be even more likely under conditions of mindfulness that facilitate flexible thinking. Clearly, there are many ways a person can think about a persuasive message, all of which have their own influence on the resulting attitudes.

Although this research has shed light on the extent to which a person can think in alternative directions to that intended in the persuasive appeal, when encountering a persuasive message, people may also think in alternative valence when considering the target of evaluation itself, in the absence of any attempts at persuasion. For example, when a person has both positive and negative reactions to an object, person, or idea, that individual is said to have an *ambivalent attitude* (for a review, see Conner & Armitage, 2008). Thus, ambivalence reflects endorsement of both positive and negative aspects of a particular topic, agreeing with both the benefits and

detriments simultaneously. Ambivalence can also exist at a different level; a person's automatic evaluation of an object, obtained via an implicit measure, can conflict with the evaluation obtained on a more deliberative, explicit self-report measure. When this occurs, the person's attitude is characterized by *implicit ambivalence* (Petty & Briñol, 2009; Petty, Briñol, & Johnson, 2012; Petty, Tormala, Briñol, & Jarvis, 2006). Research on attitude strength has shown that highly ambivalent attitudes—whether explicit or implicit—are not as functional in guiding thoughts and behavior as relatively less ambivalent attitudes. Existing research has also shown that people find attitudinal ambivalence to be aversive and are thus motivated to reduce the evaluative conflict implied by competing positivity and negativity (Jonas, Diehl, & Brömer, 1997; Newby-Clark, McGregor, & Zanna, 2002; van Harreveld, van der Pligt, & de Liver, 2009).

Of most relevance here, a mindfulness approach can lead to a different conceptualization and response to ambivalent attitudes. On the one hand, with its promotion of more diverse thinking, mindfulness could provoke more frequent attitudinal ambivalence. Some research has shown that attitudes can be more mixed among people and cultures characterized by greater tendencies to think dialectically. Dialectical thinking refers to greater acceptance of contradiction in reasoning (for a review, see Spencer-Rodgers, Williams, & Peng, 2010). For example, Peng and Nisbett (1999) note that in dialectical thinking, "good and bad . . . coexist in everything" (p. 743). Such a tendency to think in this way has been related to the characteristics of mindful thought. Previous work has shown that those who tend to think more dialectically demonstrate greater ambivalence in their self-evaluations by generating and endorsing both positive and negative evaluations of themselves (Boucher, Peng, Shi, & Wang, 2009; Spencer-Rodgers, Peng, Wang, & Hou, 2004). They are also more likely to experience mixed emotions than those who tend to think less dialectically (Bagozzi, Wong, & Yi, 1999; Goetz, Spencer-Rodgers, & Peng, 2008; Shiota, Campos, Gonzaga, Keltner, & Peng, 2010; Spencer-Rodgers, Peng, & Wang, 2010).

In accord with this view, Langer (1994) notes that uncertainty, which often accompanies ambivalence (e.g., Jonas et al., 1997), promotes mindfulness and consideration of new information (see also Tiedens & Linton, 2001). Thus, when considering both positive and negative information about some topic mindfully, it may itself contribute to ambivalence in the objective sense (i.e., coexistence of both positive and negative reactions to a single object). Intriguingly, however, whereas mindfulness might increase the frequency of objectively ambivalent attitudes, it may also contribute to a reduction of the aversive subjective feeling that typically accompanies ambivalence. Because the notion that there is a single correct evaluation can be classified as a relatively mindless belief, perhaps it is primarily for people who hold this belief that the coexistence of positive and negative reactions to something will signal an actual conflict that must be resolved. For more mindful individuals, however, such evaluative uncertainty may provoke a search for more information, but perhaps more in the spirit of curiosity. Future research should explore the complex relationship between mindfulness and the presence of objective and subjective ambivalence, as well as the consequences for subsequent information processing.

Second, mindfulness has been characterized by openness to new information and by new ways of considering some object or issue. In fact, mindfulness scales have been

found to correlate with the Openness to Experience Scale of the Big Five (Giluk, 2009). For instance, an important element of Bishop et al.'s (2004) two-component model of mindfulness is that of greater acceptance of each moment of experience. That is, someone who is being mindful is not trying to reach a particular conclusion or end-state and will thus entertain any new information or experiences as relevant. Such openness is also prominent in many other theoretical formulations of mindfulness (e.g., Brown & Ryan, 2003; Hölzel et al., 2011; Martin, 1997). Similarly, Chanowitz and Langer (1981) introduced the notion of "premature cognitive commitment," which is a tendency to adhere strictly to previously encountered information. They further suggested that such a tendency is particularly mindless because of the failure to reconsider beliefs and perceptions after they are initially formed. Under mindful states, however, preexisting cognitions may be more open to scrutiny and change (Langer, 1989; Langer & Moldoveanu, 2000). By its nature, the persuasive effects of a communication can depend on how open a person is to information that contradicts a currently held attitude. Several variables have been examined for their ability to affect a person's openness to, or willingness to process, counterattitudinal communication. These include an attitude's strength, personal motivations, self-affirmation, general individual differences in open- versus closed mindsets, and attitudes toward change, to name just few of the most relevant ones.

When a person's preexisting attitude is relatively weak, that attitude is more susceptible to change in response to persuasive appeals (Krosnick & Petty, 1995). For example, when people are relatively doubtful about an attitude or possess an attitude that is relatively ambivalent, they are more likely to process new information; thus, when a persuasive message contains arguments that are adequately strong, those with more doubtful or ambivalent attitudes are more persuaded by the message (Edwards, 2003; Jonas et al., 1997; Petty et al., 2006; Tiedens & Linton, 2001; Weary & Jacobson, 1997). Also, work on motivated reasoning has been applied to persuasion contexts, with people showing more openness to persuasive messages containing attitude-congruent arguments and less openness to persuasive messages containing attitude-incongruent arguments (Kunda, 1990).

A different body of literature has proposed that a persuasive message can represent a threat to a person's self-concept (Jacks & O'Brien, 2004). As such, giving people an opportunity to self-affirm (i.e., focusing them on personally important values) generally makes them more open to a counterattitudinal persuasive message (Cohen, Aronson, & Steele, 2000; see also Briñol, Petty, Gallardo & DeMarree, 2007; Jacks & O'Brien, 2004).

Finally, persuasion has been related to open- versus closed-mindedness motivations. In particular, the construct *need for cognitive closure*, occasionally related explicitly to open- versus closed-mindedness (e.g., Kruglanski, 2004), has been shown to affect openness to persuasion. The need for cognitive closure refers to a general motivation for firm conclusions rather than ambiguity (for reviews, see Kruglanski, 2004; Kruglanski & Fishman, 2009; Kruglanski & Webster, 1996). In particular, in some research, when people had a preexisting basis for an opinion, those operating under a high need for cognitive closure (either having scored high on a measure of dispositional need for closure or having been in a condition in which quick closure was valued) were less persuaded by a message than those operating under a low need for

cognitive closure. In other words, the more closed-minded (high need for closure) people clung to the initial basis for an opinion (similar to “premature cognitive commitment”) and resisted new information, whereas the more open-minded (low need for closure) people were more open to new information and did not cling as strongly to their initial opinions. Thus, just as research on mindfulness has highlighted the importance of “openness” in understanding how people engage with their experiences, so too does attitudes and persuasion research highlight the role that a state of openness plays in approaching persuasive messages.

Third, mindfulness has been described in relation to perceptions of impermanence. That is, having drawn from Buddhist notions that a permanent, static self is the source of psychological distress (e.g., Olendzki, 2010), some have suggested that a state of mindfulness can facilitate a shift in how the self is perceived toward flexibility (Hölzel et al., 2011). Some social psychology research has examined a related distinction between perceptions of the self as changeable versus more permanent, separating people with “entity” theories, which suggest current attributes will remain relatively permanent over time, from people who hold “incremental” theories, which suggest that current attributes are open to change and improvement (Dweck, Chiu, & Hong, 1995). Work more closely relevant to attitudes and persuasion has also considered these perceptions of changeability. For instance, people can vary in how much stability they perceive in their attitudes, with some perceiving an attitude as being relatively more stable over time than others (Petrocelli, Clarkson, Tormala, & Hendrix, 2010). Other work has shown that people also differ in the extent to which they perceive themselves as generally resisting (vs. being persuaded by) persuasive communications, implying variability in how permanent they perceive their attitudes to be (Briñol, Rucker, Tormala, & Petty, 2004). In fact, people can apply different beliefs to persuasion resistance, believing in some cases that resistance (and thus strong attitude consistency over time) is good and in other cases that resistance is bad, relating perhaps to more general implicit theories regarding the changeability of one’s attitudes (Rydell, Hugenberg, & McConnell, 2006). It is important to note, however, that *perceptions* of change are often independent of actual change. Indeed, it is clear that people often make errors in assessing whether they have changed or not (Bem & McConnell, 1970; Goethals & Cooper, 1975; see Briñol & Petty, 2012, for a review). In a programmatic line of studies, Schryer and Ross (2012) have shown that people can fail to recognize change in either their attitudes or themselves, even when there actually has been change. In fact, they also show that people can see some change when there actually has been none.

Finally, mindfulness is often described as encompassing the nonjudgment of thoughts. Not only is it a key component in one of the most often cited definitions of mindfulness (“paying attention in a particular way: on purpose, in the present moment, and non-judgmentally”; Kabat-Zinn, 1994, p. 4), but it also plays a role in many other accounts of mindfulness (Bishop et al., 2004; Gethin, 2011; Shapiro et al., 2005; cf. Dreyfus, 2011). In psychology, this can be related to therapy approaches that emphasize metacognitive techniques, such as the metacognitive therapy proposed by Adrian Wells (2012). In persuasion research, the importance of *metacognition* has also been shown. As previously noted, persuasive messages can evoke a variety of thoughts, and importantly, these thoughts can themselves be evaluated. This highlights the

distinction between *primary cognitions* and *secondary cognitions*, or between cognition and metacognition (Briñol & DeMarree, 2012; Petty, Briñol, Tormala, & Wegener, 2007).

Primary cognitions refer to the initial thoughts themselves, whereas secondary cognitions involve judgments and evaluations of the primary cognitions. These secondary cognitions can take many forms that influence the persuasion process. In particular, thoughts (or “primary cognitions”) can be judged on their perceived valence, on how many there seem to be, on their perceived target (i.e., what the thoughts are about), on where they seemed to come from, on how confidently they can be held, and on how desirable they are, each exerting effects on the persuasion process (Petty et al., 2007; Wagner, Briñol, & Petty, 2012). Although there are a number of judgments that people can make about their thoughts, most persuasion research has focused on one particular metacognitive factor—the confidence people have in their thoughts. Confidence in thoughts is important because as thoughts are held with greater confidence, people are more likely to use those thoughts in forming their attitudes and other judgments (Petty, Briñol, & Tormala, 2002). In contrast, when people doubt the validity of their thoughts, their thoughts are less likely to have an impact on judgments.

Although this research has uncovered the many ways in which people feel and think about their own thoughts, mindfulness is characterized by the *nonjudgment* of thoughts. Linking the distinction between primary and secondary cognitions to mindfulness, Bishop et al. (2004) write that a state of mindfulness is said to “*inhibit secondary elaborative processing* of the thoughts, feelings, and sensations that arise in the stream of consciousness” (p. 233). Relatedly, some proponents of mindfulness-based therapies have suggested that thoughts can be treated as material objects (Brown, Ryan, & Creswell, 2007). This allows clients to separate themselves from their thoughts by treating those thoughts more objectively. In a recent series of studies testing the application of this approach to attitudes, Briñol, Gascó, Petty, and Horcajo (2013) asked people to write down either positive or negative thoughts about Mediterranean diets. Upon doing so, they were randomly assigned to one of three conditions. In one, they were asked to take the page on which they wrote their thoughts and place it in a trash can, “throwing away” their thoughts. In the other condition, they were asked to take the page on which they wrote their thoughts, fold it up, and keep it in a safe place such as their pocket, wallet, or purse. In the third, control condition, participants were asked to merely fold the corners of the page where the thoughts were written and leave it on the table. After performing one of these actions, all participants were then asked to rate their attitudes regarding the Mediterranean diet. As expected, results indicate that when people in the control condition were asked to generate positive (vs. negative) thoughts about the topic, they later reported more positive (vs. negative) attitudes. How thoughts were treated (as if they were material objects), however, had a significant impact on how those thoughts influenced attitudes. For people who kept their written thoughts close to them, those thoughts had a more pronounced effect on attitudes than in the control condition. In contrast, for people who placed their written thoughts in the trash, the effect of the thoughts on attitudes was attenuated compared to the control group.

Consistent with the idea that mindfulness treatments promote a more objective and distant relationship with people’s own thoughts (e.g., Brown et al., 2007), this

research showed that detaching and separating (in this case, literally) from one's negative thoughts can produce more positive evaluations. Importantly, the very same treatment (thought disposal) produced the opposite effect when thoughts were positive. This finding suggests that techniques involved in some mindfulness treatments can backfire at least for some people and for some situations, particularly those in which positive thoughts are present. The research by Briñol and colleagues (2013) also suggests a new, simple strategy for magnifying thought impact by having people develop a closer relationship with their positive thoughts (e.g., carrying them).

It seems obvious from these results that it is important to know which specific processes are responsible for the reported effectiveness of clinically relevant mindfulness treatments. It is also important to consider that mindfulness researchers have proposed that merely distancing oneself from thoughts may not always be mindful. Rather, there can be a difference between distancing the self from one's thoughts and disconnecting oneself from one's thoughts (Shapiro et al., 2005). Further research is needed to address this distinction in the treatment of one's thoughts and the effects it can have on resulting attitudes.

Elaboration Likelihood Model of Persuasion (ELM)

As noted earlier, the available literature has suggested that attitudes are sometimes changed by relatively low thought mechanisms, but at other times they are changed with a great deal of thinking. Sometimes the thinking is relatively mindless, and sometimes it is more mindful. Notably, the accumulated research on persuasion shows that sometimes variables such as using an attractive source or putting people in a good mood have a positive effect on persuasion, but sometimes the effect is negative. In order to understand these complexities, contemporary multiprocess theories of persuasion were developed. As anticipated earlier, we use one of these theories—the ELM—to organize the literature.

The ELM (Petty & Cacioppo, 1986) was developed in an attempt to integrate the literature on persuasion by proposing that there are a finite set of processes by which variables can affect attitudes and that these processes require different amounts of thought. Thoughtful persuasion was referred to as following the *central route*, whereas low-thought persuasion was said to follow the *peripheral route*. A common finding in research guided by the ELM is that when people are motivated and able to think about a message, their attitudes are influenced by their assessment of the merits of the appeal, but when they are relatively unmotivated to think, attitudes are influenced by simple cues in the persuasion setting (see Petty & Wegener, 1999; Petty & Briñol, 2012, for reviews).

The ELM is an early example of what became an explosion of dual process and dual system theories that distinguished thoughtful from nonthoughtful persuasion (see Chaiken & Trope, 1999; Sherman, Gawronski, & Trope, in press).¹ According to the ELM, the extent of thinking is important not only because it determines the route to persuasion and the process by which a variable affects attitudes, but also because more thoughtful persuasion tends to be more consequential. Specifically, attitudes changed with high thought tend to be more persistent over time, resistant to change,

and predictive of behavior than attitudes changed by low thought processes (Petty, Haugvedt, & Smith, 1995).

In the remainder of this section, we outline the ways in which the ELM specifies that a variable relevant to mindfulness (our own body) can affect the extent of persuasion. We will review some of the main roles our body can serve in the persuasion process, including (1) serving as simple cues to the merits of a proposal, (2) affecting the direction of the thinking, (3) affecting the amount of thinking that takes place, and (4) affecting evaluations of the thoughts generated.

Body Awareness and Persuasion

One effect of mindfulness that has not yet been discussed is the association between mindfulness and body awareness. Hölzel et al. (2011) proposed that mindfulness can increase one's body awareness (i.e., the ability to notice one's own bodily sensations), noting, for example, that several items in the Five Facet Mindfulness Questionnaire (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) are directly related to the experience of body awareness. Not only do people who practice mindfulness meditation report a change in their awareness of bodily sensations (Hölzel, Ott, Hempel, & Stark, 2006, as cited in Hölzel et al., 2011), but some recent neuroscience evidence implies a relationship between mindfulness and neural regions previously associated with interoception (insula) and other bodily sensations (secondary somatosensory cortex; Farb et al., 2010; Gard et al., 2011; Grant, Courtemanche, Duerden, Duncan, & Rainville, 2010). Although this evidence is only suggestive, it supports the proposed mindfulness–body awareness link, making bodily awareness an interesting component of mindfulness that warrants attention and one that can extend to other areas of research as well.

Within the realm of attitudes and persuasion, a substantial amount of research has considered the role that the bodily responses of the recipient of persuasion play in forming and modifying attitudes. Specifically, the posture, movement, and actions of one's body can influence both the way in which the person processes persuasive communications and the resulting attitudes. These processes have been referred to as *embodied persuasion* (Briñol & Petty, 2008). An early example of this work revealed that when individuals were asked to move their heads up and down (supposedly in order to test the quality of headphones) while listening to a persuasive message, they became more favorable toward the topic of the message than individuals who were asked to move their heads from side to side (simulating the movements associated with shaking “no”) while listening to the same message (Wells & Petty, 1980). Just as we like things better when nodding (vs. shaking) our heads, when we smile or approach something, we tend to have more positive attitudes than when we frown or perform an avoidant behavior. Thus, making smiling expressions or moving things toward us can produce more favorable attitudes (e.g., Cacioppo, Priester, & Berntson, 1993). Similar findings have been found for a large number of behaviors, postures, and body movements.

These effects of embodied persuasion can be understood both through a more traditional mindfulness framework and through the ELM. Consideration of each approach

should stimulate theory when it comes to understanding how one's body can impact attitudes. The mindfulness framework might predict that the impact of body manipulations such as the direction of one's head movements would depend on a person's body awareness, which increases with mindfulness experience. It is important to know that mindfulness theory has suggested that a radical mind–body dualism is a relatively mindless notion and that a more mindful approach is to consider the two concepts as more closely integrated with a reciprocal influence between processes traditionally defined as "body" (i.e., embodied) and "mind" (i.e., cognition; see Langer, 1992). Consistent with an integrated mind–body approach, some research on emotion has demonstrated that embodiment effects are moderated by individual differences in body awareness (for an extensive review on individual differences in persuasion, see Briñol & Petty, 2005).

In relevant work, Laird and Bresler (1992) have reported that people differ consistently and stably in how large an impact a bodily state will have on a variety of cognitive processes (including metacognitive processes) relevant to attitude change. These differences were first identified in research on emotion. In a series of studies, they found that when people were induced to engage in emotional behaviors, some reported feeling the corresponding emotions, whereas other people were unaffected by their behaviors. These differences in the extent to which the body affected the experience of emotion have been found in people's response to manipulations of their facial expressions, postures, tone of voice, patterns of gaze, and level of autonomic arousal. Furthermore, these individual differences have been related to a number of psychological constructs, such as field independence and private self-consciousness, and to other factors, such as body weight (e.g., Duclos & Laird, 2001; Schnall & Laird, 2003). For example, inducing an internal state of disgust (vs. control) led people to make more severe moral judgments, but this effect held only for those who reported to be relatively more sensitive to their own bodily responses (Schnall, Haidt, Clore, & Jordan, 2008). Future research should further clarify whether participants with greater awareness of their bodily responses felt more disgust or if they experienced the same level of the emotion but used it to a greater extent to inform their moral judgments.

Taken together, these studies suggest that body awareness can increase the effects of body responses on judgment. However, it is important to note that body awareness could also lead to decreased effects of bodily postures and movements on some occasions. For example, when thinking carefully, people can be influenced by their own bodily information such as smiling when rating how good they look that day. In those cases, greater sensitivity to one's body can increase its subsequent impact on judgment. However, if people believe that their judgments are somehow being biased or influenced by their bodily feelings, and they do not want this to occur, they may adjust their judgments in a direction opposite to the expected bias (*correction processes*; Wegener & Petty, 1997). In these cases, greater sensitivity to the body might reduce its impact on judgment. Similar to research on priming showing that sensitivity to external inductions can increase or decrease its impact on judgment (Lombardi, Higgins, & Bargh, 1987; Petty, DeMarree, Briñol, Horcajo, & Strathman, 2008), future research should examine the conditions in which body awareness increases or decreases embodied persuasion.

The effects of embodiment on attitudes can also be understood through the ELM, identifying how one's body can influence persuasion at various levels of elaboration. According to the ELM, when people are at a low level of elaboration (i.e., under low thinking conditions), signals from one's body can serve as simple cues that can be associated with an object of evaluation. For instance, when people viewed a neutral image (i.e., a Chinese ideograph), whether they were pulling up on a table versus pushing down on a table affected attitudes toward the image such that those who were pulling their arms toward themselves had more positive attitudes than those who were pushing away (Cacioppo et al., 1993). In another illustration, Strack, Martin, and Stepper (1988) had individuals hold a pen either between their teeth or between their lips, activating or inhibiting facial muscles usually associated with smiling. Their results demonstrated that those who activated smiling muscles judged cartoons as more humorous than those who inhibited smiling muscles. These results often have been interpreted as the result of classical conditioning. Aside from using mere associations with arm flexion, smiling, or head nodding, people can also rely on simple heuristics about their bodily states when forming or changing attitudes (e.g., if my heart is beating fast, I must like this object; Valins, 1966). Thus, the body can serve as a simple cue to persuasion when motivation and ability to think are low.

When elaboration is not constrained, bodily sensations can affect how much a person thinks about a persuasive message. One such bodily state relates to posture. In an early study, for instance, people showed greater processing of an audio message when they were lying down (powerless posture) versus standing up (powerful posture; Petty, Wells, Heesacker, Brock, & Cacioppo, 1983). Other research also found that posture affects thinking such that people in an upright posture (vs. slumped over) spend more time pursuing cognitive tasks (Riskind & Gotay, 1982). Consistent with the idea that posture can affect thinking, another recent study showed that participants holding a heavy clipboard (a body sensation metaphorically associated with effort) were differentially persuaded by the strength of the message arguments (i.e., suggesting that they paid careful attention to the message), whereas those holding a lighter clipboard were not (Jostmann, Lakens, & Schubert, 2009).

Under conditions of high elaboration, body responses can bias the valence of a person's thoughts in response to a message. For instance, when people are asked to categorize words as good or bad, they are quicker to categorize positive words as good while enacting an "approach" motion (e.g., flexing one's arm or pulling a lever towards oneself) and quicker to categorize negative words as bad while enacting an "avoidance" motion (e.g., extending one's arm or pushing a lever away from oneself; Chen & Bargh, 1999; Neumann & Strack, 2000). Thus, this research suggests that when a person is engaged in thinking, their bodily movements can facilitate the generation of thoughts in a particular direction, a phenomenon likely to be of great consequence in persuasion domains wherein thoughts of a particular valence are strongly linked with resulting attitudes (Petty et al., 1981).

Finally, a person's body can affect attitudes not only by biasing the content of primary cognitions but also by affecting the evaluations of those thoughts. That is, bodily responses can influence secondary cognitions as well as primary cognitions. In particular, body movements and posture can affect reliance on thoughts through a self-validation process. In the first series of studies on embodied validation, Briñol and

Petty (2003) found that head movements could affect the confidence people had in their thoughts and thereby have an impact on attitudes. Specifically, when people listened through headphones to strong arguments advocating that students be required to carry personal identification cards on campus, vertical head movements led to more favorable attitudes than horizontal movements, as would be expected if vertical movements increased confidence in one's favorable thoughts. However, when people listened to weak arguments in favor of the identification cards, vertical movements led to less favorable attitudes than horizontal movements, as would be expected if vertical movements increased confidence in one's negative thoughts.

Similar validation effects have been shown for other embodiment variables like body posture such that sitting in a more confident posture (sitting up straight) as opposed to sitting in a more doubtful posture (sitting slouched forward) led to greater thought confidence and subsequently more thought-consistent attitudes (Briñol, Petty, & Wagner, 2009). As noted, body movement and postures can operate through multiple processes, including affecting thinking. Therefore, it is important to specify the conditions under which the body is likely to operate through these primary cognitive processes or though more metacognitive processes such as self-validation. One of the moderating conditions identified so far is the timing of the bodily induction. That is, the confidence that emerges from the body should be salient *following* (or at least during) thought generation rather than prior to thought generation.

In research illustrating this aspect (Paredes, Stavraki, Briñol, & Petty, 2013), participants were first exposed to a story that elicited mostly positive thoughts (about an employee's good day at work) or negative thoughts (about an employee's bad day at work). After writing their thoughts, participants were asked to hold a pen with their teeth (smile) or with their lips (control). Finally, all participants reported the extent to which they liked the story. In line with previous work showing that happiness can validate thoughts (Briñol, Petty, & Barden, 2007), it was predicted and found that the thoughts participants generated affected evaluations of the story only among those in the smiling condition. It is important to emphasize that the induction of smiling in this study followed (rather than preceded) the processing of the story, making it unlikely that the thoughts generated in response to the stories were affected by something that did not take place until later. Indeed, bodily responses are more likely to operate through a self-validation process when induced after (vs. before) thinking (see Briñol, Petty, & Wagner, 2012, for a review on embodied validation).

In sum, at each level of elaboration, a person's bodily movements, sensations, and responses can play a unique role in the attitude-change process. Given the relationships between mindfulness and body awareness that have been proposed, the means by which the body can affect evaluations should be of interest to mindfulness researchers, especially because of evidence that suggests the effects of embodiment are strongest among people most attentive to their own bodies. Presumably, if mindfulness does indeed foster greater body awareness, with increased mindfulness, there may also be an increased influence of one's body on attitudes and persuasion processes. Further research, however, is necessary to establish whether or not this is the case.

In conclusion, we have seen how the body can influence attitudes by serving as a simple cue, by affecting either the amount or direction of thinking, and by affecting what people think about their own thoughts (i.e., metacognition). Consistent with

the ELM, these psychological processes relevant to embodied attitude change operate at different points along an elaboration continuum. Under low thinking conditions, bodily responses, like other variables (e.g., source attractiveness), can influence attitudes via a variety of low-effort processes. When the likelihood of thinking is relatively high, these same bodily responses can impact persuasion by affecting the direction of the thoughts that come to mind or the validation of those thoughts. Furthermore, body postures and actions can influence attitudes by affecting the amount of thinking when elaboration is not constrained to be very low or high. As should be clear by now, understanding these processes is essential in order to predict *whether*, *when*, and *how* attitudes will change, as well as to predict whether, when, and how attitudes will result in further behavioral changes.

Note

1. See the *unimodel* by Kruglanski and Thompson (1999), for a “single-process” approach to understanding high versus low thought persuasion; and see Petty, Wheeler, and Bizer (1999) and Petty & Briñol (2006), for discussions.

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15

Mindfulness and Heuristics

Wray Herbert

A while back, some friends and I attended a jazz concert at a venue in Virginia's Piedmont region, about an hour from Washington, DC. This is rolling farm and horse country, and the campus entry was a narrow curving road. I was enjoying the late afternoon sunshine on the lawns and trees, when an unlikely road sign snapped me to attention. It was an otherwise inconspicuous sign, except for the speed limit it posted: 14 mph.

We slowed down, suddenly mindful of the speedometer, which of course was the intention. Later on, when I was back at my desk, I decided to do just a little bit of Internet research. It turns out that such peculiar speed limits are not vanishingly rare. A Grifton, North Carolina, RV park sets its limit at 7 mph. A Bend, Oregon, resort sets it at 19 mph. A Pike Road, Alabama, residential development, imposes an 18 mph limit, and another in Erie, Pennsylvania, 13 mph.

I have no way of knowing if these are part of a larger trend, or if the planners in these communities have any formal training in psychological science, but they clearly have an intuitive grasp of the human mind—and specifically the way we process information and make choices. Had the sign in Virginia set the speed limit at 5 mph, 10 mph, or 20 mph, none of us would have noticed, much less slowed down. We would have continued along on auto-pilot, and there's a good chance we would have exceeded the speed limit. As it was, we not only noted and honored the odd restriction but discussed it and remembered it.

We go through much of our lives on auto-pilot. It's not always as literal as in this example, though piloting planes and cars is not a bad metaphor. All of life's piloting is in essence a series of judgments and decisions, and most of them we make rapidly and mindlessly. This is for the most part a good thing—essential to daily functioning, in fact. Think of your daily commute—or any other drive you make regularly. How much of it do you actually process consciously? Chances are, very little. You leave home and

arrive at your destination. The decision-making in between—shifting gears, signaling and making turns, following a route, braking—takes place outside of awareness, automatically.

The pioneering work of Harvard University psychological scientist, Ellen Langer, revealed that mindlessness is not limited to rote behavior, like typewriting. Indeed, what she called “pseudothinking” encompasses fairly complex evaluations of others’ motivations (Langer, Blank, & Chanowitz, 1978). In her landmark study of favors—requests and responses—she demonstrated that even decisions to help others are automatic, under certain circumstances. Langer had confederates approach people who were waiting in line to use a photocopying machine, asking if they could cut ahead. Sometimes these line cutters gave an explanation—“I’m in a rush”—while other times they gave an uninteresting and meaningless explanation—“I need to make copies.” When the request was not a big imposition—five copies, say—almost all of the people said okay, even when offered the nonexplanation. They could well have said, “Well, I obviously need to make copies, too, or I wouldn’t be standing in line,” but they didn’t; they stepped aside (Langer et al., 1978).

These results suggest that we all use a simple script for such simple requests: We say yes, no matter what the reason. If the workers had mindfully examined the request—weighing its merits, their own work demands, and so forth—they probably would have refused those with a lame reason for cutting in line.

If we didn’t make decisions this way, we would be paralyzed. Imagine that every time you went to the grocery store, you had to weigh every decision: the nutritional value of this cereal compared to that one, or that other one; the cost of this yogurt compared to that one, or compared to something else entirely? We don’t want to make these informed but labored choices over and over, so we rely on cognitive rules of thumb, or heuristics.

But there are other times in life when we want and need to slow down our thinking, and scientists are homing in on methods for doing this. Consider those speed limits again. What the planners in those RV parks and condominium communities and hospital zones knew intuitively was something called the Pique Technique, first described by social psychologist, Michael Santos, nearly two decades ago (Santos, Leve, & Pratkanis, 1994). It’s called that because strange requests—or commands in the case of the speed limits—are believed to literally pique our attention, snapping us out of the automatic scripts we use to get us through so much of life. A 14-mph speed sign arrests our attention, just as a child darting across the road would, more dramatically, forcing us to slow down our thinking and become more deliberate.

The original research on the pique technique focused on panhandlers. The scientists recruited confederates to pose as panhandlers on the wharf in Santa Cruz, California. The wharf is a very popular spot in this beach community, for both locals and tourists, and there are a lot of down-and-out panhandlers trying to beg spare change. Most people use an unconscious, automatic schema—a kind of heuristic—to deal with begging, which is to avoid eye contact, keep walking and talking, and otherwise ignore the beggars’ requests. This is known as a refusal script—“I say no to panhandlers”—but it allows us to say no without really engaging the panhandlers in any real way. This refusal script is evident on Santa Cruz’s wharf, because panhandlers are so prevalent that it would be difficult to acknowledge even a fraction of them.

But Santos and colleagues found a way to stop the scripted version. Instead of asking for spare change or “a quarter”—the usual requests—the experimental panhandlers made either of two requests: “Can you spare 17 cents?” or “Can you spare 37 cents?” Santos compared the outcomes of these strange panhandlers’ requests to the “traditional” requests for “any change” or “a quarter.” Note that one surprising request was for more than a quarter, one for less—controlling for the value of the money requested.

The results were dramatic. When asked for spare change, the compliance rate was 44%. That rate increased to 64% when faux panhandlers asked for a “a quarter,” and when they asked for 17 cents or 37 cents, the compliance rate reached 75%. That is, three out of every four people gave money in a situation where they are scripted to refuse automatically.

This heuristic script is not part of human nature, as far as we know. We almost certainly learn, based on many experiences, not to invest time and effort weighing every panhandler’s request, just as we avoid investing time and effort in grocery shopping. Princeton social psychologist, Susan Fiske, once described humans as “cognitive misers”—meaning we’re very stingy with our brain power (Fiske & Taylor, 1991). It’s a limited resource, and it’s cognitively much more efficient to divert our attention or mumble something incomprehensible, instead of listening to a personal story and weighing the merits of the request. Stopping to listen is effortful, and we’re much less generous with our effort than we are with loose change.

It’s not exactly clear what’s going on in our heads when we stop our scripted actions and begin to question our heuristic responses. Are we really stopping to ask more questions? Engaging with another human’s story in a meaningful way? Santa Clara University psychologist Jerry Burger and colleagues raised these questions and more in a recent paper on the pique technique and mindfulness (Burger, Hornisher, Martin, Newman, & Pringle, 2007). Santos, in his Santa Cruz panhandler studies, concluded that the technique worked because it aroused curiosity and refocused attention, but the Santa Clara researchers weren’t so sure of this. They wanted to look more closely, and did in a couple experiments.

Santos had also found that passers-by asked more questions when confronted with a peculiar request from a panhandler. They wanted to know why these people needed money, suggesting some kind of mindful engagement with their lives. But listening—really listening and weighing pros and cons of a request—takes cognitive effort. Burger and colleagues wondered if the passers-by were really making this effort, so they did a modified version of the panhandler study. When passers-by asked about the unusual request, the panhandlers either gave a reasonable answer—“I need to buy a stamp”—or gave a meaningless one—“I need to buy some things.” If the pique technique really leads to mindful deliberation and thus to compliance, one would expect compliance following a meaningful explanation only.

That’s not exactly what they found. The pique technique did work as predicted, and as previously shown, but the panhandlers’ explanations did not make any difference. Those who bothered to ask about the request went on to give money, regardless of the meaningfulness of the panhandlers’ responses. In other words, they weren’t really looking for a convincing argument from the panhandlers, and they didn’t mindfully weigh the responses. The very act of asking was a sign that they had already made up their minds to give.

So, what affected their decisions? What were they thinking, if not about the worthiness of the panhandler's need and request? Burger suggests a couple of possibilities. One possibility is that, rather than slowing down and considering the panhandler's request in a mindful way, the subjects simply switched to a different script—one that's been called an "acquaintance script." The acquaintance script says basically, "I help people I know" and leads to knee-jerk compliance. Compellingly, even strangers can qualify as "people I know" after just a few moments of dialogue, and indeed these researchers found a boost in generosity only among those who asked for an explanation.

It's also possible that those who gave money had already decided to give before asking for more information. That is, perhaps the kind of person who engages in conversation with a panhandler is the kind of person who responds to an unusual request for money. It's not clear, but it does seem that people who respond to the pique technique do so effortlessly—they are just as miserly with their cognitive resources as the rest of us.

The early work of Ellen Langer and Robert Abelson demonstrated just how common such scripts are in everyday life—and how arbitrary they can be. These scientists demonstrated in a 1972 study that the decision to help an accident victim—or not—can be determined by something as simple as the word order of the victim's request, even when the meaning of the request remains unchanged. They had confederates feign a knee injury in a department store and ask for help from passing strangers. Bystanders were much more likely to help in response to legitimate requests in which the syntax put emphasis on the victim's need and distress over the call for assistance (Langer & Abelson, 1972).

These scripts are a form of what some behavioral scientists label System 1 thinking. System 1 thinking is fast, automatic, impressionistic, emotional, and usually unconscious—and for better or worse, it's our primary mode of cognition. It's "on" most of the time, unless we make the conscious decision to slow down, deliberate, or calculate rationally. System 1 thinking relies not only on cultural scripts that we learn, but also on more deep-seated heuristics and biases—some of which may have been evolutionary adaptations. Much of the work on heuristics and biases derives from the pioneering early work of Daniel Kahneman and the late Amos Tversky, but others have identified dozens of these deep-rooted habits of mind—cognitive shortcuts—that shape much of our day-to-day thought and behavior (Kahneman, 2011; Kahneman & Tversky, 1979).

This is the sense in which I use the word *mindful* in this article. These automatic cognitive biases can be very helpful—in the sense that they conserve mental energy—but they are mindless, and can be perilous, leading to bad decisions. To live mindfully is to be aware of these heuristics and biases, and cultural scripts, and to de-bias them when more deliberate judgments and decisions serve us better.

Take another example: Scientists and clinicians are interested in the dynamic interaction of perception and aggression. Looking for trouble, and seeing it, may be a deep cognitive bias—a negativity bias—that distorts normal emotional processing. Indeed, some experts wonder: Does seeing anger and hostility in others actually elicit angry feelings and aggression, creating a vicious, self-fulfilling, cycle? In other words, do some people act mean simply because they see the world as a mean place?

A team of psychological scientists in the UK decided to find out. Led by Marcus Munafo of the University of Bristol, the investigators ran a series of experiments to verify if such a negativity bias does in fact lead to aggressive behavior and, further, to see if such distorted emotional processing might be corrected (Penton-Voak et al., 2013). They did this by having a group of healthy adults look at, and react to, pictures of morphed faces. Think of your own facial expressions. Some are clearly happy, others unambiguously angry. But these are extremes, and most are somewhere in between—with some being very difficult to read at all. The volunteers looked at a lot of these ambiguous, difficult-to-interpret faces and were forced to label them happy or angry.

This determined each volunteer's baseline level of negativity bias—how likely they were to see anger in ambiguous faces. Then, the scientists trained some, but only some, of the volunteers—using feedback to nudge them away from this negativity bias. When they labeled a neutral face as angry, the feedback indicated that this was not correct—that it was in fact a happy face. Over many trials with many different faces, these volunteers learned to see happiness in some of the ambiguous faces that they previously identified as angry.

Or at least that's the theory behind the intervention. To check, the scientists retested all the volunteers, using similar morphed faces. The results were intriguing. Those who underwent training showed a clear shift, compared to controls, in perception of anger. They were more likely to label ambiguous faces as happy rather than angry. What's more, these de-biased volunteers were themselves less angry and aggressive, as measured by an emotional inventory. In other words, it appears that the intervention did modify the volunteers' negativity bias, which could lead to beneficial changes in behavior.

The volunteers in this first study were healthy adults, like you and me, with no history of aggression or violence. How would such an intervention work with people known for their anger and belligerence? Munafo and colleagues decided to test the training on a group of teenagers who were already at high risk for adult criminality. The volunteers had all been referred to a youth program for delinquent teens, either by the courts or by schools, and many already had records of aggression and criminal offenses.

The training was basically the same as before, except that it lasted longer—four sessions over a week's time. The teenagers also kept a diary over this time, noting every incident of anger and aggression, from verbal abuse to physical assault. Staff members at the youth program also rated each of the volunteer's behaviors, to corroborate the teenagers' self-reports. These diary entries and staff observations continued through the final reevaluation two weeks later.

The results were very encouraging, and theoretically interesting. Those who received the bias-modification training shifted their perceptions, seeing less anger in ambiguous faces. In addition, these teenagers were much less aggressive—based on both self-reports and staff assessments—when they were assessed two weeks later. Two weeks is not a long time, but these findings do raise the hope that these training effects will persist, even with adolescents at high risk for conduct disorder and lives of crime.

Both of these experiments relied on explicit feedback to change the way volunteers judge others' emotions. The scientists wonder if it might be possible to get the same

result with another approach, specifically by making volunteers adapt visually to angry faces. It's known that prolonged viewing of any image alters the perception of related images afterward, so the scientists forced some volunteers—healthy adults again—to focus on angry faces only, while controls looked at a mix of emotional faces.

The results were essentially the same. Those who were forced to adapt to angry faces subsequently shifted their emotional perception, seeing more happiness in ambiguous faces. And once again, they themselves were less angry and aggressive.

So, did the training break the vicious cycle of perceived anger and aggression? Did it create a “virtuous cycle,” boosting perceived happiness and diminishing aggression? It's not certain, but that's how the scientists would like to interpret the results, and they see an intriguing parallel in the working of antidepressant drugs. It's been proposed that medication leads to rapid changes in emotion processing biases, which in turn allows cognitive changes that improve mood. That is, improvement in mood results from changes in emotion perception, not the other way around. These new findings suggest a similar mechanism at work with aggression. If so, these results might point to a simple, fast, and cost-effective way to keep the troubled from looking for trouble.

The negativity bias is well known and well documented. But let's turn to another, less obvious heuristic, with large implications for the way we live our lives. Baby boomers are right now starting to reach retirement age, and huge numbers will cross this threshold in the decade ahead. But retirement is an odd notion when you think of it, and a modern one in the scheme of human history. For our ancestors, the idea that you had earned enough money for one lifetime, that it was OK to stop working and enjoy the fruits of your labor, would have been incomprehensible. Indeed, until quite recently the deal was: You worked, you ate and otherwise consumed what you had earned, and then you worked some more. Then, you died.

This is still true for way too many of the world's people, who continue to live hand to mouth. But there are also many more people—and a growing number every year—who don't really have to work anymore, but do, who forgo the leisure of their golden years to earn yet more money. The per capita GDP worldwide has increased 200 times in the past two centuries and continues to grow, meaning that there are many people who have more wealth than they will ever live to enjoy.

So, why not just stop working and earning? Why do people keep toiling long beyond when they have to? Of course, the lucky ones do it because they love their work, and others want to bequeath something to their kids or hedge against misfortune. But what about those who lack these motivations but earn too much money anyway?

Psychological scientist, Christopher Hsee, of the University of Chicago's Booth School of Business, is interested in these workers. Working with colleagues at the University of Miami and Shanghai Jiao Tong University, he wanted to explore the possibility that working people are driven by some powerful, deep-rooted need to keep working and amassing wealth (Hsee, Zhang, Cai, & Zhang, 2013). Is it possible, they asked, that unthinking accumulation of money is the mind's default position?

To study this question, Hsee developed a stripped-down laboratory simulation of the big question facing baby boomers all over the country: if and when to retire. Let's call it the Retirement Game. Many are familiar with the Ultimatum Game, which is a similar simulation for studying people's selfish and unselfish motives. It does not

pretend to capture real life in all its complexity but instead isolates human choice in its most basic form. That's what the Retirement Game does, as well. It's a microcosm of a lifetime, in which people must make decisions about how much to work, for what rewards, and when to quit.

Here is how the Retirement Game simulation works. One by one, volunteers come into the lab and don a pair of headphones. During the first 5 min of the experiment—the earning phase of life—they can choose to relax and listen to pleasant piano music or to disrupt the music and listen to grating noise. The music is meant to simulate leisure, the noise work. Whenever volunteers are listening to noise, they earn “income” in the form of chocolates. Then, in the second 5-min phase, they get to enjoy the rewards of their hard work, eating as much of their amassed chocolate as they like. Hsee ran several versions of this simulation to explore different aspects of decision-making about work and retirement.

In the first and simplest, some volunteers were much better earners than others. They banked a chocolate for every 20 episodes of noise, while their low-earning counterparts had to endure 120 episodes of noise for the same chocolate. The idea was to see if earning rate had any effect on retirement decisions, and it clearly did. Those who were well paid were much more likely to keep working—and to sock away more than they needed. In fact, they earned so much that they ended up leaving much more on the table than they ate. This is the equivalent of working until the day you die, amassing a lot of wealth but enjoying little of it. It's what Hsee labels mindless accumulation.

The low earners also earned more than they needed or wanted for enjoyment, though not as much as the high earners. This suggests that everyone has some bias toward mindless accumulation, regardless of their earning power. Hsee wanted to see if this automatic bias might be modified, so in a second study, some of the volunteers were asked beforehand to predict the optimal rewards they would want, while others were just left to their own devices. Hsee suspected that merely thinking about how much accumulated wealth they would want and need might temper mindless earning.

The findings were clear. Those who stopped to think about the future and how much wealth they would really need earned less over their “lifetime” than those who did not deliberate. In fact, they stopped earning almost exactly at the optimal level, while those who did not think about the future continued to accumulate excessively. In other words, they did not automatically forecast what they would really need. Finally, and most importantly, those who slowed down and thought about these issues—work, wealth, need—were happier than the others. The more people earned, the less happy they were. Apparently, it's not true that having financial bragging rights—who has the most toys—is in itself a source of joy.

Hsee ran a couple more versions of the Retirement Game. The most important additional finding was that if people are required to stop earning (if there is an earnings cap that kicks in when people have earned enough to satisfy their needs for a lifetime), they will realize that more work is pointless, and they stop. It seems that people, or volunteers in the Retirement Game, at least, did not enjoy working simply for the sake of working. What's more, the people who had a cap on their wealth accumulation were happier, both while they were earners and later in retirement.

This never-stop-working heuristic is probably rooted in our evolutionary past. Our ancestors lived in a world of scarcity, and their pervasive neediness lingers and shapes

much modern thought and behavior. Here's another example. Everyone knows by now that the U.S. is in the midst of an obesity epidemic, but for all the hand wringing, nobody really knows why. Experts have offered many theories about why Americans eat too much, especially too much fattening food, but these remain theories. It's because Americans are ill-informed about diet and nutrition, and simply do not understand that double cheeseburgers are loaded with fat and calories. Or it's because we're constantly bombarded with stimulating ads for tempting but unhealthful snacks. Or it's because we simply lack the self-discipline of earlier generations. Or all of the above.

Or perhaps something else entirely. Two University of Miami marketing experts, Juliano Laran and Anthony Salerno, are now offering a new and provocative idea about why Americans make poor food choices, along with some preliminary evidence to back it up (Laran & Salerno, 2013). They contend that the news we're exposed to every day, specifically information about the economic crisis, adversity, and struggle in a harsh world, is triggering a live-for-today mindset that makes us short-sighted about diet. For reasons rooted deep in our evolutionary past, living in a harsh world makes us focus on immediate reproductive success, which makes us fiercely competitive for scarce resources. This sense of immediacy makes us dismiss the future and focus on the here and now, including a filling diet rich in calories. Once adaptive, this life strategy leads, in modern-day America, to too many French fries and helpings of chocolate mocha ice cream.

At least that's the theory, which the psychological scientists tested in a few experiments. In the first one, they invited passers-by to join in a taste test for a new kind of M&M. Half the volunteers were given a bowl full of this new candy and were told that the secret ingredient in the new M&Ms was a new, high-calorie chocolate. The others, the controls, also got a bowl of M&Ms, but they were told that the new chocolate was low-calorie. All the volunteers were told that they could sample the product until the next part of the study.

This was a ruse. The scientists were actually measuring their consumption. But during this waiting period, some read a text that emphasized harshness and deprivation, with words like "survival," "persistence," "shortfall," and "adversity." The controls read a text with neutral words. The idea was that those who were subconsciously primed to think about scarcity and struggle would eat more if they were offered high-calorie food, more than if they were offered a low-calorie option. And they did. They also ate more of the high-calorie candy than did controls, and less of the low-calorie candy. In other words, they were responding to their (perceived) world of deprivation by packing away the calories.

Excessive consumption of chocolate can lead to obesity. But isn't it possible that chocolate eaters are simply seeking pleasure, indulging themselves rather than coping with a scarcity of food? The scientists wanted to make sure that the high-calorie eating was related to perceived deprivation rather than mere indulgence, a possibility they addressed in a second study. They again primed some volunteers to think about a harsh world of scarce resources, while others were primed to think about comfort, enjoyment, pleasure, and indulgence. Then, half the volunteers in each group were given a small amount of money, which was intended to satisfy their psychological need for resources and thus diminish their calorie seeking.

The scientists tested this by offering all the volunteers a choice between a garden salad and cupcakes. As predicted, those primed for a harsh world were less likely to choose cake if they were given monetary resources than if they were not, suggesting that they didn't need the calories to cope with deprivation. Those primed for pleasure seeking were, like the controls, just as likely to take the cake if they had been paid or not. In short, the deep psychic need for scarce resources is altogether different from mere indulgence in taste. Even a tiny amount of money appears to decrease calorie seeking.

So, is there a way to put these findings to good use, to deliberately decrease calorie seeking? Perhaps so. In a final experiment, Laran and Salerno tried to reverse the short-sighted scarcity bias that leads to high-calorie eating. They again primed only some volunteers to think about scarcity. Then, they used a second kind of priming to make some of these scarcity-minded volunteers, and some controls, focus on the slow passage of time; others were primed to think about the rapid passage of time. The idea was that taking the long view of time would undo the sense of urgency leading to unhealthful eating. And that's what they found. When offered a choice of salad or a cheese-and-turkey sandwich, the scarcity-minded volunteers opted for the high-calorie sandwich only when mindful of fleeting time. If they were primed to think of time as slow and plentiful, they were much less likely to opt for the immediate calories, and more apt to eat salad. Looked at another way, reorienting people's distorted sense of time and urgency is a strategy that appears to help them make healthful food choices.

The world can seem like a competitive and unforgiving place these days, with so many people out of work and the economy struggling. All Americans have to do is turn on the TV to get daily reminders of the world's cruelty and suffering. While it's not clear just how these findings might translate into strategies to undo this unrelenting daily priming, these findings suggest that it may not be enough simply to inform people about the calories and nutrition in this or that food and expect them to make disciplined food choices.

This is also true of another serious personal and public health problem—alcoholism—which appears to be driven in part by mindless, automatic decision-making. Imagine this scenario: You're at an informal social gathering, and you wander into the kitchen in search of a cold Coke. You open the refrigerator, but there are no soft drinks to be found. Instead, you face a fridge packed with cases of beer and icy quarts of vodka.

How do you react? Well, if you're like most people, you think, "Damn. No Coke," and look elsewhere or forget it. But if you're an alcoholic, your reaction—your rapid, visceral reaction—would likely be quite different. You'd be drawn in. Your memory would instantly call up past associations with liquor, and you might even feel a craving—even if you haven't had a drink in a long time. Then, either you would contemplate reaching for a bottle, or you would push yourself away from this cache of booze—pronto.

Alcoholics have an abnormal, automatic attraction to temptation, and most relapses result from poor impulse control. Yet most clinical treatments for problem drinking focus on reflection—the higher order reasons for maintaining sobriety—health, family life. Might it be possible to counter this unconscious bias for booze on a more

basic level, defusing the powerful cognitive bias that magnetically draws alcoholics to a drink?

That's the theory that a team of European psychological scientists have been exploring. The University of Amsterdam's Reinout Wiers and colleagues wondered if it might be possible to use physical and mental training to manipulate alcoholics' "approach bias" for booze (Wiers, Eberl, Rinck, Becker, & Lindenmeyer, 2011). They developed a therapeutic technique called "cognitive bias modification," or CBM, which uses a joystick to change alcoholics' approach bias to an avoidance bias for temptation.

They tested the theory and technique in an actual rehab facility, the Salus Clinic in Germany. They recruited more than 200 alcoholic patients who were at least three weeks out of detox, and assessed their craving level and their unconscious attraction to alcohol. Then, half the patients participated in four 15-min CBM sessions on four consecutive days. This consisted of deliberately pushing the joystick in reaction to pictures of beer, whiskey, and so forth (literally and figuratively pushing the temptation away), and pulling the joystick in response to pictures of soft drinks. The control subjects had no training or sham training sessions.

When the scientists retested and compared the patients, the findings were hopeful. The patients trained on the joystick—and only those patients—reversed their cognitive bias; that is, their alcoholic approach tendency became a strong alcoholic avoidance tendency. Craving for alcohol also decreased in these patients, while craving for soft drinks increased.

That's all good, but what about the only result that really matters to the alcoholics: Did they stay sober? Following this brief training, all the patients went through the usual alcoholic treatment program, averaging about three months; then they went home. The scientists followed up a year later, and the results were mixed. Specifically, 46% of those with CBM training had relapsed a year later, compared to 59% of the controls.

The majority of alcoholics fail when they try to quit. So, these results, while inconclusive, are not discouraging. At the least, they may provide an additional tool for the recovering alcoholic to wield in the ongoing struggle to slam the door on temptation.

These are just a few examples of the untoward consequences of mindlessness in everyday judgment and decision-making. There are many more, affecting everything from personal finance to environmental policy to charity and even romance. The stakes are high, and one of the clearest messages from the research so far is that these habits are powerful and highly resistant to change. Yet this sampling of studies offers some preliminary but encouraging evidence that they are not impervious to change.

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16

I-D Compensation

Exploring the Relations Among Mindfulness, a Close Brush With Death, and Our Hunter-Gatherer Heritage

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What would the world look like if mindfulness were the rule rather than the exception? In some ways, we already know the answer to that question. Research has shown that when people behave mindfully, they are more creative (Langer & Eisenkraft, 2009), healthier (Langer, 2009), and more liked by their interaction partners (Langer, Cohen, & Djikic, 2012). They learn better (Langer, Hatem, & Howell, 1989), exhibit less stereotyping (Djikic, Langer, & Stapleton, 2008), display greater self-acceptance (Carson & Langer, 2006), and even live longer (Alexander, Langer, Newman, Chandler, & Davies, 1989).

But what if more people were more mindful more of the time? What if mindfulness were the default state rather than a state that needed to be induced with special manipulations? The outcome, we believe, would be surprisingly ordinary—but in a good way. It might parallel the effects some people display after a close brush with death. There would be no great “transport to bliss,” just a “paradoxical combination of total familiarity with surprised satisfaction” (Wren-Lewis, 1994, p. 110).

In this chapter, we suggest that the connections between mindfulness and a close brush with death are more than skin deep. The two phenomena produce similar effects because they initiate the same general process. They induce people to decrease their automatic reliance on preconceptions, especially those introjected from their culture.

In making this point, we describe some features of mindfulness as well as some aftereffects of a close brush with death. We suggest that in both cases, people shed cultural introjects and guide their behavior using a more authentic self. Next, we raise the possibility that this self is the one that evolved when our ancestors were living in immediate-return hunter-gatherer societies. To make this case, we discuss aspects of immediate-return hunter-gatherer societies and contrast them with aspects

of modern, complex delayed-return societies. We conclude that compared to the immediate-return ones, modern societies foster mindlessness. They do so, in part, by encouraging people to interpret the world through a fixed set of justifying stories (e.g., just-world beliefs). When people drop these stories, they stop living in their head and guide their behavior more authentically. In short, they become mindful. We end the chapter by tying these ideas together using I-D compensation theory (Martin, 1999). Finally, we describe what the world would look like if mindfulness were the rule rather than the exception.

As a prelude, we can say that if mindfulness were the rule, the world would look more like an immediate-return hunter-gatherer world. That does not mean that people would be living in the forest and foraging for food. It means they would live in the present, adjust their knowledge in response to subtle changes in their environment, and behave more authentically. Moreover, the effects would be synergistic. Increasing mindfulness would foster an immediate-return lifestyle, which, in turn, would foster greater mindfulness, and so on. Before we make these points, though, we need to say what we mean by mindfulness.

Defining Mindfulness and Mindlessness

Mindfulness can be defined as the process of actively making new distinctions about objects in one's awareness (Langer & Moldoveanu, 2000). It can be contrasted with mindlessness in which people adhere to entrenched categorizations from the past. When people are mindful, they adjust their cognitive processing strategies to match their current conditions, they stay attuned to the present, and they are more open to new information. They are also more sensitive to subtle variations in their environment, they display more cognitive flexibility, and they are more able to apply new categories as needed (Brown & Langer, 1990).

When people are mindless, on the other hand, they adhere rigidly to a single perspective and are less responsive to subtle changes in their environment. Moreover, the single perspective they use may be a preexisting one they accepted more or less unquestioningly from their culture and that they apply more or less unthinkingly. As a result, people may perform well-practiced behaviors in a very competent way yet make a mistake because they performed the behavior in the wrong place at the wrong time (Langer, Blank, & Chanowitz, 1978; Reason, 1984).

The distinction between mindfulness and mindlessness can be seen quite clearly in the real-life example of a man who lived in England most of his life but who had occasion to drive a car in the United States. He had no problem driving on the right-hand side of the road once he was behind the wheel and driving. His problem was getting in the car. He repeatedly found himself trying to enter from the passenger side, which, of course, is the driver's side in an English car. Why was he better at driving than entering?

While he was driving, he was paying attention. He was guiding his behavior on the basis of the ongoing changes in his environment. In a word, he was mindful. As he was getting in the car, however, he was preoccupied with where he was going, whether he had everything he needed, what he was going to say to his coworker

when he got to his office, and so on. So, he enacted automatically the same routine he always enacted when getting ready to drive his car. He opened the door in his usual way, which turned out to be the wrong thing for him to do in his current situation. In a word, he was mindless.

Of course, living mindfully does more than confer simple performance benefits. It facilitates the expression of broad psychological variables such as authenticity (Carson & Langer, 2006). When people live mindfully, they engage more fully with the environment, pay attention to what they are doing, and respond in real time to subtle, changing aspects in the environment. In addition, because they focus on what they are doing, they do not become especially concerned with the impression they are making on others. They do not worry about winning the approval of others or enhancing their self-esteem. Instead, they guide their behavior on the basis of their personal values in relation to their current context.

When people live mindlessly, on the other hand, they guide their behavior using preexisting scripts and categories, and discount their genuine feelings and values. This may lead them to approach situations from a single perspective and miss other ways in which they could have responded to the situation. To make matters worse, it is likely that they adopted their single perspective without checking to see if it was valid for them as individuals or for the situation in which they currently found themselves (Chanowitz & Langer, 1981). As a result, they may base their behavior on information that seems universally valid but that was not valid for them as individuals or for their current situation.

Consider how the mismatch between received cultural knowledge and authentic knowledge can create a problem in the domain of happiness. When people are asked, "How happy are you?" they can answer using either of two general strategies. They can assess their actual feelings, or they can consult what appear to be relevant cultural theories. Such theories specify the conditions people need to satisfy in order to be happy. People are happy, for example, if they drive the right car, marry the right spouse, or get the right job. In this way, people can judge their happiness simply by seeing if their current situation matches the specified situation. No introspection is needed.

To see if people based their happiness judgments on their feelings or the cultural theories, Csikszentmihalyi and LeFevre (1989) contacted people at various times in various contexts and asked them how happy they were. One generally recognized cultural theory suggests that people are happier when they engage in leisure activity rather than work. Although this theory may be true for some people some of the time, it is not true for all people all of the time. So, if people based their happiness judgments on this theory, they may say they are happier at leisure, even if they experience more positive feelings at work.

Consistent with this observation, Csikszentmihalyi and LeFevre (1989) found that some participants reported experiencing more engagement and flow at work than at leisure. When asked if they would rather be doing something else, however, these same people answered "Yes" more often at work than at leisure. What did they want to be doing instead of working? They wanted to be engaged in leisure activities. They based their happiness judgments on the cultural theory rather than their actual feelings. This is a form of mindlessness. The participants had internalized a cultural theory and applied it in a nonthinking way to a situation in which the theory did not apply.

In sum, there are many advantages to being mindful. It can help people stay attuned to the present, update their knowledge, and adjust their cognitive strategies to reflect changes in the demands of their environment. It can also help them avoid acting on the basis of entrenched categorizations or inaccurate cultural givens. It might even help them be happy. Despite these benefits, people are often mindless. Why? Do people have some inherent weakness that leads them to mindlessness? Is there some factor in our society that fosters mindlessness? Before we can say what the world would be like if mindfulness were the rule, we need to know what it would take to make mindfulness the rule.

In general, we can say that mindfulness manipulations produce their positive effects by inducing people to consider multiple perspectives. They reduce people's automatic application of fixed conceptions. So, if we could get people to stop applying their preconceptions in an automatic way, we could make them more mindful. If we could get them to do this permanently, we could induce them to be mindful in a permanent way. That's when mindfulness would be the rule rather than the exception.

Is there a way to induce people permanently to stop the automatic application of their preconceptions? We believe there is. We could give them a close brush with death.

Death and Mindfulness

For some people, almost dying is the best thing that ever happened to them (Hablitzel, 2006). What makes it so good? It leads people to trivialize the trivial and stop taking life for granted. In short, it makes people mindful. A woman dying of cancer explained it this way:

When you're dying, you're stripped of everything that's important to society—money, image—so all you have left is that honesty. It takes so much energy to pretend when you can use that energy for other things. ... all that crap just flies off of you; it just sort of comes off you like layers of skin. All of a sudden, you're starting from scratch, like when you were born. ... I believe in myself now. I never had that before. And I am not afraid of being who I am. (Kuhl, 2002, p. 230)

Thus, a close brush with death, like mindfulness, can lead people to shed aspects of their culture, adopt multiple perspectives, and behave in a more authentic way. It can also lead people to:

- 1 display an enhanced sense of living in the present;
- 2 drop values introjected from their culture;
- 3 feel free to refuse doing things they do not want to do;
- 4 experience high levels of self-forgiveness;
- 5 care more about other people but care less what other people think of them;
- 6 display less interest in material things, fame, and money;
- 7 display a greater appreciation for nature and the ordinary things in life (e.g., a sunset, hugging a child);
- 8 express low levels of self-aggrandizement;
- 9 keep daily frustrations and trivialities from bogging them down; and
- 10 stop taking life for granted.

Although these features are not exactly those associated with mindfulness, there is considerable overlap. Both phenomena lead people to shed aspects of their culture, focus more on the present, pay less attention to what other people think of them, adjust their cognitive strategies in response to subtle changes in their situation, and live more authentically (for a review, see Flynn, 1984; Grey, 1985; Greyson, 1983; Kin-nier, Tribbensee, Rose, & Vaugh, 2001; Martin, Campbell, & Henry, 2005; Noyes, 1982–1983; Ring, 1984). Further evidence of a commonality between mindfulness and a close brush with death can be seen in the process through which the two produce their effects.

To understand this process, we have to consider that not all close brushes with death lead to psychological growth. Two conditions are needed. Both can be seen in the story of a woman (known to one of the authors) who survived a head-on car crash. She was driving on the highway when another car travelling in the opposite direction suddenly swerved over the median and headed straight for her car. Everything happened so fast that there was little the woman could do. There was no time to hit the brakes. No time to steer away. In fact, the woman had time for only two thoughts: “This is it” and “It’s OK.”

As counterintuitive as this reaction may be, it is not unusual. It has been observed in many people who faced their imminent death—but then survived (Greyson & Steven-son, 1980; Noyes, 1980; Roberts & Owen, 1988). The first feature that seems critical to producing the positive aftereffects is having an absolutely vivid and convincing encounter with death. People have to believe they really are dying. Right here, right now, like this. It is not enough for them simply to contemplate their mortality or to realize they could have been on a flight that went down. They need to believe with absolute certainty they are about to die.

The second critical ingredient seems to arise naturally out of the first. It is acceptance (Noyes, 1980). When people have a vivid, immediate confrontation with death, they let go. They stop trying to force their preconceptions onto reality—probably because they can’t. Death is too big of a reality. People know they are going to die no matter what they think. So, they invest less in their thoughts, goals, and plans. They shed their preconceptions, and this seems to be the ingredient that is most directly responsible for the positive aftereffects of a close brush with death (Cole & Pargament, 1999; Noyes, 1980).

We can get further insight into this letting-go process from a passage in Chesterton’s (2009) novel *The Ball and the Cross*. The protagonist in the novel has a close brush with death and then expresses the following insight:

At the highest crisis of some incurable anguish there will suddenly fall upon the man the stillness of an insane contentment. It is not hope, for hope is broken and romantic and concerned with the future; this is complete and of the present. It is not faith for faith by its very nature is fierce; and as it were at once doubtful and defiant; but this is simply a satisfaction. It is not knowledge, for intellect seems to have no particular part in it. Nor is it (as the modern idiots would certainly say it is) a mere numbness or negative paralysis of the power of grief. It is not negative in the least: it is as positive as good news. (Chesterton, 2009, p. 10)

What is it about a close brush with death that can make it as positive as good news and that produces features similar to mindfulness? According to Wren-Lewis (1994), a close brush with death turns off our hyperactive survival mechanism. He suggested, more precisely, that each of us possesses a set of operations, a hypothetical survival mechanism, that works to maintain our personal well-being. This mechanism motivates us to watch our weight, get our papers published, ask for a raise, and so on. In this way, the mechanism can be useful. It helps us survive and thrive.

According to Wren-Lewis, however, the mechanism has become overactive. It has led each of us to become myopically focused on our own agenda and to perceive the world as hostile and competitive rather than as benign and cooperative. It makes us miss the peace and beauty available in each moment. A close brush with death can break that spell because it turns the survival mechanism off. In the words of Wren-Lewis (2004), “when the brain approaches the point of complete shutdown, the conditioned patterns of thought, feeling, and perception lose their grip on consciousness” (p. 91).

The catch, of course, is that when the brush with death is merely a close one, the person is not dead. But it’s too late. The survival mechanism has been turned off. So, when people return from the brink, the goals, standards, and expectations they introjected mindlessly from their culture are no longer there to color their perceptions. This allows people to adapt to reality as it is and stop trying to fit reality into their preconceptions. This is how a close brush with death sets the stage for mindfulness.

But why a close brush with death? Couldn’t other traumas produce similar effects? Although it is true that other traumas can produce psychological growth (Tedeschi & Calhoun, 2004), they seem to do so through a rebuilding process rather than a letting-go process. As Wren-Lewis (2004) noted, most traumas shatter benign or optimistic world assumptions (Janoff-Bulman, 1992). For example, people generally assume that the world is safe, that they will not become a victim of crime, or that they will not succumb to a debilitating disease, at least not while they are young. Traumatic life events, however, challenge these assumptions. When this happens, people need to rebuild their assumptions. If they do so in a way that reflects their changed situation, they may experience psychological growth (Tedeschi & Calhoun, 2004).

A close brush with death, however, is different. It does not challenge positive assumptions. It challenges negative ones. People may spend a lot of time worrying about life, including lots of little things that may seem important to them at the time but really aren’t. Have I lost enough weight? Will I get that next paper published? Why wasn’t I invited to that party? A close brush with death invalidates those concerns. They don’t matter when you are dead.

What happens, though, if you come close to death but don’t die? Wouldn’t the concerns become important again? It seems not. It seems a close brush with death can lead people to see their concerns for what they are, and always have been in the grand scheme of things: barren pursuits (Martin & Kleiber, 2005). And once people see things this way, there is no going back. When people return from the brink, they drop their preconceptions and open up to “an essentially benign inner reality underlying a world which had hitherto been superficially perceived as hostile, competitive and ‘red in tooth and claw’” (Wren-Lewis, 2004, pp. 91–92).

A woman dying from cancer described it this way:

There's less fear in my life because I'm not in the loop of stress that most of us get into from working and worrying about money and the kids, rather than just being with what is. It's about acceptance rather than still struggling to make it your way. All the ego stuff, all the future fear—"God, did I gain weight? Am I turning gray?" Most of those things aren't important any more. It's like really downsizing to the essence. It wasn't things that I wanted. It was a way of life. And so I systematically set out to live it. A lot of the programming from my youth was still there before the illness, like 'You need to be successful.' You're in this prison. I've switched to what's important." (Branfman, 1996)

Thus, a close brush with death, like mindfulness, can lead people to drop the fixed set of goals, standards, and expectations they may have introjected from their culture and that were contributing negatively to their well-being (Flynn, 1984; Ring, 1984; Sutherland, 1992). By dropping these preconceptions, people can open up to greater acceptance of themselves and see more options in the world around them. As Kuhl (2002) put it, when people cannot escape death, "they embrace life, their own life. The 'prescription' of how to live given by family, culture, profession, religion, or friends loses its grasp" (p. 227).

Thus, a close brush with death can lead people to let go of harmful and inaccurate preconceptions and guide their behavior on the basis of their current experience. This, in turn, allows them to focus on the present, show less concern with making an impression on others, and live more authentically. These are features associated with mindfulness. Moreover, people may display these features for years after a close brush with death (Furn, 1987).

In sum, mindfulness manipulations and a close brush with death may produce their effects in a similar way. They reduce the likelihood that people automatically apply their preconceptions. Although this observation helps explain why mindfulness and a close brush with death produce similar effects, it leaves other questions unanswered. For example, why does the shedding of cultural preconceptions lead people to experience greater openness and authenticity? Why doesn't it leave them confused or motivate them to defend or restore their preconceptions? How do people guide their behavior once they have dropped their cultural preconceptions? Are there alternate goals, standards, and values they adopt? If so, what are they and where do they come from? Fortunately, we are not the first to ask questions like these. So, there are places we can look for answers.

The Drift Back to the Self

Personality researchers have known for years that stable individual differences do not always reveal themselves in behavior. Sometimes, extraverts act like introverts, and introverts act like extraverts. So, researchers have tried to outline the variables that lead people to guide their behavior on the basis of their stable dispositions (Kenrick & Funder, 1988).

Caspi and Moffitt (1993) proposed that people rely on their stable individual differences when (1) they are in a situation in which the old guides do not apply, (2) the new

guides are not yet known, and (3) they experience a press to behave. In short, people turn to idiosyncratic guides when they feel a need to respond but have no external guides for their behavior.

Turner (1969) developed a similar, though broader, model based on his investigations of rituals in small-scale societies. He suggested that these rituals could be divided into three stages. In the first, or preritual, stage, the initiates guide their behavior on the basis of the cultural knowledge they picked up over the course of their life. The second stage comprises the actual ritual, which is designed intentionally to render the initiates' preritual conceptions inapplicable. The initiates may be threatened, for example, yet not be allowed to turn to their parents for support. In the third stage, the postritual stage, the initiates are provided with the knowledge they need to become fully integrated members of their society.

The stage most relevant to mindfulness is the middle stage, the stage in which the initiates drop their old knowledge but have not yet acquired the new knowledge. According to Turner, in this stage the initiates are stripped of their cultural roles and identities, and have only their basic human predispositions to guide their behavior. So, they behave in a way that is common to all humans and which exists apart from culture.

Is it possible that mindfulness manipulations, including a close brush with death, work in an analogous way? They invalidate people's preexisting guides but leave intact the press to act. With the preexisting guides gone and no readily available external substitute, people act in accord with some basic aspect of their nature. If this hypothesis is correct, we would see some overlap between the features associated with mindfulness or a close brush with death and the features of basic human nature. Of course, no one can say for sure what basic human nature is, but we can take some educated guesses. We propose that basic human nature encompasses features humans evolved as they lived in immediate-return hunter-gatherer societies (Martin, 1999). Thus, mindfulness and a close brush with death wakes people up to their authentic self, the self that reflects their hunter-gatherer heritage.

Our Immediate-Return Heritage

For at least 95% of its existence, our species lived as hunter-gatherers. More precisely, they lived as immediate-return hunter-gatherers. Hunters-gatherers are people who obtain less than 5% of their subsistence from farming and/or herding (Murdock, 1981). Immediate-return hunter-gatherers are those for whom this percent goes down to zero or close to it. According to Marlowe (2002), "Even if foragers [immediate-return hunter-gatherers] are not living fossils, surely they are the best living models of what life was like prior to agriculture" (p. 249). By studying these societies, we may learn something about the world for which our biology was adapted (Martin & Shirk, 2008). This may be the world to which we return when we shed the preconceptions we've adopted from our modern, complex delayed-return society. This is the world we might see if mindfulness were the rule. So, what are the features of immediate-return societies?

Changing company and changing places

One of the more distinctive features of immediate-return societies is their fluidity. These societies are made up of small family groups (with the modal size being 24 members) that exist as part of a larger population spread out over the landscape. There is much movement of individuals in and out of the local groups. In fact, the membership of these groups may change on a daily basis. In addition, the whole group may move every few weeks (Woodburn, 1979), and when it does, the decision is based on a series of ad hoc individual decisions, not on the decision of a leader or on consensus reached in discussion (Turnbull, 1962).

Bird-David (1992) analogized immediate-return societies to drops of oil floating on water. When the drops come together, they coalesce into a larger drop. This larger drop can split easily into smaller ones, however, which may coalesce to form other larger drops. Likewise, members of immediate-return societies “perpetually coalesce with, and depart from, each other” (Bird-David, 1992, p. 597). The formal term is fission and fusion. To state it colloquially, members of immediate-return societies vote with their feet. They can choose which relationships to pursue and which to abandon. They do so through visits, meal sharing, cooperative work, and even through the positioning of the openings of their huts. Thus, they have greater latitude to direct their lives authentically rather than in accordance with formal cultural orthodox.

These features led Ingold (1980) to define immediate-return hunter-gatherer societies as

a loose and unbounded association of individuals or families, each related to one or more others through immediate kinship, occupying a particular locale and its environs. It is the outcome of a series of choices about where to go, and with whom to affiliate, in order to make the best of environmental resources which are never quite the same, in abundance or distribution, from one season or year to the next. (p. 403; see also Winterhalder & Smith, 1992)

Unlike the delayed-return societies in which most people now live, in immediate-return societies there are no sanctioned authorities, no binding contracts, and a weaker top-down influence of formal cultural conventions. Such societies may foster authenticity.

Relational autonomy

Although members of immediate-return societies move frequently, they do not see this movement as a burden. They see it as a gift. It allows them to maintain their autonomy. It is important to note, though, that their autonomy is not the isolated individualism often seen in modern Western cultures. It is much more relational. It grows out of a history of continuing involvement with others in contexts of joint, practical activity. Each member of the society acts with the other members in mind and can assume that the others will do the same (Bird-David, 1992; Ingold, 1980). Each actively avoids infringing on the autonomy of the others and can be confident the other members will actively avoid infringing on their autonomy.

One way immediate-return societies foster autonomy is through the intentional avoidance of long-term commitments. Such commitments entail dominance and inequality. The first party holds power over the second party until the latter delivers on their end of the deal. By avoiding such commitments, members of immediate-return societies experience considerable freedom to guide their lives on the basis of their personal values and interests.

Heaps of randomly associated elements

In a society that values autonomy as highly as immediate-return societies do, there can be no single, correct version of events. After all, if the interpretation of one person is considered correct, a different interpretation held by another person must be incorrect. Members of immediate-return societies actively avoid this inequality. Thus, people are free to explore their own interpretation of events.

At the individual level, the absence of formalized rights and wrongs fosters autonomy and exploration. At the cultural level, it fosters instability (Brunton, 1989). Immediate-return societies have few verbalized rules of behavior, their rituals are highly variable (and may even be dispensed with altogether), and there is no single, clear idea of a moral order. Their knowledge is generally idiosyncratic and gained by personal experience rather than handed down by others. As one immediate-return hunter-gatherer put it, “None of us are quite sure of anything except of who and where we are at that particular moment” (Brunton, 1989, p. 677). In these societies, there are fewer top-down pressures to constrain people’s interpretations of events.

Although there is less pressure to conform to generally agreed-upon conventions in immediate-return societies, the behavior of people in these societies is not random. As Turnbull (1962) noted:

In the forest life appears to be free and easy, happy-go-lucky, with a certain amount of perpetual disorder as a result. But in fact, behind all the disorder there *is* order and reason; reaching everywhere is the firm, controlling hand of the forest itself. ... The forest, the great provider, is the one standard by which all deeds and thoughts are judged; it is the chief, the lawgiver, the leader, and the final arbitrator. (p. 126)

In this way, behavior in immediate-return societies displays yet another feature of mindfulness. It is guided by rules but not determined by them (Carson & Langer, 2006).

Living in the present

In immediate-return societies, people receive relatively immediate feedback with regard to their efforts (Barnard & Woodburn, 1988; Meillassoux, 1973). This does not mean they obtain immediate gratification. It means they know within a relatively short time whether their efforts have paid off. They will know within a few hours, for example, if their hunt has been successful. If it has, they can return to the camp to eat. If it has not, they have time to search for an alternative food source.

This immediacy allows members of immediate-return societies to maintain an extreme focus on the present. They

are bound to the momentary present, scarcely ever striking out new lines for themselves, never forecasting the distant future, and seldom making provisions for the near future. Capable of anticipating its future needs only for a very brief span. Accumulation is difficult, long-term planning is impossible. (Forde & Douglas, 1956, p. 332)

Members of immediate-return societies seem to live by the motto “If it is not here and now what does it matter where (or when) it is?” (Turnbull, 1983, p. 122). This immediacy fosters flexibility and adaptation to subtle changes in the environment, which are also features of mindfulness.

In sum, life in an immediate-return society involves frequent changes in group membership and location, less pressure to conform, no sanctioned authorities, no binding commitments, and little in the way of stable, agreed upon cultural orthodox. As a result, members of these societies experience high levels of autonomy, learning that is idiosyncratic, and a strong tendency to live in the present. We believe these features foster mindfulness, and we believe they are harder to come by in delayed-return societies. We propose, therefore, that our ancestral societies fostered mindfulness, whereas our modern, complex, delayed-return societies do not. That is why the shedding of delayed-return cultural values, which can result from a close brush with death, can foster mindfulness.

The Problem With Delayed-Return Societies

Humans made the transition from hunter-gatherer life to a more sedentary life in densely populated communities over the course of thousands of years. For simplicity’s sake, though, anthropologists point to 10,000 years ago as the time when things changed. It is around this time that humans were forced into domesticating plants and animals in a widespread and irreversible way.

It was also around this time that humans began domesticating themselves (Harris, 1989). By settling down, humans changed their societies in ways that had significant effects on their psychology—not all of them good. Diamond (1987) calls the transition to agriculture the worst mistake in the history of the human race. It is “a catastrophe from which we have never fully recovered” (p. 64). The problem, in short, is that the transition resulted in the development of delayed-return societies, and these societies often demand from their members behavior that is discordant with their immediate-return nature (Martin, 1999).

For example, in modern, complex societies, people are often required to exert immediate effort for delayed, uncertain payoffs (Martin, 1999; Woodburn, 1979). They may plant crops, work for a paycheck, or save for retirement. In each case, people work toward an outcome they will not receive for days, weeks, months, or even years—if then. This input–outcome disjunction may lead people to experience a great

deal of insecurity, possibly over long stretches of time. As a result, people may look for assurance that their efforts are going to pay off. The evidence suggests that people do this in two general ways (both of which have implications for mindfulness).

The first way is structural or societal. People developed formal cultural mechanisms that demand the long-term cooperation of specific members of society (Martin, 1999; Woodburn, 1979). These mechanisms include laws and binding contracts as well as agents designed to enforce those laws and contracts such as courts and police. When members of delayed-return societies enter into formal binding relationships, each member is expected to uphold their end of the deal. If they fail to do so, not only is there no payoff, but also there are negative social consequences.

When people take a job, for example, they may sign a contract indicating that they will be paid at the end of each month. This contract gives them assurance that their efforts throughout the month will eventually produce their desired outcome, namely the paycheck. If the paycheck does not arrive, the workers can take the employer to court for breach of contract and hope to obtain their compensation that way. In short, the members of delayed-return societies intentionally subject themselves to binding social arrangements in an effort to assure themselves that their efforts will pay off. These arrangements may give people the reassurance they seek, but they do so at a cost. They heighten conformity and obedience, and reduce autonomy as well as self-exploration. In other words, they reduce the opportunity for flexible, mindful, authentic behavior.

Barry, Child, and Bacon (1959) and Zern (1983) provided some evidence for this connection in their comparisons of hunting and fishing societies (i.e., immediate return) with herding and farming societies (i.e., delayed return). They noted that in hunting and fishing societies, each day's food comes from that day's catch, and there is a relatively short delay between a person's efforts and feedback regarding the effectiveness of those efforts. Moreover, if a person's initial efforts meet with failure, he or she could switch to Plan B to acquire their desired resources. This flexibility means that deviations from the established routine are not necessarily feared. So, the child-rearing practices in immediate-return societies emphasize personal initiative, exploration, and individual skill. They can try different things. This is a feature associated with mindfulness.

In farming and herding societies, on the other hand, there are established rules that prescribed the best-known way to acquire resources. With farming, for example, people must plow the fields, plant the seeds, water the fields, monitor them for weeds and pests, harvest the grain, and store it safely—and each of these steps must be done in the right way at the right time. If all goes well, the chances are good the farmers will reap the benefits of their effort. If all does not go well, however, there is no time to start over, and the consequences for the entire society may be severe, widespread, and long-term (e.g., hunger or starvation). It is not surprising, therefore, that in delayed-return societies, the child-rearing practices emphasize obedience, conformity, the acceptance of culturally given values, and the fixed application of preexisting rules. These are features associated with mindlessness.

The second strategy people in delayed-return societies use to assure themselves that their efforts will pay off is intrapersonal. They adopt justifying stories such as

the Protestant work ethic and just-world beliefs. When people work toward a college degree, for example, they exert effort for years before they can even begin to consider obtaining their sought-after outcome—and even then the outcome may not be obtained. If it is not, then they wasted years of their life. To assure themselves that they are not wasting their time, people may try to convince themselves that the world is just and that their efforts will pay off. So, when there is a conflict between their reassuring stories and reality, people often maintain the stories at the expense of reality (e.g., they blame an innocent victim). This is a form of mindlessness.

Hafer (2000) showed that a delayed-return orientation can heighten this kind of reality distortion. She had participants describe either their long-term plans or the university courses they were currently taking. Then, she had them watch an interview in which a student described how she had contracted a sexually transmitted disease. Some participants heard that the student contracted the disease by accident (innocent victim), whereas others heard that she contracted the disease through her own negligence (blameworthy victim).

Hafer found that participants who believed in a just world and who had focused on their long-terms goals were more likely than those who focused on their courses to blame the innocent victim. It would be pointless for these participants to pursue their long-term goals if the world was not just. Yet, the existence of an innocent victim suggests that the world is not just. So, they distorted that reality. They construed the innocent victim as blameworthy. In short, the delayed-return orientation (i.e., focus on long-term goals) led the participants to maintain a fixed interpretation of events even when that interpretation did not map on to reality. This is a form of mindlessness.

In sum, members of delayed-return societies have established social and cognitive mechanisms designed to assure them that their efforts will payoff. Although these mechanisms may perform their function, they also foster a high level of conformity and encourage the application of preexisting knowledge structures. In other words, they foster mindlessness. It is not surprising, therefore, that manipulations that induce people to drop aspects of these societies lead people to be mindful. They shift people away from the misplaced pressures of a delayed-return society toward the immediacy and authenticity of their immediate-return self.

I-D compensation theory

So far, we've distinguished between mindfulness and mindlessness and noted that a close brush with death can produce features similar to those of mindfulness. We also noted that some of these features are seen more often in immediate-return societies than in delayed-return societies. We raised the possibility that these features may be especially compatible with our basic human nature and noted that situational ambiguity can induce people to turn toward that nature as a guide for their behavior. Therefore, when people drop aspects of their delayed-return society, as with a mindfulness manipulation, they guide their behavior using their basic human nature, which reveals itself in a focus on the present, flexible updating of knowledge structures, and a reduced reliance on received orthodox. These are the features of a mindful society.

Now, we can integrate these general observations into a coherent story using I-D compensation theory (Martin, 1999). It is useful to start by unpacking the name of the theory. The *I* stands for the immediate-return nature of human beings, the *D* stands for the delayed-return nature of the societies in which most people live now, and *compensation* stands for the steps people take to reconcile their immediate-return nature with the constraints placed on them by their delayed-return societies. The general idea is that when people experience discordance between their immediate-return biology and their delayed culture, they take steps to reconcile the two.

More specifically, the theory starts with the assumption that humans possess a set of sensitivities and predispositions that helped their distant ancestors survive and reproduce in the context of immediate-return societies. This is one reason people function optimally when they live in small temporal windows, receive frequent feedback that they are progressing toward their goals, and behave in accord with their personal goals and values. These are the features toward which our biology is attuned.

People may experience psychological difficulties, however, when they live in delayed-return societies. These societies can lead people to behave in ways that are not compatible with their immediate-return biology. There are incompatibilities, for example, in our diet (Cordain et al., 2005), economies (Gowdy, 1999), and population pressure (Cohen, 1985). The main incompatibility on which I-D compensation theory focuses is that between people's efforts and the feedback they receive with regard to those efforts.

Humans function optimally when they receive frequent reliable feedback that they are progressing toward their goals (Carver & Scheier, 1990; Csikszentmihalyi, 1990). This feedback may have characterized the immediate-return societies of our ancestral past, but the feedback can be harder to come by in modern delayed-return societies. In modern societies, people often have to engage in immediate effort for delayed, uncertain outcomes. This effort–outcome disjunction can lead people to experience long periods of insecurity. To cope with this insecurity, people developed complex cultural mechanisms such as contracts and agents to enforce them (Cohen, 1985) and justifying stories such as just-world beliefs (Martin, 1999). In the context of I-D compensation theory, these coping mechanisms reflect people's attempts to create conditions compatible with their immediate-return biology. They are compensations by an immediate-return organism trying to thrive in a delayed-return world.

Not only are people's compensations associated with justifying stories and reassuring social mechanisms, but also they may be associated with rumination, negative affect, and heightened self-focus (Martin & Tesser, 2006). Interestingly, these are the basic ingredients of many phenomena that have been identified by social psychologists (e.g., dissonance, prejudice, defensive self-esteem). So, according to I-D compensation theory, when people adopt an immediate-return orientation, they may be less susceptible to these phenomena.

Empirical evidence

One general hypothesis that can be derived from I-D compensation theory is that people experience a greater need to justify their efforts when they are living in a delayed-return society (i.e., engaging in immediate effort for delayed, uncertain payoff).

We tested this hypothesis by looking at meaning in life. Although there is generally a positive correlation between meaning in life and life satisfaction (Steger & Kashdan, 2007), this correlation is not always observed. It tends to occur mostly among people who are actively searching for meaning (Steger, Oishi, & Kesebir, 2011). If people do not need to justify their behavior, they don't need a justifying story. Who needs to develop and defend a justifying story? People in delayed-return society. They need a way to justify their immediate efforts for delayed, uncertain payoff. Thus, the correlation between meaning in life and life satisfaction is likely to be higher among people in a delayed-return society.

We tested this hypothesis priming aspects of immediate-return and delayed-return cultures and then having participants rate their meaning in life as well as their life satisfaction. More precisely, we presented participants with 14 sentences and asked them to sort the sentences into seven pairs. For some participants, the sentences reflected the features of immediate-return, forager societies (e.g., "Long-term, binding contracts inhibit people's freedom"). For others, the sentences reflected the features of modern, complex, delayed-return society (e.g., "Long-term, binding contracts assure us of that our efforts will pay off"). This made participants think about the features of immediate-return and delayed-return societies, respectively. After participants completed this priming task, they rated the extent to which they had found meaning in their life and the extent to which they were searching for meaning in their life. Then, they rated their satisfaction with life.

The results supported our justification hypothesis. There was a stronger correlation between having found meaning and life satisfaction among participants who had been primed with aspects of delayed-return societies. The results suggest more generally that exposure to the values of modern, complex, delayed-return societies heightened participants' need to have a story to make sense of their life.

Of course, having a story does not by itself lead to mindlessness. Mindlessness occurs, in essence, when people guide their behavior using a preexisting story rather than the features of the actual situation. In a second study, we explored the way in which a delayed-return orientation might lead people to do this.

We began by assessing participants' belief in a just world (e.g., I feel that people get what they are entitled to have). Then, we primed aspects of immediate-return and delayed-return societies. After that, we had participants read about an interview in which a student explained how she had contracted a sexually transmitted disease. Some participants read that the student had contracted the disease by accident (innocent victim), whereas others read that she had contracted the disease through her own negligence (blameworthy victim). Then, we assessed the extent to which participants blamed the student for contracting the disease.

We hypothesized that participants who were primed with aspects of a delayed-return world would have more of a need to defend their view that the world is just. After all, it would be pointless for them to engage in immediate effort for delayed payoff unless they were assured of the payoff. A just world (like meaning in life) can assure them that their efforts will pay off. The existence of an innocent victim, however, suggests that the world is not just. So, if people are motivated to see the world as just, they may simply distort that reality. They may construe the innocent victim as blameworthy. This is what we found.

Participants who believed in a just world and who were primed with the aspects of a delayed-return society were more likely to rate the innocent victim as blameworthy. In other words, they were more likely to force the story in their head onto the world whether or not the story fit. This is a form of mindlessness.

In sum, these studies suggest that people have a greater need for a coherent story and a greater tendency to apply that story at the expense of reality when they are in a delayed-return orientation. This is how living in a delayed-return society can foster mindlessness.

When mindfulness rules

Now, we have enough background to address the main question: What would the world be like if mindfulness was the rule rather than the exception? The answer, in short, is that people would display features associated with mindfulness, a close brush with death, and living in an immediate-return way. We discuss each in turn.

As we noted in our introduction, if mindfulness were the rule, people would be more creative, healthier, and more liked by their interaction partners. They would learn better, exhibit less stereotyping, display greater self-acceptance, and even live longer. They would also reduce their automatic acceptance and application of introjected cultural values, be more sensitive to subtle variations in their environment, and be better able to apply new categories as needed.

According to I-D compensation theory, if mindfulness were the rule, people would also be less susceptible to a wide array of traditional social psychology phenomena. This is because when people behave mindfully they experience less uncertainty, negative affect, and self-concern. As a result, they would be less likely to display phenomena that have these features as their underlying components. So, if mindfulness were the rule, people might experience less dissonance, less defensive self-esteem, less blaming of innocent victims, less outgroup derogation, and fewer breakdowns in self-control.

If mindfulness were the rule, people would also display better coping. They would do this for two reasons. First, mindfulness can facilitate acceptance. Life situations become problems, in part, because they block important goals (Martin & Tesser, 2006). A spinal cord injury, for example, could challenge people's ability to have children, take care of their self, or support their family. One component of successful coping is knowing when to let go of blocked goals (Wrosch, Scheier, Carver, & Schulz, 2003). Smith, Jankovic, Loewenstein, and Ubel (2009), for example, found that people who accepted their colostomies as irreversible were better adjusted one year after their surgery than people who maintained hope they might improve back to their presurgery selves. More generally, in a mindful world, people would shed their fixed conceptions of how life should be and adjust instead to the way it really is.

For more clues regarding what the world would look like if mindlessness were the rule, we can turn to our second source of information: people who have had a close brush with death. As we noted previously, a close brush with death can help people shed introjected cultural values, focus on the present, and experience greater

acceptance of the self. Although these changes can be profound, they typically manifest themselves in ordinary ways. As Wren-Lewis (1994) put it:

The change is a subtle one, in keeping with that sense of absolute ordinariness: I haven't for example become anything like my earlier stereotypes of the mystic or "enlightened being." I haven't lost my taste for meat or wine or humor or detective fiction, or good company; I still feel sexual pleasure, I still enjoy being appreciated by others, and my scientific curiosity is as great as ever. In fact all these things seem "very good" as never before—but I am no longer bothered to *pursue* any of them, nor much worried when such desires aren't met, since in the new consciousness, satisfaction is the basic essence of existence itself, not the result of desire-gratification. So while I still make choices and pursue goals, this has become for me a kind of secondary game, not the focus of living. (p. 111)

So, what would the world look like if people were more mindful? It would look profoundly ordinary. The overall effect of a close brush with death is to wake people up to the present. It makes them more mindful. A woman dying of cancer was clear about this when she attributed her psychological growth to "Mindfulness. Being aware of how I spend each moment of the day. ... [Ordinarily] We don't see our options" (Branfman, 1996). If mindfulness were the rule, people would see more options in the ways they could interact with the world. They would not be locked into a single perspective.

Wren-Lewis (1994) noted how his close brush with death allowed him to develop alternate interpretations of many of the unpleasant aspects of life including pain and death:

I now experience such a pain in the way nature must surely mean it to be experienced, mainly as a signal of something to be avoided if possible, or other organs not functioning properly. I found that the painful stimulus remains unpleasant precisely so long as I ignore the signal.

Regarding death, he wrote

Although I still intend to avoid it as long as possible in life's secondary game and still mourn the loss of friends, it has in itself a very special kind of beauty, like the dying leaves of autumn, whose splendor we are allowed to see in ordinary consciousness because our minds don't associate it with the ultimate taboo. (Wren-Lewis, p. 114)

Observations like these lead us to believe that if mindfulness were the rule, people would be less likely to struggle against the world. They would adjust their knowledge to the subtle changes in the world rather than trying to force the world to conform to their preconceptions. As a result, they might come, like Wren-Lewis (1988), to "know exactly why the Bible says that God looked upon the creation and saw that it was good" (p. 115).

Our third source of information for how the world would look if mindfulness were the rule is immediate-return societies. According to numerous reports, members of

these societies are happy. As Turnbull (1962) noted of the M'buti, an immediate-return society in Africa

They are a people who had found in the forest something that made their life more than just worth living, something that made it, with all its hardships and problems and tragedies, a wonderful thing full of joy and happiness and free of care. (pp. 25–26)

Everett (2008) provided a very similar description of the Pirahās [pee da HAN], a group in Brazil. He wrote, “the Pirahās or an unusually happy and contented people” (p. 279). They

showed no evidence of depression, chronic fatigue, extreme anxiety, panic attacks, or other psychological ailments common in many industrialized societies. ... They regularly face dangerous reptiles, mammals, bugs, and other creatures. They live with threats of violence from outsiders who frequently invaded their land. When I am there, with a much easier life than the Pirahās themselves, I still find there's plenty for me to get worked up about. The thing is, I do get worked up, but they do not. I have never heard a Pirahā say that they are worried. In fact, so far as I can tell, the Pirahās have no word for *worry* in their language. (p. 278)

One way in which an immediate-return orientation fosters happiness is by inducing people to focus on the present. This immediate temporal focus may help people avoid phenomena that can undermine psychological well-being, such as rumination (Martin & Tesser, 2006). As Everett (2008) observed:

The Pirahās share some of our concerns, of course, since many of our concerns derive from our biology, independent of our culture ... But they live most of their lives outside these concerns because they have independently discovered the usefulness of living one day at a time. The Pirahās simply make the immediate their focus of concentration, and thereby, at a single stroke, they eliminate huge sources of worry, fear, and despair that plague so many of us in Western societies. (p. 273)

It seems likely that if mindfulness were the rule, people would focus more on the present and display less worry, fear, and despair.

Of course, focusing on the present may work well for people in immediate-return societies, but it may seem more difficult to accomplish in a delayed-return society and may even seem counterproductive. This is not necessarily the case, however. People can attain long-term goals by focusing on the subcomponents, by focusing on what they are doing at the moment. They can live in the present without living for the present. In fact, doing so seems to enhance long-term persistence and the ability to delay gratification (Stock & Cervone, 1990). This is because each small success operates as feedback that people are making progress toward their long-term goals (Frey & Preston, 1980). In this way, people can turn a delayed-return situation into an immediate-return one (Martin, 1999).

In fact, from an I-D compensation perspective, this would be the main advantage of living in a world in which mindfulness was the rule. That world would be more compatible with our immediate-return biology. If mindfulness were the rule,

people would thrive even when they faced pressures that otherwise would be considered delayed return (e.g., pursuing long-term goals).

Where to from here?

Does the picture we have painted seem too good to be true? Could widespread mindfulness really give rise to a world in which people were more creative, coped better, and experienced greater happiness? We believe it could.

Keep in mind that there is evidence for most of our conclusions, and when we did speculate, we did not deviate far from that evidence. Remember also that the immediate-return lifestyle is one that served our species well for the first 95% of its existence. It may very well be the lifestyle with which our biology is most compatible. In fact, we consider it to be our birthright. It comes naturally to us once the constraints of our delayed-return societies are removed. If this conjecture is true, the real marvel is not that mindfulness can lead people to experience the world in the ways we have described. “The real marvel seems to be that the world isn’t experienced like this by everyone all the time, since this is, quite simply, the way things are” (Wren-Lewis, 1994, p. 110).

So, what would the world look like if people were more mindful? In many ways, it would look like the world of 100,000 years ago. That does not mean we would be living in the forest and foraging for food. It means we would be paying attention, seeing more options in the ways we could interpret the world, adjusting our behavior in response to subtle changes in the environment, and behaving authentically rather than through fixed cultural knowledge we may have introjected mindlessly.

And the good news is that we don’t have to undergo anything as dramatic as a close brush with death to develop an immediate-return orientation. It can come naturally to us if we let it. Wren-Lewis (1994) captured this sentiment well, when he said:

What I suspect we need is not any kind of path or discipline, but a collection of tricks or devices for catching the Dark at the corner of the eye, as it were, and learning how to spot its just-waiting-to-be-seen presence, combined with strategies for stopping the hyperactive survival-programs from immediately explaining the perception away. (p. 114)

Perhaps with the help of a few mindfulness exercises (Langer & Piper, 1987), we could all learn to let go and look at the world and say, “It is good.”

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Answering Questions

A Comparison of Survey Satisficing and Mindlessness

David L. Vannette and Jon A. Krosnick

Introduction

While the large literature on mindlessness has evolved in psychology, a remarkably related literature has evolved quite separately in the literature on survey methodology. In that context, researchers have been interested in understanding why different question wordings sometimes yield systematically different answers from survey respondents. Inspired by Simon's (1957) notion of satisficing, Krosnick (1999) proposed that respondents might sometimes devote considerable cognitive effort to answering survey questions accurately and might at other times devote little or no effort and instead seek to generate answers quickly on the basis of little thinking. This distinction parallels the notions of mindfulness and mindlessness, so building a bridge between the two literatures seems potentially promising to yield new and valuable insights and may generate interesting hypotheses that could advance research in both mindfulness and survey satisficing. In this chapter, we seek to bridge these literatures.

We begin by describing the survey questionnaire response process, with particular emphasis on the cognitive features of responding to questions. Beginning with a description of what researchers believe is the optimal response process; we then introduce the theory of survey satisficing and contrast it with the optimal process. Next, we describe specific response strategies that the theory proposes respondents may employ in order to shortcut the response process. Noting the operation of these strategies, we offer a set of general implications and recommendations for optimal questionnaire design.

Having established the notion of survey satisficing, the final section of the chapter contrasts it with mindfulness and mindlessness, and proposes a set of potential benefits of understanding satisficing theory for mindfulness researchers. Lastly, we outline some proposals for ways that understanding mindfulness and mindlessness might benefit survey researchers in areas such as momentary assessment, cognitive interviewing,

and respondent recruitment. To do this, we draw on findings in the literature in mindfulness and mindlessness that may be relevant to survey research and suggest some novel applications of these concepts in the domain of survey research.

In the course of telling this story, we offer advice for researchers regarding how best to design survey questions to measure constructs accurately and overcome the distorting impact of satisficing. Because mindfulness researchers routinely measure the extent to which people are mindful or mindless by administering questionnaires, our advice may be useful to these researchers by helping them to design more effective measures.

Optimal Responses

Cognitive features of the response process

When a respondent is answering a question in a questionnaire, the accuracy of the obtained data is dependent partly on how well people perform the required cognitive tasks. Specifically, a person must execute a set of mental processes in order to offer a valid response. These processes have been outlined by a number of researchers, several of whom have proposed four stages (Cannell, Miller, & Oksenberg, 1981; Sudman, Bradburn, & Schwarz, 1996; Tourangeau, Rips, & Rasinski, 2000): (1) comprehension, where respondents interpret the intended meaning of the question; (2) retrieval, which involves the respondent searching memory for all relevant information; (3) judgment, which involves integrating retrieved information into summary judgments; and (4) responding in a way that conveys the judgment. Proceeding carefully through each of these stages constitutes what has come to be called *optimizing*.

Many motives may lead a person to optimize the response process when answering a question, including desires for self-expression, interpersonal response, intellectual challenge, self-understanding, feelings of altruism, or emotional catharsis (see, e.g., Warwick & Lininger, 1975). Questionnaires often require a great amount of effort to complete optimally, and the expenditure of this effort in answering questionnaires can also be motivated by desires of the respondent to help researchers or for gratification from successful performance, to help employers improve working conditions, to help manufacturers produce better quality products that suit consumers' needs better, or to help governments make better informed policy decisions. To the extent that these sorts of motives inspire a person to optimize the response process, responses seem more likely to reflect the "true" values of the constructs being assessed.

Satisficing, a Breakdown in Optimal Responding

Satisficing

As much as researchers hope that respondents optimize the response process for each question in a questionnaire, the reality of responding may often be less than ideal. In fact, some people may agree to complete a questionnaire simply through a relatively automatic compliance process (e.g., Cialdini, 1988) or because they are required to do so in order to fulfill a course requirement or to earn financial remuneration for

questionnaire completion. Thus, they may have no intrinsic motivation to provide high-quality answers to the questions.

Simon posited that, when faced with the demanding information-processing tasks of everyday life, people often expend only the amount of effort necessary to make an acceptable or satisfactory decision, a strategy Simon called *satisficing* (Simon, 1957). Presented as a simple metaphor about how people behave, this notion was a useful starting point for developing a theory of the questionnaire response process in particular. Krosnick (1991) theorized that respondents may sometimes not be sufficiently motivated to provide high-quality data and therefore may engage in satisficing during the survey response process.

Satisficing is thought to occur because optimizing is sometimes more cognitively demanding than a respondent is willing or able to execute in answering a question. Questionnaires routinely require respondents to answer multiple questions, sometimes for hours at a time during the longest face-to-face interviews. Even in shorter questionnaires, respondents are often asked to answer extensive batteries of questions, and these questions can be cognitively demanding. Taken together, these features of questionnaires may increase the chances of respondent satisficing (Krosnick, 1999; Krosnick, Narayan, & Smith, 1996; McClendon, 1986, 1991; Narayan & Krosnick, 1996).

In the face of the significant cognitive demands of the response process, respondents may not optimize when answering every single question and may instead shortcut or completely skip some stages of optimizing (Krosnick, 1999). Some respondents are motivated to expend the considerable cognitive effort necessary to optimize their responses. However, the sources and duration of this motivation may vary across respondents and across questions within a single questionnaire. Respondents may expend their resource of available effort early in the questionnaire-completion process, before all questions have been answered. As motivation fades, such respondents may lose interest and become increasingly fatigued, impatient, or distracted. Yet questions remain to be answered, even after a respondent is no longer fully engaged with the reporting process or motivated to optimize their responses. This presents respondents with a dilemma: they have agreed to complete a questionnaire and may have even been promised an incentive as a reward for completion, but they now lack the motivation to provide optimal responses to what must often feel to the respondent like an unending stream of questions.

In this situation, some respondents will break off, stopping the process of answering questions before all have been answered. But perhaps more often, respondents may continue answering but change their response strategy. Instead of continuing the cognitively demanding process of optimizing, some respondents may choose to expend less mental effort in any or all stages of the response process. This behavior is called “survey satisficing” (Krosnick, 1991). As they satisfice, respondents may interpret a question’s meaning and then search memory incompletely or in a biased manner, integrate retrieved information superficially, and then report their response. In this formulation, respondents complete all four steps of the response process but shortcut stages 2 and or 3, an approach called *weak satisficing*.

As questionnaire completion continues, respondent motivation may decrease, and fatigue may increase, leading to further degradation in the response process. When

this occurs, the respondent may fail to implement the retrieval and judgment stages altogether and may instead exert only minimal effort to interpret the question and provide a response that appears plausible. Yet this answer is selected without referring to any internal psychological cues specifically relevant to the attitude, belief, or event of interest. Instead, the respondent may look to the wording of the question for a cue, pointing to a response that can be easily selected and easily defended if necessary. If no such cue is present, the respondent may select an answer completely arbitrarily. In this case, the respondent provides what may appear to be a sensible answer to each question but without having actually delivered any meaningful information. This is termed *strong satisficing*.

Optimizing and strong satisficing can be thought of as being at the poles of a continuum of cognitive effort, with weak satisficing occurring to varying degrees between the poles. When optimizing, respondents thoroughly retrieve and carefully integrate relevant information. When strong satisficing occurs, respondents do not retrieve or integrate any relevant information from memory before providing a response. Weak satisficing, then, is a label encapsulating a range of potential levels of incompleteness in the response process; retrieval may be thorough, while integration is incomplete, or vice versa.

Satisficing Response Strategies

According to the theory of satisficing, respondents may satisfice in a series of specific ways depending on the format and features of the question that has been asked and the response options that have been provided. This section outlines the primary satisficing response strategies that have been documented in the literature.

Don't know?

One response strategy thought to be a manifestation of strong satisficing is selecting an offered “don’t known” option. When a respondent is asked about a subjective phenomenon, researchers routinely presume that the responses provided reflect opinions or information that the respondent had in their memories. Even if the specific requested judgment does not already exist in long-term memory, a respondent might draw on available information to construct a judgment (e.g., Zaller & Feldman, 1992). Under this set of assumptions, responses to a question, whether previously extant or newly formed, then reflect the respondent’s true opinion on the matter under investigation.

However, questions sometimes focus on a matter about which the respondent knows nothing and cannot form a judgment. In this case, researchers would prefer the respondent indicate this lack of relevant information by stating that he/she has “no opinion” (NO) or by offering a “don’t know” (DK) response. If the question is worded in such a way that respondents feel that they ought to have an opinion, then they may provide an arbitrary, seemingly substantive response in order to avoid appearing to be embarrassingly uninformed. Thus, some respondents may provide a nonattitude in the guise of a meaningful answer (Converse, 1964).

Consistent with this argument, the reliability of questionnaire responses over time is often moderate to low (Achen, 1975; Converse & Markus, 1979; Feldman, 1989; Jennings & Niemi, 1978). This low response reliability has been taken by some to indicate that many respondents don't have true opinions about issues and are indeed responding at random. More disconcerting are findings that respondents sometimes offer apparently meaningful opinions on extremely obscure or fictitious issues about which they are extremely unlikely to know anything (Bishop, 2005; Bishop, Tuchfarber, & Oldendick, 1986; Hawkins & Coney, 1981; Paulhus, Harms, Bruce, & Lysy, 2003; Schwarz, 1996), again suggesting that they are likely reporting nonattitudes.

To reduce the chance of arbitrary responses being given to questions, some experts have suggested that NO or DK response options should always be offered to respondents (e.g., Vaillancourt, 1973). However, other researchers caution against offering DK or NO response options, because they may induce respondents who do have meaningful opinions to fail to report those opinions (Krosnick, 1991; Krosnick et al., 2002). Along these lines, Oppenheimer (1992) speculated that some people give a "don't know" response in order to avoid thinking. Further supporting this recommendation to avoid DK options is evidence that voting behavior is better predicted by estimates of respondents' political candidate preferences when researchers discourage DK responses (Krosnick et al., 2002; Visser, Krosnick, Marquette, & Curtin, 2000). Additionally, respondents who are encouraged to guess after providing a DK response tend to provide the correct answer to factual questions about political knowledge at better than chance rates (Mondak & Davis, 2001). This indicates that discouraging DK responses leads to more valid data than encouraging such responses.

Satisficing theory focuses on people who have relevant considerations available in memory but must construct overall evaluations by integrating those considerations, rather than simply retrieving existing judgments already in memory. If a person is low in ability to optimally conduct a memory search and information integration or low in motivation to do so, or task difficulty is high, and a "don't know" option is explicitly offered, he or she may choose to satisfice by selecting it (Krosnick, 1991). If the NO option were to be omitted from the question instead, these respondents might be less likely to satisfice and might therefore optimize instead. Consequently, offering a NO option may forego collection of useful data by discouraging some respondents from providing thoughtful answers.

Even if a NO option is omitted from a question, some respondents may volunteer that they have no opinion. Interviewers or interactive software can respond by saying, "we'll make a note of that, but it would be very helpful if you'd be willing to answer the question, even if you're not completely sure of your answer." The people who volunteer a NO answer a second time in response to this probe can be viewed as genuinely having no information to offer. This approach collects meaningful response from the largest group of respondents. This recommendation is in line with common practice among most major survey organizations, who train their interviewers to probe respondents when they say that they don't know the answer to a question and encourage respondents to provide a substantive response instead, even using wording such as "what is your best guess?" to elicit responses.

Acquiescence

A response strategy thought to result from weak satisficing is agreeing with assertions made in questions. This is relevant to one of the most commonly used question-and-response formats, which utilizes what is called a “Likert scale,” after the work of Rensis Likert (1932). Respondents read a statement and indicate the degree to which they agree or disagree with the statement. This format offers the opportunity for efficiency: many different constructs can be measured with a series of questions without changing the response options from question to question.

A great deal of research shows that some respondents are biased toward agreeing with just about any statement when presented with such an agree/disagree scale or when asked a question with true/false response options or implicit yes/no response options (e.g., “Do you like tomatoes?”). This agreement tendency is known as *acquiescence bias* and is thought to occur for a number of reasons. Some respondents are inclined to agree because they wish to conform to social norms that dictate agreeableness and politeness (Bass, 1956; Brown & Levinson, 1987; Campbell, Converse, Miller, & Stokes, 1960). Another cause is the tendency that some respondents are inclined to defer to people who seem to be of higher social status and better informed, including an interviewer or researcher (Carr, 1971; Lenski & Leggett, 1960).

Satisficing is also thought to be a cause of acquiescence bias. Respondents who fail to exert the mental effort required to fully evaluate the plausibility of a statement or respondents who have limited cognitive skills to do so may be inclined to manifest acquiescence bias. People implementing weak satisficing evaluate the plausibility of a statement by thinking of reasons why the statement might be valid and quickly grow fatigued and terminate the evaluation process before thoroughly considering reasons why the statement might be invalid. Thus, satisficing individuals tend toward agreeing with a statement rather than disagreeing with it (Krosnick, 1991).

Evidence of acquiescence bias comes from studies showing that some respondents agree with a statement *and* with its opposite and from evidence that more people agree with a statement than disagree with its opposite. About 15–20% of respondents appear to manifest acquiescence on average across studies (for reviews of this literature, see Krosnick & Presser, 2010; Saris, Revilla, & Krosnick, 2010). Consistent with satisficing theory, acquiescence is most common when respondent ability to optimize is low, when motivation to do so is low, and when a question requires substantial cognitive work in order to be answered optimally. Thus, acquiescence bias can present a major challenge to researchers, so a number of different approaches have been developed to attempt to address this problem.

To overcome this problem, some researchers have pursued approaches aimed at mitigating acquiescence bias rather than abandoning the agree/disagree, true/false, and yes/no response formats. One common approach is balancing batteries of questions, where half of the statements are arranged such that affirmative answers indicate high levels of the construct of interest, and the other half of the statements are such that affirmative answers indicate low levels of the construct. This approach assumes that acquiescence will be equivalent across items for each respondent, so a tendency to agree with all statements will cancel out and place such respondents

in the middle of the possible range of final scores. However, there is no theoretically justified reason why these respondents should be placed at the scale midpoint. Thus, simply balancing a set of questions may not improve the validity of measurement.

The more effective solution is to offer questions with construct-specific response choices. That is, if a question is meant to assess the personal importance of an issue to a respondent, it is preferable to ask the respondent, "How important is this issue to you? Extremely important, very important, moderately important, slightly important, or not important at all?" rather than asking them to agree or disagree with a statement such as, "This issue is important to me." The former approach eliminated any pressure in the question toward an affirmative answer.

Response-order effects

Another manifestation of weak satisficing is impact of the order in which response options are presented to respondents (Schuman & Presser, 1996). Respondents are often asked to choose among a set of offered nominal or ordinal response choices. Respondents inclined to satisfice may devote confirmatory-biased thinking to initially considered options and terminate the evaluation process before thoroughly evaluating those choices or others that are offered by the question. In short, satisficing respondents may be inclined to settle for the first plausible response option they identify. This yields what are called response-order effects (Krosnick, 1999; Krosnick & Alwin, 1987).

When questions are presented visually, typically on paper or a computer screen, people tend to choose the first nominal response options presented. This is known as a *primacy effect*, and considerable evidence indicates that such primacy effects are especially likely to occur under the conditions thought to foster satisficing (Chang & Krosnick, 2010; Krosnick & Alwin, 1987; Malhotra, 2009; Narayan & Krosnick, 1996). Recency effects occur when nominal sets of response options are presented orally. Respondents have the most time to implement confirmatory-biased thinking after hearing the final response option, and options heard most recently are most likely to be remembered after hearing a question. All this biases respondents toward selecting the last option they hear (Holbrook, Krosnick, Moore, & Tourangeau, 2007; Krosnick & Alwin, 1987). Primacy effects also occur with visually and orally presented ordinal rating scales because of a tendency for respondents to select the first response option they consider that falls within their "latitude of acceptance" of plausible responses. These effects tend to occur most among respondents with a low ability to optimize, when motivation to optimize is low, and when answering a question requires considerable cognitive work (Holbrook et al., 2007).

Response-order effects can be managed by randomly assigning different respondents to read or hear the response choices in one of various different orders. Because the researcher directs this assignment, it is possible to control statistically for the systematic variance thus created in the data. It is best to do so with interactions between the order manipulation and attributes of respondents indicating their cognitive ability (e.g., years of education) and motivation (e.g., their need for cognition).

Nondifferentiation in using rating scales

Many survey practitioners believe that answering a series of questions with the same response alternatives is easier and more enjoyable for respondents and more efficient for interviewers than constantly changing response alternatives from question to question (e.g., Lavrakas, 1987, pp. 145–146). This belief frequently leads survey designers to group questions together that offer the same response alternatives. For example, respondents might be asked to consider a series of brands of candy bars and to indicate for each one whether they like it a great deal, like it somewhat, like it only a little, or don't like it at all.

In recent years, researchers have come to recognize that there is an inherent danger in asking respondents to rate a series of objects on a common scale. In most cases, researchers hope that respondents will differentiate among the objects in their ratings. In the candy bar example, researchers might want to use the rating data to make inferences about which brands are preferred. Unfortunately, this is sometimes difficult to do, because some respondents fail to differentiate between the objects in their ratings, instead giving all or almost all of the objects the same rating (see, e.g., Krosnick & Alwin, 1988). Doing so may sometimes be the result of a careful consideration of the merits of the objects, but this response strategy could also be the result of strong satisficing. Satisficing respondents could, for example, simply select a point on the response scale that appears to be reasonable for the first object, and then rate all of the remaining objects at that point. Therefore, this response pattern might appear more often under the conditions that foster satisficing.

A number of studies have found evidence consistent with this prediction. Nondifferentiation is more common among respondents with less education (Krosnick & Alwin, 1988; Rogers & Herzog, 1984). Nondifferentiation is more common toward the end of a questionnaire than toward the beginning (Coker & Knowles, 1987; Herzog & Bachman, 1981; Knowles, 1988; Knowles, Cook, & Neville, 1989a, 1989b; Knowles, Lundein, & Irwin, 1988; Kraut, Wolfson, & Rothenberg, 1975; Krosnick & Alwin, 1988; Neville & Knowles, n.d.; Rogers & Herzog, 1984), particularly among respondents low in verbal ability (Knowles et al., 1989a, 1989b). Furthermore, placing rating questions later in a questionnaire makes correlations between ratings on the same scale more positive or less negative (Andrews, 1984; Herzog & Bachman, 1981; Krosnick & Alwin, 1988; Rogers & Herzog, 1984), which are the expected results of nondifferentiation (see Krosnick & Alwin, 1988).

Reducing the Likelihood of Satisficing

Researchers cannot control the ability level that a respondent brings to a questionnaire, but researchers can influence an individual's motivation to optimize and can influence the cognitive posed by a questionnaire. In order to minimize the likelihood of satisficing, questionnaire designers should take steps to maximize respondent motivation and to minimize task difficulty. Motivation can be enhanced by creating a sense of accountability among respondents, by providing instructions asking respondents to commit to thinking carefully and generating accurate answers, and by telling

respondents why the research project's findings will be valuable and have constructive impact. Task difficulty can be minimized by taking steps to make it easy for people to interpret questions, to retrieve information from memory, to integrate the information into a judgment, and to report that judgment.

For example, interpretation is presumably more difficult for questions written with rarely used words or words with various different meanings. Similarly, retrieval may be made more difficult by questions that ask about multiple objects rather than just one. It is useful to think of the difficulty of the judgment phase as a function of the *decomposability* of the decision to be made; the more constituent decisions that must be made and integrated into a single summary judgment, the more difficult this phase will be (see Armstrong, Denniston, & Gordon, 1975). A question can be difficult to answer at the point of response selection if the answer choices use familiar words with obvious meanings.

Mindful Versus Mindless Responding to Questionnaires

Mindfulness and mindlessness

Thus far, we have talked about the cognitive and contextual conditions that are associated with satisficing behavior by people answering questionnaires. Now, we turn to the literature on *mindfulness* and *mindlessness* to apply these concepts to the question-answering context of questionnaires.

Mindfulness has been described in a number of different ways, such as “bringing one’s complete attention to the present experience on a moment-to-moment basis” (Marlatt & Kristeller, 1999) or as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994). Most definitions of mindfulness contain three key components. First, mindfulness is a state of consciousness, not a trait of individuals (Lau et al., 2006). Second, this state of consciousness focuses attention on the present moment, the “here and now” (Herndon, 2008). Third, this present-moment attention is marked by consciousness of both internal and external phenomenon, or “both the content and context of information” (Langer, 1992).

In contrast, according to Langer (1992), “mindlessness concerns rigid invariant behavior that occurs with little or no conscious awareness” (Langer, 1992). Mindlessness is a state of reduced attention to the present moment that is typified by implementing cognitively scripted behavior without conscious awareness (Langer, 1975).

The contrast of mindfulness and mindless maps onto the contrast of optimizing and satisficing only partially and awkwardly. On the one hand, a mindful state seems necessary in order for optimizing to occur. That is, a respondent must focus their complete attention on the process of answering questions, with considerable cognitive awareness. However, satisficing could also occur in that way. That is, a satisficing respondent may be quite aware that they are choosing to shortcut the thinking process while answering questions and may execute satisficing mindfully, with attention and conscious awareness focused on that activity.

Furthermore, satisficing seems not to parallel mindlessness. To the extent that mindlessness involves the state of acting without thinking, it is similar to satisficing in that there is little conscious thought involved. But satisficing involves selecting among offered responses in ways that minimize cognitive effort, whereas mindless behavior involves relying on scripts and habits when taking actions. Thus, there is not necessarily a close parallel between these two distinctions.

It is intriguing to think about what would happen during the process of questionnaire completion if the respondent were in a state of mindlessness, behaving according to habits and scripts with very little conscious attention or thought. One circumstance in which this might occur is if a respondent is completing an online questionnaire simply to earn a financial reward and with no intention to even read or think about the questions at all (see, e.g., Yeager et al., 2011). And perhaps some college students completing a questionnaire in order to meet a course requirement might do this as well. It might be interesting to explore the behavioral habits or scripts that people execute under such circumstances in order to answer questions, in order perhaps to detect this behavior by observing patterns of responses.

Another possibility worth noting is that mindlessness may be a state into which respondents creep as they progress through a questionnaire. For example, a person completing a questionnaire may begin in a state of conscious awareness, executing cognitive processes thoughtfully and diligently. But as the questionnaire progresses, respondents might become fatigued and increasingly unwilling to think carefully. As a result, people may become increasingly mindless as time passes, and more questions are answered.

It is also interesting to think about the possibility of transforming respondents from being in a mindless state to being mindful. Specifically, the mindfulness literature suggests exploring the possibility that respondents could be told explicitly about the four stages of optimal question answering: interpretation, retrieval, integration, and judgment. Perhaps encouraging respondents explicitly to perform these cognitive tasks might lead people to be more effortful and responsible—in short, more mindful in a good way. But perhaps encouraging people to introspect and attempt to control the working of their minds would interfere with ordinarily effective processing and would yield reductions in report accuracy. Future studies could explore this possibility.

Indeed, one instantiation of this general concept is a core component of what is known as *cognitive interviewing*, an increasingly popular pretesting method used to identify problems with wordings or formats employed in questionnaires (Beatty & Willis, 2007). During this pretesting procedure, respondents are first asked to restate each question in their own words and then think out loud to verbalize all their thoughts when generating an answer to the question. The purpose of this procedure is to gain insights into how people interpret questions, to identify instances in which misinterpretations occur, so questions must be rewritten. It seems obvious that the procedure itself will induce a state of mindfulness, so the answers that pretest respondents provide are likely to reflect that mindful state. If the same state would be desirable during all questionnaire completion, it might be interesting to see what methods could be used to induce it without considerably lengthening the interview process the way that cognitive interviewing does.

Are there benefits of satisficing for assessing mindlessness?

One might imagine that if a questionnaire's purpose were to predict or understand behavior performed mindlessly, then optimizing during questionnaire responding would not be desirable. Instead, we might want people to answer a questionnaire in just the way they will ultimately act in the situation of interest: thinking only superficially. Thus, it might seem that satisficing would be desirable to accomplish such research goals.

There are two principal reasons that we do not share this perspective. First, we view the goal of questionnaire measurement of subjective phenomena to be the accurate assessment of the contents of an individual's memory. Thus, if the contents of memory are incompletely measured and/or the measures are biased, then we are handicapped in any effort to describe how the information in a person's memory will later impact their thinking or action. The process of mindless behavior involves superficial or biased retrieval from memory, so the challenge of explaining such behavior is to document the superficiality and bias in the process. To assess the contents in an incomplete or biased fashion is to incorrectly assign that incompleteness and bias to the contents, not to the process by which they are retrieved and applied.

The second reason why satisficing is undesirable, even for understanding behavioral phenomena that may involve mindlessness, is that its particular manifestation for any given measure is presumably a function of the question form employed. If a "don't know" alternative is offered, satisficing might manifest itself as a selection of it. If a question is closed-ended, a response-order effect may be manifested in the form of selecting the first reasonable response. If a question is in an agree/disagree format, satisficing may drive respondents toward affirmative answers. Yet these biases are not substantively informative about the contents of respondents' memories. They reflect primarily the question format that the researcher happens to have chosen to measure the construct of interest. How could such biases possibly help a researcher to understand the sources of mindless behavior performed without a question stimulating it? We think they cannot, and so we believe satisficing is best avoided, even when assessing mindless behaviors.

Benefits of bridging the mindfulness and satisficing literatures

Satisficing theory may offer some thoughts of value to mindfulness research. First, awareness of satisficing when completing questionnaires is useful for mindfulness researchers to consider any time that mindfulness is measured using questionnaires, which seems to be quite often (Baer, 2004; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008; Herndon, 2008; Lau et al., 2006; Van Dam, Earleywine, & Borders, 2010). Satisficing can have dramatic impacts on data reliability and validity, so it is important that researchers in any domain making use of questionnaires apply concerted and concrete efforts to reduce satisficing by task difficulty and increasing respondent motivation. We hope that this chapter raises awareness of the causes of satisficing and the risks that it poses to questionnaire-based research on mindfulness in such a way that helps measurement to improve and science to advance more rapidly.

Second, satisficing theory might stimulate new hypotheses and directions in the area of mindfulness research. For example, as with satisficing, perhaps when people are being mindless, they are more prone to acquiescence bias or deciding that they “don’t know” something that they might actually hold in memory (e.g., Chiesa, Calati, & Serretti, 2011). To our knowledge, exploration of this possibility has not been conducted in either the mindfulness or survey research domains. The predictions made by satisficing theory could be tested in the contexts of mindlessness and mindfulness to identify whether the predicted patterns arise in each. Perhaps participants trained to be mindful are more motivated during the question-response process and will demonstrate more optimizing behavior rather than satisficing. Similarly, perhaps participants that are mindlessly engaging in the question-response process will be less motivated and more likely to exhibit satisficing behaviors.

In addition, mindfulness researchers may benefit from the sizable and accumulating literature on the causes of satisficing (Krosnick, 1991). Under the headings of ability, motivation, and task difficulty, many concrete attributes of individuals, situations, and questions have been identified as catalysts of satisficing. These same factors might combine in the same additive and interactive ways in inducing mindless behavior, a possibility worth exploring in future research.

There may also be benefits for survey researchers from understanding the concepts of mindfulness and mindlessness, and the literature on them. Particular subfields and techniques of survey research may be uniquely suited to take advantage of the concepts and methods of mindfulness training, while others may benefit from understanding mindless behavior. For example, cognitive interviewing seems well positioned to benefit from incorporating the concepts and training techniques thought to induce mindfulness. Similarly, techniques for stimulating mindfulness may be useful for researchers employing Ecological Momentary Assessment, which is a survey practice where respondents are called at intervals throughout a day and asked to report their behavioral and cognitive processes and states in the natural settings (Stone & Shiffman, 1994). Lastly, there may be a place for exploring the extent to which mindless responding to requests (Langer, Blank, & Chanowitz, 1978) might be useful to exploit in the context of increasing survey participation rates. In other words, there may be a parallel between “May I use the copy machine? I need to make some copies.” and “Would you please complete this survey? We need your responses.” If potential respondents might mindlessly comply with the request to participate in a survey, given the appropriate request framework and length, then there may be implications for how survey interviewers should make the initial request for participation in order to increase response rates.

These observations and potential links between mindfulness and mindlessness research and survey methodology are largely speculative, but we believe that they may act as a starting point for exciting new research directions that could provide benefits for research in both fields. These and other questions could provide meaningful new incentives to bridge the fields of mindfulness and satisficing research. We hope that this chapter acts as a starting point to stimulate new ideas and applications of existing theories, concepts, and techniques in important psychological and methodological research.

Conclusion

In this chapter, we have outlined the cognitive features of responding to questionnaires and described satisficing theory, a framework for understanding the conditions that predict when people are likely to engage in suboptimal questionnaire responding. We then described a series of concrete steps that researchers should take to reduce opportunities for satisficing when designing questionnaires. We hope that this evidence-based advice will prove useful to mindfulness researchers whenever they use questionnaires.

Next, we turned to examining the potential conceptual parallels and connections that may exist between optimizing and mindfulness, and satisficing and mindlessness. While these concepts are in many ways complementary, they do not completely overlap, and neither can fully explain the other in the context of the questionnaire-response process. Despite this lack of perfect correspondence between the concepts, there may be significant benefits that mindfulness researchers could gain from an understanding of satisficing. By applying the optimal questionnaire design principles suggested by satisficing theory, researchers can reduce opportunities for satisficing among their participants, which should have the effect of improving data reliability and validity. Furthermore, satisficing theory presents opportunities to ask new and interesting questions about the effects of mindfulness and mindlessness in light of satisficing theory. There are also opportunities for survey methodology research to benefit from understanding the integrating concepts and techniques from mindfulness and mindlessness research in hopes of improving both data quality and survey participation. We hope that this chapter provides important insights and guidance that will help move both mindfulness research and survey methodology forward by improving data collection and offering new areas for research.

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18

The Impact of Mindfulness on Creativity Research and Creativity Enhancement

Shelley Carson

The qualities of mindfulness are important components of creative ideation. The *mindful* state, in which an individual actively and nonjudgmentally notices novel aspects of objects and situations, forms an internal cognitive environment in which associations that lead to new products, discoveries, inventions, and processes can occur. In contrast, the *mindless* state—in which an individual adheres to preconceived conceptualizations of objects and events in the environment (without noting differences in context)—discourages the production of creative ideas, discoveries, and products.

Consider, for example, the classic case of Scottish biologist, Alexander Fleming: Before leaving on holiday with his family, Fleming left several culture plates containing variants of the staphylococcus bacterium uncovered on a bench in his laboratory. Some of the culture plates became contaminated with an air-borne microorganism. When Fleming returned, he noticed that in some of the contaminated plates, a white fluffy mold was growing. He further noticed that the bacteria near the mold were dying, or “undergoing lysis,” as Fleming recounted in his original report. Fleming then examined the mold more closely and began to culture it (Fleming, 1929).

Although much more work would still need to be done to convert that serendipitous contaminant into penicillin, the discovery of a medical miracle occurred in a Scottish laboratory in 1928, because a biologist *mindfully* observed an anomaly on a culture plate—rather than *mindlessly* categorizing it as “contaminated” and discarding it.

There are many first-hand accounts of the discovery or invention of scientific and artistic products that highlight the importance of a mindful state. There is also a growing body of cognitive and neuroscience research that associates the state of mindfulness either directly or indirectly with the creative process. In this chapter, I will first define creativity and two separate but complementary traditions of mindfulness research. I will also underscore the need for creativity in the 21st century. I will then examine how mindfulness is related to a variety of characteristics that define the creative individual,

and I will describe how mindfulness informs the creative insight process. Finally, I will demonstrate how an attitude of mindfulness may enhance our natural creative abilities.

Definitions of Mindfulness and Creativity

Creativity has been associated both theoretically and empirically with two different traditions of mindfulness research. While both traditions emphasize being present in the moment and viewing the self and the environment in a nonjudgmental way, there are definite distinctions in the theory, research, and practice of both traditions.

The Western tradition of mindfulness

The first tradition, which I will refer to as the Western tradition, views mindfulness as a flexible state of mind that results from drawing novel distinctions about the situation and the environment. This tradition is derived from the work of Harvard social psychologist Ellen Langer and her associates, based on their empirical work in the field of choice and decision-making processes (Langer, 1989, 1997). The *mindful* person is actively engaged in the present and sensitive to both context and perspective. In the mindful state, a person is noticing new aspects of experience on many levels simultaneously and is typically *guided* by rules and routines but not *governed* by them. In contrast, *mindlessness* is a rigid state in which a person adheres to a single perspective and interacts with the environment with preconceived automatic responses, oblivious to context or perspective. The mindless person tends to pigeon-hole experiences and objects into rigid categories. Thought processes and behavior in the mindless state are *governed*, rather than guided by, rules and routines that have been established (usually by others) in the past. In the Western tradition, mindfulness is encouraged by teaching individuals to view information from multiple perspectives and to categorize information and experience in provisional rather than absolute ways (Langer, 2000).

The Eastern tradition of mindfulness

The second construct of mindfulness, which I will refer to as the Eastern tradition, has its roots in Zen Buddhist philosophy, and has been popularized in the West by the work of Buddhist monk, Thich Nhat Hanh (1975), and University of Massachusetts scientist, Jon Kabat-Zinn (1990). In this tradition, the mindful state is associated with a specific type of meditation in which attention and conscious awareness are focused on present-state thoughts, emotions, and perceptions of one's surroundings.

The goal of mindfulness meditation in the Eastern tradition is to achieve a nonjudgmental state of quiet mind that promotes *acceptance* of the self and the environment. In contrast, the goal of mindfulness in the Western tradition is to view phenomena non-judgmentally from multiple perspectives and then *choose* the perspective that makes the most sense in the given context. The difference might be described as quiet acceptance versus active choice.

Definition of creativity

While the definition of creativity has long been debated, most researchers in the field have agreed that two elements need to be present for an idea or product to be considered creative: first, it must be *novel* or *original*, and second, it has to be *useful* or *adaptive*. In other words, it has to serve a purpose for at least some portion of the population (Barron, 1969). For example, the scribblings of a toddler who has just learned to hold a crayon are *novel* and *original*, but they are not typically considered *creative* under our definition because they are not *useful* or *adaptive* for some portion of the population. Of course, the *mindful* person could dispute this example and point out that judging the toddler's scribblings as nonuseful would be to prematurely categorize them and ignore the adaptive aspects of learning to use a drawing implement or of having one's fledgling attempts at art hung on the refrigerator door by a doting mother. Thus, we immediately run into a dilemma posed by the intersection of science and mindfulness. In order to study a construct scientifically, we must be able to define and measure it; however, the very act of defining and measuring a thing involves limiting (perhaps mindlessly) its description and functions to those that can be concretely defined and measured.

In my research, I define creativity as follows: it is the ability to combine or recombine bits of information in novel or original ways to arrive at an idea or product that is useful or serves a purpose (Carson, 2010). "Bits of information" can be stored in the individual's unique brain repository of knowledge, memories, and skills, or they can arrive from the external environment through the sensory organs. This definition combines the elements of *novel/original* and *useful/adaptive* with the well-accepted theory that creative thinking involves the forming of associative elements into new combinations (Mednick, 1962).

Many people confuse the concept of creativity with that of *talent*. For example, I often have people tell me that they are not creative because they cannot even draw a stick figure. The ability to draw realistically is a matter of talent, however, rather than creativity. Talent is technical ability in a particular domain of endeavor (such as perfect pitch in music or mathematical calculation skills). Creative capacity (which is innate in all of us) surpasses the boundaries of domains and is transferrable to many areas of one's life.

The Importance of Creativity in the 21st Century

We are all aware of the comfort and richness that human creativity has brought to our lives. From advances in modern medicine to the invention of hand-held communication devices to music, poetry, and art that calm or motivate us, we have all benefitted from the creativity of those who have gone before us. We also benefit from our own major or minor acts of creativity, which may include anything from patenting inventions to pursuits such as painting, journaling, playing music, gardening, or cooking. Recent studies indicate that engaging in creative activity can reduce stress, regulate mood, and increase longevity (Cohen et al., 2006).

The purpose of human creativity, however, is not only personal enrichment; it has historically served as a survival mechanism for our species. Our human predecessors

were not strong enough to fight off large predators nor fast enough to outrun them; we were able to survive as a species due primarily to our human ingenuity that allowed our predecessors to build tools, weapons, and shelters. In other words, we humans were able to conceive of that which did not already exist and actually bring it into existence to meet our survival needs. Creativity is our survival mechanism today, as well; it is a vital resource for meeting the challenges and dangers, as well as the opportunities, of the accelerated-change climate of the 21st century.

The recent explosion in information and technology, which has facilitated cyber-communication and globalization, has also transformed the way we learn, the way we do business, and the way we relate to each other. As the rulebooks for virtually *every* aspect of human endeavor and interaction are changing before our eyes, the need for creative solutions to never-before-imagined problems has intensified. Creativity is no longer limited to the work of artists, writers, musicians, and scientists; it is also a valued commodity in professions from athletes (Eisenberg, 2005) to military officers (Matthew, 2009). Further, according to a recent worldwide study of CEOs, creativity is now considered the most important leadership quality for business executives (IBM Corporation, 2010).

Businesses that do not innovate risk falling behind their competitors. It is no longer possible to rest on previously successful products or to conduct business in the same old way that has worked in the past. One example is the spectacular collapse of U.S. automaker General Motors, which required a large infusion of taxpayer capital to keep its doors open. Analysts attributed the collapse to a corporate culture that sacrificed innovation, creativity, and long-term vision in favor of short-term returns on investment (Maynard, 2008).

Creative solutions are needed for problems such as a faltering world economy, an increase in global terrorism, and deadly physical and mental disorders such as heart disease and depression. In recognition of this realization, former UK Prime Minister, Gordon Brown, has suggested that creativity and innovation are the most critical factors in the future of the UK economy (Brown, 2009). Creative solutions are also needed for problems at the personal level, including everything from how to comfort a child who hasn't made the soccer team to how to prepare for a productive and engaging retirement.

Clearly, the need for creativity at both the individual and the societal level is now being recognized and acknowledged. Our human ingenuity and creativity are the greatest assets we possess for successfully negotiating this rapidly changing modern world (Carson, 2010). If an attitude of mindfulness (in either the Western or Eastern tradition) can enhance these assets, then the broad implementation of mindfulness strategies becomes an important component in 21st century growth and survival.

Mindfulness and the Characteristics of Highly Creative People

Creative accomplishments are the result of a confluence of factors existing within the individual, including (but not limited to) personality traits, such as openness and self-confidence (Feist, 1999); creative thinking skills; and intrinsic motivation

(Amabile, 1996). Aspects of mindfulness in both the Western and Eastern traditions are crucial to each of these factors.

Personality traits

The personality trait most robustly associated with creativity across multiple studies is openness to experience (Feist, 1999). Openness to experience represents the tendency to view ideas, events, and experiences in a nonjudgmental and interested manner. It is characterized by active imagination, intellectual curiosity, and a preference for variety (Costa & McCrae, 1992). Langer (1989), in her classic book on mindfulness in the Western tradition, relates that “Openness, not only to new information, but to different points of view is also an important feature of mindfulness” (p. 68).

Likewise, Bishop et al. (2004), in proposing an operational definition of mindfulness in the Eastern tradition, describes one of the two main components of mindfulness as “an orientation that is characterized by curiosity, openness, and acceptance” (p. 232). Baer and colleagues found that measures of Eastern mindfulness were significantly and highly correlated with the openness to experience trait (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). In a comparison of personality traits among experienced Dutch mindfulness meditators and nonmeditators, van den Hurk and colleagues found that the mindfulness meditators had significantly higher openness to experience scores than did the nonmeditators (van den Hurk et al., 2011). These investigators also found that openness to experience was positively correlated with the amount of mindfulness meditation experience within the meditator group. It is unclear from these findings, however, whether increased mindfulness meditation enhances openness or whether individuals who are high in openness may be more likely to engage in mindfulness meditation.

Clearly, mindfulness is associated with openness to experience, which is, in turn, an important component of creativity. Although personality traits such as openness are by nature fairly stable across the lifespan, studies have shown that it *is* possible to increase openness through training and practice (Jackson, Hill, Payne, Roberts, & Stine-Morrow, 2012). Mindfulness exercises may be one method of increasing this creativity-related personality trait.

A second personality trait, self-confidence, is also crucial to creativity (Feist, 1999). Self-confidence is the belief in one’s own powers and abilities. Because creative ideas are by definition novel and original, they may represent a change from previously accepted ways of doing things and thus may be met with substantial criticism and even hostility. Without self-confidence, the creative individual will have difficulty pursuing a creative idea to fruition in the face of that criticism and the desire of others to maintain the status quo. Consider, for example, the case of Vincent van Gogh. His art was either highly criticized or ignored during his lifetime; yet he is now considered to be one of the prominent artists of the 19th century. If he had lacked confidence in his own artistic mission, he would never have made a substantial mark on the art field, and the world would not have benefitted from his starry nights and colorful sunflowers.

Mindfulness in the Western tradition suggests that self-confidence is a *mindful* decision and that low self-image is often a *mindless* response to social comparisons (Langer,

1989, 2005). Social comparison research has found that upward comparisons (comparing ourselves to someone who is perceived as more competent or successful than we are) can lead to decreased self-regard, while downward comparisons (comparing ourselves to someone who is perceived as less competent or successful) can only temporarily boost self-regard. Ultimately, however, the tendency to continually compare ourselves with others—whether through upward or downward comparisons—has a negative effect on self-esteem and self-confidence (White, Langer, Yariv, & Welch, 2006). In a study of whether mindfulness training can reduce the negative effects of social comparison on self-confidence, researchers from Harvard asked participants to draw pictures that would be subject to either upward or downward social comparison. Some of the participants received brief mindfulness training before the experiment in which they practiced viewing potentially negative events from multiple perspectives. As predicted, mindfulness training made the participants less vulnerable to the effects of social comparisons (Langer, Pirson, & Delizonna, 2010). Researchers note, however, that social comparisons can actually be beneficial to self-confidence and self-esteem when they are viewed *mindfully*, with an eye toward noting specific areas in which an individual might seek personal growth and improvement (Carson & Langer, 2006).

In another study, researchers asked tourists in Rome to draw pictures of things in their environment (Grant, Langer, Falk, & Capodilupo, 2004). The authors hypothesized that those who were drawing in an art environment (the Pantheon) would have less confidence in their work due to unfavorable social comparison (they were surrounded by paintings done by European masters), while those in a nonart environment (the Coliseum) would have somewhat more self-confidence in their work. This hypothesis was confirmed, suggesting that upward social comparison in the art environment condition had a detrimental effect on the tourists' self-confidence in their ability to draw. In a second study, the authors hypothesized that those subjects who were given a mindfulness manipulation would feel more confident in their drawing than those who did not receive the mindfulness manipulation. This hypothesis was likewise confirmed, suggesting that increasing mindfulness may also increase self-confidence in one's work.

Several studies have found that mindfulness meditation in the Eastern tradition has a positive effect on self-confidence and self-esteem. Many of these studies are associated with the positive benefits for self-confidence that arise from Mindfulness-Based Stress Reduction (MSBR) in the treatment of psychopathology, such as depression or anxiety disorders (e.g., Goldin & Gross, 2010). Other studies have examined the effect of mindfulness-based programs on self-confidence in the context of performance. In one study, researchers put amateur archers and golfers through a four-week mindfulness program (Kaufman, Glass, & Arnkoff, 2009). Both groups improved in terms of confidence and reduced performance-related anxiety. The practice of mindfulness meditation emphasizes awareness of self without judgment of self. One of the mindfulness meditative strategies for improving self-confidence involves noticing the self-doubt that may invade our ongoing internal dialog without judging that dialog or giving the self-doubt power over our self-concept.

There is also evidence that Eastern mindfulness as a *trait* (that is, the tendency to be nonjudgmentally present in the current moment) is associated with high self-confidence and self-esteem. When researchers gave standard measures of both

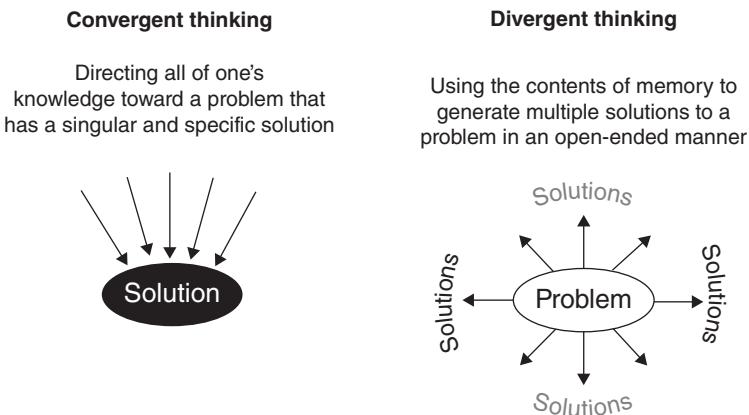


Figure 18.1 Divergent and convergent thinking. Carson, 2010. Reproduced with permission from John Wiley & Sons, Ltd.

mindfulness and self-esteem to several large samples of U.S. college students and adults from the general population, they found that the measures were highly and significantly correlated (Brown & Ryan, 2003). People who are highly mindful appear to be self-confident as well.

Self-confidence is important to creative endeavor. The creative individual must have confidence in their work in order to overcome potential criticism and to sustain the effort associated with the creative process. Mindfulness skills (whether practiced through informal Western mindfulness techniques or more formal Eastern mindfulness programs) may augment self-confidence and reduce concern about negative evaluations and social comparisons.

Creative thinking skills

The thinking skill that is most often associated with creativity is the tendency to use a *divergent* thinking style. Divergent thinking, first described by Guilford (1956), is one of the hallmarks of the creative mind. In fact, many researchers who study creativity use tests of divergent thinking as a measure of *trait* creativity or *potential* creativity (Eysenck, 1995). The essence of divergent thinking is the ability to generate multiple novel or unique solutions to a problem. In contrast, *convergent* thinking is the ability to focus on finding the one correct solution to a problem (see Figure 18.1). As an example, determining how many states in the United States have a capital city that begins with the letter "T" would be solved using convergent thinking, while generating unusual uses for a common household object would employ a divergent thinking style. When used as a measure of creativity, divergent thinking is assessed in terms of the fluency (number of solutions), originality (statistical infrequency of solutions), and flexibility (number of different categories of solutions) of responses to a specific prompt (such as listing as many uses for a brick as possible; Torrance, 1968). While both convergent and divergent thinking styles are necessary to the creative process, creative ideas tend to be generated using divergent thinking, and the ability to

think divergently is predictive of real-life creative achievement (Carson, Peterson, and Higgins, 2005).

Divergent thinking has been associated with a neurological state of broadened attentional focus (Martindale, 1999). A body of research indicates that positive affect also broadens attentional focus and increases divergent thinking (Ashby, Isen, & Turken, 1999; Fredrickson & Branigan, 2005). By promoting awareness of the present environment and actively noticing new things, Western mindfulness encourages broadened attentional focus. Further, mindfulness manipulations have been shown to actively increase positive affect and promote creative engagement with the environment (Grant et al., 2004). In a study of seniors, mindfulness and active engagement with the environment were associated with higher levels of divergent thinking (Parisi, Stine-Morrow, Noh, & Morrow, 2009). This same group of researchers found that divergent thinking scores of seniors who had been given a mindfulness manipulation to actively engage with the environment increased significantly over those of a control group (Stine-Morrow, Parisi, Morrow, & Park, 2008).

Direct evidence for a connection between Eastern mindfulness and divergent thinking has also been reported. Colzato, Ozturk, and Hommel (2012) looked at the effects of two different types of meditation on convergent and divergent thinking in a group of Dutch subjects. Each subject participated in three sessions (one session of focused-attention meditation, one of open-monitoring meditation, and one visualization session that was used as a control condition), after which they were given divergent thinking tasks. The researchers found that the open-monitoring meditation (a type of mindfulness) led to significantly higher divergent thinking scores than either the focused-attention meditation or the control exercise.

These findings suggest that mindfulness—in both Eastern and Western traditions—is associated with divergent thinking. Further, it appears that practicing simple mindfulness exercises can actually improve divergent thinking skills.

Another related creative thinking skill is cognitive flexibility (Dietrich, 2004). Cognitive flexibility is defined as the ability of a person to change their conceptual system or point of reference in response to appropriate environmental stimuli (Scott, 1962). Being able to shift one's focus in response to context allows a person to look at events, objects, and concepts in a new light. For example, Alexander Fleming, in our earlier example, was able to shift his focus from viewing the mold in his specimen plates as an unwanted invader to an object of potential scientific interest. Consider also the example of Swiss engineer, George de Mestral. After returning from an Alpine hunting trip with his dog in 1941, de Mestral found that both his jacket and the dog's fur were covered with small burrs. De Mestral could have mindlessly viewed this situation as an annoyance; however, he was able to adopt a mindful attitude of noticing new things. He became fascinated with how the burrs hooked themselves onto material or fur and examined one of them under the microscope. This mindful examination of the lowly burr led to the invention of Velcro (Freeman & Golden, 1997).

Langer's (1989) Western conception of mindfulness emphasizes several aspects of cognitive flexibility, including the act of noticing new distinctions in familiar objects and the act of creating new categories depending on context rather than holding mindlessly onto predetermined rigid categories. Langer calls this tendency to pigeonhole or put objects or people into rigid categories “premature cognitive commitment”

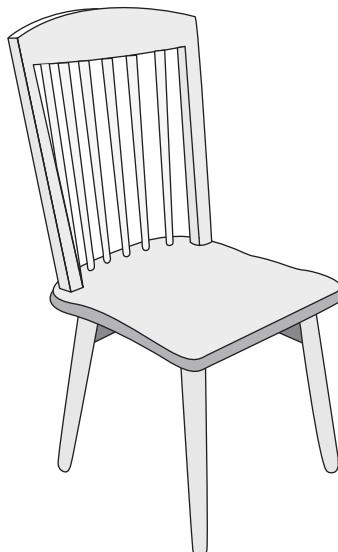


Figure 18.2 Carson, 2010. Reproduced with permission from John Wiley & Sons, Ltd.

(Langer, 1989, p. 22). Research has shown that being able to categorize items in broader and more fluid categories that change depending on context is a key component of creative thinking (Runco & Chand, 1995). For instance, consider how one might categorize the object shown in Figure 18.2.

To rigidly categorize it as a chair would be a premature cognitive commitment to see it as a piece of furniture on which one sits. This categorization makes it less likely that one could view it differently depending upon the situation. It could be, for example, a weapon, a table, a source of firewood, a stepping stool, or a barricade to keep a pet in the back hall. By maintaining flexible and fluid categories (e.g., thinking of it as an object that *could be* used as chair), it is more likely that one could see creative possibilities for this or other objects or situations.

In an elegant laboratory experiment, Langer and Piper (1987) illustrated the creative value of maintaining flexible categories. They introduced several items to subjects in either a mindless/rigid ("Object A is a dog's rubber chew toy") or a mindful/flexible ("Object A *could be* a dog's rubber chew toy") manner. Later in the experiment, subjects were called upon to erase some pencil marks made earlier; those in the mindful/flexible condition were significantly more likely than those in the mindless/rigid condition to make the connection that the dog's rubber chew toy could be used as an eraser.

Cognitive flexibility has also been studied relative to the Eastern tradition of mindfulness. In a study of experienced mindfulness meditators versus nonmeditators, British researchers found that the mindfulness meditators had better scores than non-meditators on two neuropsychological measures of cognitive flexibility. They also found that there was a significant correlation between scores on a mindfulness measure and the cognitive flexibility measures (Moore & Malinowski, 2009). In another

recent study, researchers found that mindfulness meditators who had undergone an eight-session mindfulness program had significantly lower scores than meditation-naïve controls on a measure of cognitive rigidity (the opposite of cognitive flexibility; Greenberg, Reiner, & Meiran, 2012). Yet another study of mindfulness meditation practice and cognitive flexibility indicated that experienced meditators performed better on a perspective-switching task. Experienced meditators were able to identify more alternative perspectives for ambiguous images and could identify the first perspective more quickly than did nonmeditators (Hodgins & Adair, 2010).

Intrinsic motivation

While there are debates about what types of *extrinsic* motivation (including rewards, fame, shame, and competition) tend to increase creativity (Eisenberg & Cameron, 1996), there is no doubt that *intrinsic* motivation is a major factor in creative achievement (Hennessey, 2010). Intrinsic motivation is defined as “the inherent tendency to seek out novelty and challenges, to extend and exercise one’s capacities, to explore, and to learn” in the absence of specific external rewards (Ryan & Deci, 2000, p. 70).

High levels of internal motivation and the human capacity to lose oneself in a project appear to be integral to the creative process. Isaac Newton, for example, would become immersed in his work and not leave his rooms at Cambridge University for weeks at a time, according to reports from his assistant, Whiston. Whiston claimed to have been rebuffed if he so much as interrupted Newton to leave him a plate of food (Westfall, 1994). This kind of intrinsic motivation is associated with a state of flow, in which a person experiences a sense of timelessness and is totally absorbed and completely confident in their ability to engage in the task at hand (Csikszentmihalyi, 1996).

The state of flow and strong intrinsic motivation are highly rewarding. However, many—perhaps most—people do not feel intensely intrinsically motivated by their work and may pass their days feeling unfulfilled or unchallenged by their activities. According to Western mindfulness theory, these people may be approaching their work mindlessly. By purposefully noticing new aspects of their work and becoming engaged in the present, they should be able to mindfully increase their engagement and intrinsic motivation (Langer, 1989). To test this theory, Langer, Russell, and Eisenkraft (2009) asked members of a large symphony orchestra to play well-known compositions twice: once with the instruction to recreate the best performance of the piece that they could remember playing (the control condition) and once with the instruction to incorporate subtle new nuances into the performance (the mindful condition). Orchestra members completed questionnaires on how engaged they were and how much they enjoyed playing the pieces after each performance. The performances were recorded and played for an audience at a later time. Across two separate studies, musicians rated playing the musical pieces as much more enjoyable in the mindful condition than in the control condition, suggesting higher intrinsic motivation. Further, the audiences preferred the recordings of the pieces played in the mindful condition over those played in the control condition, suggesting that the increase in intrinsic motivation for the musicians was associated with better and more creative performance.

In the drawing study mentioned earlier, Grant and colleagues (2004) had subjects draw pictures in a stressful environment (a dentist's office). Some subjects were given a simple mindfulness manipulation before the experiment "Draw distinctions between the things that you see and observe how they change." The subjects who were given this simple mindfulness suggestion reported enjoying the drawing task more and feeling more competent in their abilities, even though their stress level remained as high as that in the control group.

Intrinsic motivation, the internally rewarded push to explore and work toward a goal, is a driving force behind creative achievement. The state of mindfulness, defined by open awareness and interested attention in the current environment, has been associated with autonomous or intrinsic motivation (Deci & Ryan, 2008). As we have seen, mindful manipulations appear to enhance intrinsic motivation in creative activities such as drawing and performing music. Intrinsic motivation appears to be yet another pathway through which creativity and mindfulness intersect.

Mindfulness, Brain States, and Creative Insight

Graham Wallas (1926), in his classic book *The Art of Thought*, was among the first to identify a set of stages in the creative process, which he based on descriptions provided by creative luminaries in letters, diaries, and interviews. In my work with over 1,000 creative individuals, I have found that the stages set forth by Wallas are confirmed by descriptions of the creative process from modern luminaries who have never heard of Wallas's work; thus, the following stages appear to be more or less universal. They include stages of *preparation* (gathering knowledge, honing domain-specific skills, creative problem-finding), *incubation* (allowing a creative problem to develop below the level of conscious awareness), *illumination* or *insight* (the aha! experience when a creative idea bursts forth into consciousness), and *verification* (testing the idea for soundness and then fleshing it out to create the finished idea or product).

While most of this creative process is fairly transparent, the stages of incubation and insight have traditionally been treated as somewhat mystical. The ancient Greeks believed that creative ideas were imparted to men through the breath of the gods. (Our word *inspiration* actually means to "breathe in.") William Blake credited some of his creative insights to small spirits who surrounded him and often jostled him to get his attention (Shaw, 2000). Other luminaries have credited angels or deceased relatives with providing their insights (Carson, 2010).

There is a spontaneous nature to creative insight. Mozart has described how a symphony appeared suddenly within his mind with all the orchestral parts discernible (Ghiselin, 1952); likewise, the mathematician, Poincaré, has described how equations "rose in crowds" in his head, without his bidding, and then interlocked. He had but to write them down (Ghiselin, 1952, p. 25).

Reports such as these, as well as the many impressive works that appear to have been spawned by spontaneous moments of insight or inspiration, may suggest that some people are born with a creative "gift," while others are just simply not creative. Modern neuroscience investigations suggest otherwise. Brain-imaging research and psychophysiological studies using EEG technology indicate that highly creative

individuals employ specific brain-activation patterns when engaging in creative problem solving (e.g., Howard-Jones, Blakemore, Samuel, Summers, & Claxton, 2005; Martindale, 1999). These patterns may represent a tendency to access spontaneous creative material (Dietrich, 2004). Brain structures, however, appear to be no different in highly creative individuals than in those who do not exhibit much creative aptitude. The difference, then, between high and low creative individuals appears to be in their ability to access brain activation states that allow information being processed below the level of conscious awareness to make its way into the conscious theater of the mind (Carson, 2011).

If we can learn to access the brain activation states demonstrated by highly creative individuals, we may be able to enhance our own level of creativity. Recent findings, based on neuro-feedback studies (Gruzelier, 2009) cognitive-behavioral interventions (e.g., Straube, Glauer, Dilger, Mentzel, & Miltner, 2006), and cognitive rehabilitation programs (e.g., Chiaravalloti, Leavitt, Wylie, & DeLuca, 2012), suggest that we *can* manipulate our brain activation states. In other words, we can *teach ourselves* to be more creative. Simple mindfulness exercises and meditation instructions may be one technique for teaching creativity, as we shall see in following section.

Neuroscientists have been investigating the brain states associated with mindfulness meditation for more than a decade, beginning with the famous “lama in the lab” studies (Goleman, 2003), which were inspired by meetings in the year 2000 between the Dalai Lama and leading U.S. scientists. Clearly, experienced meditators are able to achieve an altered state of consciousness as indicated by their brain-activation patterns; what is interesting is that characteristics of these brain patterns are also noted in highly creative people when they are generating solutions to creative problems (Gruzelier, 2009).

Defocused attention and mildly disinhibited cognitive states during the incubation and insight stages of the creative process may allow increased sensory stimuli, unusual associations, and mental images into conscious awareness that can then be combined and recombined to form creative ideas (Carson, 2011). Access to information that is typically filtered out of consciousness has been shown to predict both divergent thinking and creative achievement in high-functioning individuals (Carson, Peterson, & Higgins, 2003). This disinhibited state corresponds to a type of “receptive” attention that is cultivated in mindfulness meditation (Jha, Krompinger, & Baime, 2007). Receptive attention aims to remain open to the whole field of awareness, including to stimuli that would be considered extraneous or irrelevant. Thus, mindfulness meditators who practice receptive attention may more readily access creative material that has been incubating in associational areas of the brain.

From a brain-activation-pattern perspective, both the defocused and disinhibited brain states associated with creative insight and the receptive attention state of mindfulness meditators are characterized by greater levels of cortical alpha and theta-bandwidth activity, especially in the prefrontal cortex (Lagopoulos et al., 2009; Martindale, 1999; Takahashi et al., 2005). Alpha waves (between 8 and 13 Hz) are typically associated with a relaxed mental state and a broadened attentional focus that is inwardly directed. While there is debate over the interpretation of theta waves (between 4 and 7 Hz) in association with meditation, theta seems to evoke heightened awareness and efficient cognitive processing.

Researchers at Northwestern University have detected increased alpha activity followed by a short burst of gamma wave activity in the right temporal lobe just before subjects report experiencing an aha! moment when solving insight problems (Jung-Beeman et al., 2004). The authors speculate that the gamma burst is related to unconscious material being ushered into conscious awareness where it is perceived as a moment of insight. At least one study (Faber et al., 2004) found that open or mindful meditation was accompanied by increased gamma activity in the temporal lobe as well. Ostafin and Kassman (2012) reported that subjects with higher trait mindfulness were, indeed, better than those with low trait mindfulness at solving problems that required a moment of insight. Further, these authors found that subjects who had received a short mindfulness induction were better at solving the insight problems than those who did not receive the mindfulness induction, suggesting that mindfulness techniques can be used to enhance the experience of sudden moments of insight.

The similarity between brain activation states of highly creative people and those of mindfulness meditators suggests that creativity and mindfulness may have physiological as well as theoretical similarities. Roy Horan (2009), in a review of the neuropsychological connection between creativity and mindfulness meditation, suggests that mindfulness meditation creates “a relaxed, yet alert, witness state … [that] could then conceivably activate weak or nonexistent associations leading to creative inspiration” (p. 205).

The research on creative insight highlights the similarities between a state of mindfulness and the brain state that appears to facilitate creative idea generation. Along with the findings on personality traits, creative thinking skills, and intrinsic motivation, this research presents a growing body of work on the interface between mindfulness and creativity. Because mindfulness techniques are easy to implement, they may provide us with a method of universally enhancing our creative capacity.

Mindful Conclusions

In this chapter, I have reviewed how constructs of mindfulness, from both the Western socio/cognitive tradition and the Eastern meditative tradition, are associated with creativity through the pathways of personality traits, cognitive processes, and motivational factors. I have emphasized the importance of creativity if we are to address present-day challenges at both the societal and individual levels. I have demonstrated that mindfulness is related to the creative-insight process. Mindfulness—in the form of actively noticing new things in our environment and making choices based on current context, as well as in the formal and informal practice of mindful meditation—may allow us to enhance creativity through a variety of neural, cognitive, emotional, and social mechanisms. The effect of specific mindfulness techniques and suggestions on creative idea generation, production, and performance is an area ripe for future research.

Creativity is not limited to the arts and sciences. Creativity is important in all aspects of life—from how we arrange the items in our living space to how we live our lives. Each of us is a work in progress, and daily we experience the stages of the creative

process in our work, in our personal activities, and in our personal growth. To live creatively is indeed to live mindfully.

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Mediating Mindful Social Interactions Through Design

Kristina Niedderer

Introduction: Mindfulness in Design

This chapter focuses on design as an agent for behavior change in social contexts. In particular, it discusses the role of emotion in designing artifacts for mindful social interaction. Behavior change is increasingly important for building a sustainable future, whether social, ecological, or economic. For example, research into behavior change is one of the current objectives of the Economic and Social Research Council, UK (ESRC, 2012, p. 6). At the same time, the role of design in implementing behavior change is becoming more widely recognized (e.g., Brown, 2008; Brown & Wyatt, 2010; Lockton, 2012; Lockton, Harrison, & Stanton, 2009; Tromp, Hekkert, & Verbeek, 2011). Design plays an important role within behavior change, because “every act of design involves choices that are deeply interested, in the sense that they necessarily serve someone’s needs before (or to the exclusion of) those of other parties” (Greenfield, 2011). Furthermore, objects direct our actions both consciously and unconsciously, and can influence the interaction we have with them and with other people (Norman, 2002, pp. 1, 34; Pearce, 1995, p. 166). This shifts the traditional focus on human–object interaction to one that is concerned with “how human beings relate to other human beings through the mediating influence of products” (Buchanan, 2001, p. 11). Examples are found in many contexts, such as the built environment and a plethora of analog and digital consumer products including cell phones, furniture, and tableware. The use of artifacts can also affect social interaction in desired and undesired ways (Dunne & Raby, 2001; Ilstedt Hjelm, 2004; Norman, 2002), and for it to be *mindless* or *mindful* (Langer, 1989; Niedderer, 2007).

Mindlessness reinforces entrenched behaviors and beliefs without paying attention to the specific situation and its context, and can therefore lead to errors and inappropriate personal or social judgments and behaviors (Langer, 1989, pp. 25, 43). For example, cell phones are designed to connect people, which is their desirable characteristic.

However, they can also disrupt the interaction between people. For instance, where a person takes a call while in conversation with another person, the first interaction is disrupted in favor of the second: people who take such calls seem often oblivious, that is, mindless, of this consequence of their action. Similarly, in public spaces, on trains or buses, people often shout into their phones, unaware of their disrupting impact on other people's conversations or activities (Srivastava, 2005, p. 123). *Mindfulness*, in contrast, refers to a mindset of openness and alertness, which regards any information as novel, pays attention to the specific context, and considers the information from different perspectives, in order to enable the creation of new categories (Langer, 1997, p. 111). Mindfulness can aid behavior change, because it encourages reconsidering our actions and their causes, helping to adjust them to new situations and challenges (Langer & Moldoveanu, 2000b). For example, a mindful person might decide not to answer the call from their cell phone when in conversation, but to call back afterwards or, if taking a call in a public space, might lower their voice to an appropriate level so as not to disturb others.

The state of mindfulness, however, is elusive as demonstrated by the example of the cell phone and many others (e.g., Langer, 1989, pp. 2, 9ff; Langer & Moldoveanu, 2000a, p. 3). In order to achieve mindfulness, it is necessary to break through established patterns of experience and preconceptions (Langer, 1989, pp. 19–42; Udall, 1996, p. 107). This breakthrough to mindfulness is usually facilitated through an external agent (Langer, 1989, pp. 81–114; Udall, 1996, p. 107), which must be capable of disrupting consciousness in order to cause this breakthrough. This external agent is often provided by educational or legal contexts through a person (e.g., trainer, therapist) or the law (e.g., embodied in law-reinforcing street signs; Niedderer, 2004, pp. 47, 120, 142; Niedderer, 2007, p. 12). Alternatively, an artifact can be designed in such a way that it stimulates mindfulness where a mindful context is not available (Niedderer, 2004, 2007, 2013). Such design is termed *mindful design* (Niedderer, 2013). The concept of mindfulness refers here to the attentiveness of the user towards the social, environmental, etc. consequences of their actions performed with an object (Niedderer, 2007, p. 4; Niedderer, 2013). An object that specifically induces mindfulness of the social consequences of the user's actions is termed a performative object (Niedderer, 2007, p. 3). In order to induce mindfulness, performative objects need to cause both awareness and attentiveness. Awareness pertains to consciousness of an experience per se, while attentiveness refers to the caring attention towards the content of that experience (Langer, 1989, p. 61ff; Metzinger, 1995, pp. 8–21; Niedderer, 2007, p. 8; Udall, 1996, p. 11). Performative objects can induce mindfulness by means of their function: this is understood as "the plan of action that the object represents" (Pearce, 1995, p. 166), and which comprises a twofold process: First, the *disruption* of function, which raises awareness because it requires some additional or alternative action to continue the intended use of the object; second, the *thematization*, which directs attentiveness through the way in which it leads the user's awareness towards the content of physical actions—and their symbolic meanings—and causes reflection (Niedderer, 2007, p. 10).

The concept of the performative object has been used implicitly widely in the design of games or in concept designs, or otherwise as part of safety devices such as warning notices on computers (e.g., when saving a document) which briefly disrupt



Figure 19.1 Come a little bit closer bench for Droog by Nina Farkache, 2001. Photographer: Robaard/Theuwkens (Styling by Marjo Kranenborg, CMK).

our consciousness and require an additional action to complete the command (e.g., “save/don’t save/cancel”). One example identified as a performative object is the bench “Come a little bit closer,” designed in 2001 by Nina Farkache of Droog Design (Droog, 2012; Lovegrove, 2002, pp. 62–63; Ramakers, 2002, p. 57; Figure 19.1). The upper surface of the bench is covered with glass marbles, which act as ball bearings on which the seating shells float. Because the seating shells are not fixed (disruption), the design allows users physically to move closer without changing seats (thematization). The ability to move closer physically suggests symbolically moving closer on a social level. In this way, the design questions people’s behavior in public places—which is to avoid strangers and to sit down at opposite ends of a public bench—by offering alternative actions. Similarly, with the example of a person shouting into their cell phone in public, in applying the concept of performative object one could imagine the phone “shouting back” to make the person mindful of their own voice level (disruption). By adjusting the level of their own voice, they could readjust the level of the phone voice to their need (thematization).

Various examples of performative objects suggest that mindless responses in social encounters are significantly influenced by emotions (Niedderer, 2004, p. 150). On the one hand, emotions can be seen as beneficial because they offer swift responses to problems of physical and social survival (Keltner & Ekman, 2000, p. 163). On the other hand, emotions can be perceived as causing mindless behavior because they are

based on “premature cognitive commitments,” that is, beliefs we take for granted, unaware that they are our construct and that there are many other perspectives. This is because of the dependency of emotions on context in relation to which they tend to be “learned in a single-minded way” (Langer, 1989, p. 175).

This chapter presents a theoretical analysis of the role of emotion in designing for mindful social interaction with the purpose of providing a framework for the design and application of performative objects in real world situations. The work is situated in the context of design for behavior change (Lockton, 2012). It complements behavioral, user-centered and emotional design approaches by offering an alternative to the ubiquitous design approach of efficient functionality (Niedderer, 2007, p. 9). It therefore focuses on the early design concept stage, rather than the later design process. The chapter first examines the understanding of mindfulness with regard to aspects of content, choice, and complexity. Second, the nature and role of emotions in causing mindfulness are discussed. Third, a mindful-emotional framework is proposed as an interpretive tool that provides robust guidance (1) for the analysis of social situations or environments and (2) for designing performative objects in these situations. The discussion takes a functional approach (Burgoon, Berger, & Waldron, 2000, p. 108; Keltner & Gross, 1999), to provide a unifying basis for the analysis of mindfulness, emotions, and design, and which links actions as observable consequences to the underlying goals or intentions and vice versa (Lockton, 2012, p. 7; Roseman, Wiest, & Swartz, 1994, p. 207). Two examples serve to ground the discussion in everyday life experience and which are used to build the argument throughout the chapter. The first example is people’s use of public benches, in relation to which the Droog Design bench has been identified as a matching performative object. The second example is the use of cell phones in public spaces. The final discussion draws together the different aspects of emotion and mindfulness in these examples to demonstrate how the framework can be applied first to the analysis of objects, and second to the analysis of a situation to provide the starting point for a new design approach.

Mindfulness: Content, Choice, and Complexity

If performative objects cause awareness of a social experience or action and attentiveness to the content of that experience or action, we must ask what is the nature of this content, how does it emerge from experience/action, and how may it be embodied in the design to guide the user towards it? An example of mindless behavior relates to people using benches in public places who commonly sit at opposite ends of a bench (Figure 19.2a and Figure 19.2b). This behavior may have a number of reasons, such as the protection of one’s personal space, the creation of a physically or socially safe and comfortable distance from others, or the courtesy of not infringing someone else’s personal space (Burgess, 1982; Evans & Wener, 2007, pp. 90, 92; Fried & DeFazio, 1974; Goffman, 1966). In addition, people often put their bags next to them to prevent anyone sitting close to them, erecting a physical and social barrier where none has been designed (Figure 19.3). In the traditional design of public benches (Figure 19.4), social interaction—whether this is people deliberately sharing a bench or whether this is strangers avoiding each other—does not typically feature as a consideration. In the first case, sitting side by side does not aid communication,



(a)



(b)

Figure 19.2 (a) Two people on a public bench in a train station in Cambridgeshire, UK. Photograph: Kristina Niedderer. (b) Two people on a public bench in a city center in the West Midlands, UK. Photograph: Kristina Niedderer.



Figure 19.3 A person on a public bench with their bag next to them, Cambridgeshire, UK.
Photograph: Kristina Niedderer.



Figure 19.4 A common public bench, Cambridgeshire, UK. Photograph: Kristina Niedderer.



Figure 19.5 (a) Public seating at a train station, Cambridgeshire, UK. Photograph: Kristina Niedderer. (b) Public seating at a bus stop, West Midlands, UK. Photograph: Kristina Niedderer.

because it makes visual contact difficult. In the second case, although some designs of public benches hint at the avoidance behavior of people by designing benches with individual seating spaces instead of a uniform shared seating surface (Figure 19.5a and Figure 19.5b), these measures do not appear to provide a sufficient barrier, and hence cause people to create the necessary barriers for themselves.

The cultural or social preconceptions, also termed premature cognitive commitments (Langer, 1989, p. 19ff), which cause such behaviors, are both learned and context dependent. For example, we may have learned as children that strangers are potentially dangerous and therefore to be avoided (p. 175). Whether consciously or unconsciously, such beliefs can create barriers in the form of negative emotions, such as fear or disgust, which in turn lead to emotional actions of avoidance (Keltner & Gross, 1999; Langer, 1989, p. 175; Roseman et al., 1994), such as those observed in the context of public benches. A change of context can further change how we judge people and how we behave towards them (Langer, 1989, pp. 35, 175). For example: we might judge a stranger sitting down next to us in the dentist's waiting room to be a fellow sufferer for whom we are prepared to make space; at the doctor's, although we might still judge them to be a fellow sufferer, we might fear them to have a potentially contagious disease and sit as far apart as possible; a stranger approaching us at a party is likely to be defined as a potential friend who offers the opportunity of an interesting new acquaintance, while we might avoid the same person if we met them in the street at night; and we may be comfortable engaging in discussion with a well-dressed person sitting down on a park bench next to us, while a person who looks scruffy may make us vacate our space. These examples demonstrate that there is a rich amount of cues, that our interpretation of them is socially and culturally conditioned, and that this interpretation might in due course be affecting our judgment and behavior appropriately or inappropriately.

The question is how design can break down such preconceptions. With regard to the use of benches in public places, the Droog Design bench can be seen to provide an opportunity for social interaction between strangers that always existed, but that is not usually taken up (or permissible), due to cultural or social beliefs (premature

cognitive commitment). The cue here is in the movability of the seating shells, which challenges preconceptions of what a bench commonly is like, and which therefore is likely to attract the user's attention. Beyond causing attention, it is the possibility of increasing or decreasing the distance between the shells, and hence that between the users of the bench, which points to the aspect of individual space and social distance, and which constitutes the theme and mindful content of the design. With regard to this theme, the bench appears to offer an obvious set of choices: to stay where one has settled on the bench, to move closer, or to move further away from another person on the bench. The aspect of choice is important because choice makes us mindful. It requires conscious reflection on the different options available (Langer, 1989, p. 123), which in turn can lead to (1) a greater sensitivity to one's environment, (2) more openness to new information, (3) the creation of new categories for structuring perception, and (4) enhanced awareness of multiple perspectives in problem solving (Langer & Moldoveanu, 2000a, p. 2). This suggests that mindful design needs to offer the user choices. Adding more choices can be expected to increase reflection and thus mindfulness, while too many options might make a design potentially confusing to use (Norman, 2002, p. xii). Apart from this functional aspect of choice, the bench can also offer different options for interpretation, some of which may be culturally dependent and therefore vary. For example, the ability to move quickly to and fro on the bench reminds one of the children's game of "catch me," where a child touches another child or adult and runs away quickly not to be touched in return. The aspect of play suggests fun, offering a desirable alternative to avoidance. This shows that there can be a second level of interpretation, and potentially several more, based on the link between physical and symbolic actions and their interpretation, adding complexity, which can further enhance mindfulness (Burgoon et al., 2000, p. 112).

Both choice and complexity have to refer to the theme(s) addressed, which in the first instance is the emotional action that can be observed (e.g., avoidance behavior), and which is a result of the emotions and the underlying premature cognitive commitments. The example of the cell phone can offer some further insights with regard to the causes of mindless behavior. One of the differences between the two examples is that benches—in their most rudimentary form, perhaps as a shared rock or tree trunk—are as old as humankind. In contrast, modern cell phones have been around for about three decades, and have only come into wider public use since the 1990s (*theguardian*, 2010). Because of this short time span, customs or rules of how to behave with cell phones are as yet not well established (Srivastava, 2005, p. 123). For example, when our cell phone rings in a meeting, we have a dilemma of how to behave: carry on with the conversation in the meeting, or answer the call? The lack of social rules leads to such mindless behavior as taking the phone when in meetings, shouting into the phone in public spaces, or more dangerously answering the phone while driving or walking across a road (Bianchi & Phillips, 2005; Hatfield & Murphy, 2005; Palen, Salzman, & Youngs, 2000; Walsh & White, 2007). While traditional face-to-face social interaction is ruled by well-established rituals that guide us how to enter an existing conversation (Goffman, 1982, pp. 5–10; Rothenbuhler, 1998, p. 4), the use of the cell phone constitutes a new territory, which appears to override or ignore many of the rules established to manage face-to-face interaction.

Only gradually, social rules or customs of how to behave with cell phones are emerging, often guided through reminders such as signs or announcements for example, in quiet coaches of trains, or in the music hall or theatre before a performance. Looking more closely, the impetus underlying this dilemma of whether or when to answer or talk on your phone appears to be a conflict of emotions. For example, motivations for answering your phone might be curiosity or the fear of missing out, a perceived duty, love, or perhaps boredom. Simultaneously, the action of answering a call might signal a lack of priority or disrespect for other person(s) in the same space while the decision not to take the phone might communicate priority and respect (Srivastava, 2005, p. 124ff).

The example of the cell phone reveals several layers that can be addressed by design to stimulate mindfulness. In using a cell phone, we can have three levels of interaction: human-object interaction (first level), for example, when we dial a number; intentional human-human interaction with the person (second level) for which the phone is designed; and unintentional human-human interaction (third level) with those with whom we are in the same space and which is generally ignored. Also, people's interaction can have primary goals, that is, the intended goal of their conversation, as well as secondary goals, which have the aim to support and enable the first goal (Burgoon et al., 2000, p. 112). Secondary goals may include, for example maintaining the seamless flow of the conversation, managing one's emotional states, maintaining one's personal image or face, or recognizing and interpreting environmental and social cues (Burgoon et al., 2000, p. 108). Third, because it can travel, the cell phone is part of a more diverse set of situations. Each of these three aspects can be used to address the identified mindful intent or theme. In addition, each of these different themes offers several choices and levels of interpretation that can be used to induce mindfulness. Because of this complexity, if we were to design a cell phone as a performative object, it would be possible to embed solutions to several issues such as a specific situation or certain emotional actions. For example, when phoning while walking on the sidewalk, the phone might be programmed to alert us to stop talking when we enter the zone of a pedestrian crossing or by deterring us from jaywalking. When in a meeting, the phone could question our emotional motivation for answering the call or, when raising our voice, the cell phone could "shout back" to alert us to the level of our voice. In order to do so, the design would need to address second and or third-level interaction (thematization), while influencing first-level interaction with the main function(s) of the phone (disruption), for example, a change in voice transfer or level may raise awareness of the user's own voice and its impact on others. Interestingly, approaches in this direction are already under way (e.g., Siewiorek et al., 2003) but have mostly remained at a conceptual stage.

To summarize, the mindful intent or theme addressed by any performative object can relate to either one or several of the three levels of interaction identified—within a specific situation or context—and where this is otherwise mindless. In order to address an identified mindful intent, the object's function and people's common use of it have to relate. Choice and complexity in embedding the theme in the object play an important role in causing mindfulness. Further, mindless social behavior and use of objects appear to be motivated by (a conflict of) emotions based on social and cultural preconceptions.

The Dual Role of Emotions in Designing Mindfulness

The following discussion examines the nature and role of emotions in social context. The aim is to better observe and recognize causes of mindless behavior to aid the understanding of how to design performative objects. The discussion adopts a social functional approach to emotion (Keltner & Gross, 1999; Keltner & Haidt, 1999; Roseman et al., 1994). The functional approach defines emotions broadly as “brief, rapid responses involving physiological, experiential, and behavioral activity that helps humans respond to survival-related problems and opportunities” (Keltner & Ekman, 2000, p. 163). It treats emotions as a complex system linking actions, causes, and consequences (Keltner & Gross, 1999, pp. 472–473), which offers “solutions to problems and opportunities related to physical and social survival” (Keltner & Gross, 1999, p. 467). The social functional approach is based on the belief that people—by their nature—are social and that emotions serve the purpose of “coordinating social interactions and relationships” (Keltner & Haidt, 1999, p. 508). Because the social functional approach elicits and relates the social nature of emotions, emotional actions, and their consequences, it can serve as a means to analyze complex social situations as a key to designing performative objects. With regard to investigating emotions as a cause for mindless action, this understanding of emotions provides three cues. First, it emphasizes the immediate nature of emotions; second, it refers to the regulating role of emotions in social interaction; and third, it defines emotions in terms of the actions they effect.

Emotions have evolved to be immediate and swift to enable survival-related actions, which require little or no time for reflection, and can be partially or fully subconscious (Gelder, 2006). Being able to operate certain tasks subconsciously is beneficial in that it enables us to operate efficiently in everyday life. For example, the skills and seamless operation required by the superfast typist break down when consciousness is directed towards them (Langer, 1989, pp. 19–22). While, on the one hand, this immediacy is beneficial, on the other hand it can make us unreflective and mindless (Burgoon et al., 2000, p. 112). In the context of emotions, this can cause problems when the emotions’ specific situation or context changes. It then requires a change of emotional response, which, due to its immediacy, may not be realized (Langer, 1989, p. 175). In other words, while emotions enable a rapid response—which is good for “survival” in familiar situations—they may prevent mindful awareness of the different options available for “survival” in any new or changing (social) situation. They thus lead us to judge any situation from a single perspective. This will be the perspective or belief most familiar to us, which we have learned previously, and which we experience “without an awareness that they could be otherwise” (Langer, 1989, p. 175). Referring back to the use of public seating, in the context of public transport, as a matter of protecting their personal space, people’s most common single perspective is that strangers are to be avoided (Evans & Wener, 2007, p. 92). In terms of the cell phone, this single-mindedness is encouraged by the design through the exclusive focus on the person at the other end of the connection, at the expense of any interaction outside this connection. Designing choice and complexity into the phone may be able to address this single-mindedness and lead to mindful new perspectives.

Emotions also have an important role in regulating personal relations and interactions (Keltner & Haidt, 1999, p. 508), such as “forming attachments, maintaining cooperative relations, or avoiding physical threats” (Keltner & Gross, 1999, p. 472). Emotions can pertain to personal (individual, intrapersonal), social, and/or societal levels (p. 475). The social level can be divided into dyadic relationships between two people and group interactions between several individuals, while the cultural level pertains to the “beliefs, norms, and cultural models” shared by an extended group of people (Keltner & Haidt, 1999, p. 506). The different social levels of emotions have different functions. At a cultural level, they provide a broad context that offers moral guidance (Keltner & Haidt, 1999, p. 513; Keltner, Horberg, & Oveis, 2006, pp. 161–175). For example, in certain cultures, kissing in public is deemed inappropriate because of cultural or religious beliefs, and breaking them may incur punishment; or on public transport, in some cultures, vacating a seat for a frail person or pregnant woman is a moral obligation. An individual’s benefit and their “survival,” however, are the foremost goal of emotions (Keltner & Haidt, 1999, p. 508). This priority creates a tenuous relationship between personal and social survival. There are many examples in life that require making this choice, such as: a politician deciding whether to stand back in favor of the unity of their party; a spouse choosing between her career or the well-being of their family; a soldier putting himself in harm’s way. This dichotomy between personal interest and social benefit is borne out also in the examples of the public bench and the cell phone, albeit in a less dramatic way. For example, protecting one’s personal space on a public bench by putting one’s bag down diminishes the space of others and might deter them from sitting down. The cell phone in a meeting or public space may disrupt one conversation in favor of another and disturb the comfort of the many in favor of the satisfaction of a single person (Srivastava, 2005, p. 123). While functional accounts of emotions tend to focus on the beneficial consequences of emotions (Keltner & Gross, 1999, p. 473) and their ability to provide moral guidance and stability within a given system (Keltner, Horberg, & Oveis, 2006, pp. 161–175), the understanding of emotions from the perspective of mindfulness is often critical (Langer, 1989, p. 175). The mindful perspective questions established cultural-emotional systems concerning their continued validity and relevance to any specific situation, regarding them as single-minded and unreflective, and proposing that “mindful awareness of different options [and perspectives] gives us more control, which in turn encourages us to be more mindful” (Langer, 1989, p. 202). These two views of emotions may be negotiated if we accept that, in principle, emotions offer beneficial solutions by “regulat[ing] the individual’s relation to the external environment” (Keltner & Gross, 1999, p. 468) through a balancing action. For example, the function of anger is assumed to restore equitable relations (p. 474). This in general may be seen as beneficial. However, how this is achieved may differ and may be achieved either in a desirable way (e.g., mutual negotiation) or in an undesirable way (e.g., hitting somebody in retaliation; Keltner & Gross, 1999, p. 474; Roseman et al., 1994, p. 207). This means, where (negative) emotions cause a mindless approach to social interaction, performative objects need to be designed to manage this imbalance to afford responsible action. This requires creating awareness of the different perspectives available including the individual/dyadic/group levels of emotional

responses, the underlying cultural and social values that drive them, and the tensions between them.

Emotional actions are an essential part of the capacity of emotions to regulate emotional and interrelational imbalances, because emotions are linked to specific patterns of behavior that relate emotional goals, action tendencies, and actions (Roseman et al., 1994, p. 215). Specific emotions, such as anger or fear, have specific regulating patterns, such as seeking redress or avoidance. For example, anger seeking redress may result in the wish to hurt someone (goal), the conscious or unconscious intention to do so, which may or may not be executed (action tendency), and the action of hitting someone (action; pp. 207, 216). Emotions may further be categorized into three different pairs of emotional action patterns: positive or negative, appetitive or aversive, and “approach and withdrawal orientated” (Keltner & Gross, 1999, p. 475). In designing performative objects, mindful attention is likely to focus on situations where emotional actions occur that are negative or aversive, or seek avoidance, because these are most likely to relate to unsatisfactory or problematic situations—although context dependent, the reverse could be the case. Returning to the example of the public bench, one may work backward from the observable action (to sit down at the opposite end) to get to the underlying causes. Based on the idea of emotional patterns, this behavior can be interpreted as belonging to a particular set of emotions, that of avoidance, of which the most prominent is fear, although others such as contempt or disgust can also be considered. In relation to the context, we can further search for social and cultural motivations (premature cognitive commitments), which may underpin and lead to the observable actions.

Generally emotions and their actions are assumed to have a functional relationship in terms of cause and effect for the purpose of rebalancing any given situation. For instance, appeasement can be interpreted as a result of embarrassment or shame, and seeking redress may be seen as the function of anger (Keltner & Gross, 1999, p. 473). However, not all behavioral responses of emotions follow this pattern. There are accidental or nonfunctional consequences, which are more difficult to relate to the cause of the emotions (p. 473) and therefore are less predictable. “For example, anger might plausibly have several consequences, including [...] eating binges, and irrational bouts of house-cleaning, that do not relate to the assumed function of anger, the restoration of just relations” (p. 474).

Trying to understand the purpose of nonfunctional actions, it appears that they offer a way of reducing emotional tension within an individual. Although they do not change the environmental situation that has caused the negative emotions, they generate positive emotions that can partially overlay or cancel out negative emotions (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009, p. 8). For example, irrational bouts of housework when angry might have an ameliorating effect by releasing the physical energy set free by a rush of adrenaline, or by causing positive emotions, such as satisfaction of a task completed, which can overlay and reduce or cancel out the first emotion. In the example of the Droog bench, the emotions of curiosity and/or fun can be seen to overlay those of fear, thus strengthening perceptions of safety, which creates openness to other stimuli, such as social concerns. Similar observations have been made in other functional accounts of emotion pertaining to risk appraisal (Peters, Burraston, & Metz, 2004, p. 1362). The connection between emotional goal/intent

and action links emotions to the use of objects, which—by means of their function or “plan for action”—may also cause discrete actions (Niedderer, 2007, p. 9) akin to the functional and nonfunctional actions of emotions (Keltner & Gross, 1999, p. 473). Through this analog mechanism, objects have the potential to impact emotional action and—if designed correctly—can achieve a mindful-mediating effect. For example, water glasses are designed to hold water for drinking and are usually used for that purpose. However, a glass might be used for other, related purposes such as holding pens, or as a vase. This alternative use still adheres to the function of the glass as a container. In yet another situation, such as a pub brawl, the glass might be used very differently as a weapon (Winder & Wesson, 2006, p. 14). The use (or abuse) of the glass in response to emotions compares with the irrational bouts of housework, releasing emotions rather than solving a problem. Performative objects must therefore seek to harness functional and common nonfunctional emotional actions with objects. Thereby, choice may be used to direct attention mindfully towards desired goals, while nonfunctional behaviors may offer unexpected scenarios that provide useful alternative perspectives and solutions.

The discussion of the three aspects of emotions, their immediate nature, their role in social interaction, and the actions they effect, has revealed a number of ways in which emotions can cause mindlessness and which provide potential themes and approaches for designing performative objects. At the same time, recognizing their beneficial affect (Burgoon et al., 2000, p. 118; Keltner & Haidt, 1999, p. 511), emotions may also have the potential to serve as a subliminal tool in designing for mindfulness by providing an incentive or motivation for users to act with and use objects in desired ways. Thus, emotions might be used beneficially to complement the causal function of performative objects that serves to create awareness of unreflective emotional behavior by means of a disruption. This will be beneficial because we tend to blame ourselves when objects do not work in the way we expect them to (Norman, 2002, p. vii, x, 1ff). To counter such a potentially negative experience, the use of the positive influence of emotions could provide suitable direction and motivation to complete the action with the object. This could have the benefit of increasing both the desire to use the object, an aspect that has been researched widely in emotional design (e.g., Norman, 2004; Spillers, 2003), and the motivation to change undesirable emotional actions, based either on emotional appeal or on opposing emotions canceling each other out.

A Mindful-Emotional Framework for Designing Social Interaction

Following the analysis of mindfulness and emotion, this section draws together the key points of the discussion to establish a mindful-emotional framework. The aim of the framework is to aid the design of performative objects by serving as an interpretive tool for analyzing social situations and the use of design objects within them, with regard to any emotional actions and their mindful or mindless consequences. When originally developed, the concept of the performative object focused mainly on the functional aspects of causing mindfulness, without considering how to identify a context-related

thematic starting point (Niedderer, 2004, pp. 147–149). The framework presented here aims to enable designers to identify such a context-related starting point through the analysis of actual social situations and interactions, and the social consequences of the objects they design for them. This is contrary to the starting point of traditional design briefs or scenarios that focus on the desired purpose or function of a new product. In doing so, the framework can help to promote deep thinking and to identify the purpose and responsible affordances of a product at the early conceptual stage of the design process. The framework thus complements other design approaches such as design for behavior change (Lockton, 2010), socially responsible design (Tromp et al., 2011), emotional design (e.g., Desmet & Hekkert, 2002; Weerdestein, Desmet, & Gielen, 2005), and user-centered design (e.g., Sanders & Simons, 2009; Sanders & Stappers, 2008) by providing an alternative starting point.

The discussion of mindfulness and emotions has revealed several key points. It has highlighted choice and complexity as key aspects for causing mindfulness, whereby choice pertains to the different possible options for action, and complexity pertains to the different possible perspectives and levels of interpretation. Further, the discussion has shown that emotions are likely to cause mindless action because they are by their nature unreflective and focus the mind on a single perspective. The mindful content or theme of performative objects therefore needs to focus on the different aspects of emotions, including: different kinds of emotions (e.g., anger, joy, frustration, fear); the corresponding functional and nonfunctional actions and goals, and any underlying beliefs that cause these emotions; different social levels of emotions (individual, dyadic, group, cultural) and any tensions between them. Parallels between actions and functions of emotions and objects allow for addressing one through the other, and thus for designing choice and complexity to raise awareness of emotions and their social consequences. Finally, while one set of emotions may cause mindlessness (e.g., negative, avoidance, and aversive emotions), emotions of the opposing set (e.g., positive, appetitive, and approach-oriented emotions) may be used as a mechanism to counter the first and act as an incentive (or deterrent) to change the user's action. In the following, these findings are expressed as a set of guidelines for designing performative objects. The guidelines offer three steps for consideration at the concept development phase of designing, including (1) identification of the design problem, (2) identification of the potential design solution, and (3) identification of different ways of implementation.

Step 1: Identification of the design problem

The design problem can be defined generally as a lack of mindful interaction or intent within a specific social situation. Specifics may be identified by investigating the following potential indicators:

- the mode(s) of interaction: human–object; human–object–human; human–object–human group;
- the level(s) of emotional interaction: individual, social/dyadic, social/group;
- emotional actions, both functional and nonfunctional relating to the above;

- what set of emotions any identified emotions belong to (positive, appetitive, and approach oriented or negative, avoidance, aversive);
- the individual/social/cultural level of emotions and any underlying premature cognitive commitments that could drive the emotional actions;
- any tensions between personal, social, and/or societal levels of emotions.

Step 2: Identification of the potential design solution

In response to the identified problem, the designer needs to identify and embody in the design mindful options for mediating or improving the social situation or interaction. These need to address any undesirable emotional actions, goals, social levels, etc. identified under Step 1, create awareness of them, and offer alternative perspectives and actions. In order to do so, the designer may identify:

- different choices of emotional actions as a means of creating reflection;
- different possible perspectives of the emotion/emotional actions to provide complexity;
- desirable emotions that may be used as an incentive or to cancel out undesirable emotions.

Step 3: Identification of different ways of implementation

In order to implement the selected mindful options, the designer needs to identify how these options can be embodied in the mindful design object. There are three ways in which this may be achieved:

- creating choice by offering different options for responding to the function of the object, which need to:
 - operate on both a pragmatic and symbolic level;
 - relate to the individual emotional functional or nonfunctional action on the pragmatic level;
 - relate to the social or societal emotions and their underlying norms or beliefs on the symbolic level;
- creating awareness of multiple perspectives by embedding different functional/nonfunctional actions in the object that are related to different social perspectives, which need to:
 - refer to different social emotions and/or to different cultural norms and beliefs;
 - offer multiple level interpretations that are new/different to that of the individual emotional action, and related premature cognitive commitments;
- using positive emotions as a motivation to encourage desired action, which requires identifying:
 - any emotions/emotional actions that complement the emotions/emotional actions that are perceived as problematic (e.g., fear/avoidance—curiosity/appetitive);

- whether/how they may be perceived as a reward or whether they work on the basis of empathy;
- whether/how they may work as an incentive or deterrent, or to cancel out negative emotions.

In summary, this above emotional-mindful design framework aims to provide a flexible tool for designers for analyzing and addressing emotion-related mindless social interactions using emotion regulation based on a mindful design approach.

Discussion: Applying the Mindful-Emotional Framework

The following discussion revisits the examples of the Droog Design bench and the cell phone in order to demonstrate how the framework might be applied, and to discuss a number of issues concerning design and behavior change relating to the idea of the performative object. Having recognized the Droog bench as a performative object previously, the analysis can be expected to reveal matching observations answering to each point of the framework, thus demonstrating how the analytical framework provides a structure for analyzing design examples. In contrast, the example of the cell phone demonstrates how to apply the framework to a (new) social situation. When analyzing examples of performative objects and social situations, in theory, the guidelines need to be applied to the former in reverse order because the emotional action needs to be induced from the function of the object, while the analysis of social situations begins with observing emotional actions. In practice, however, emotional and object functions are implied and compared simultaneously. Therefore, the analysis follows a logical order, rather than a strictly sequential order.

Example 1: “Come a little bit closer bench” by Nina Farkache, 2001 (Droog, 2012)

With the help of the emotional-mindful framework, one can now construct a full and systematic analysis of the bench. The contextual situation (Step 1), which the object suggests by association with traditional benches, is people’s habitual behavior in public places. The mode and level of interaction in this context are generally a human-object interaction combined with a dyadic human-human interaction, although in some cases this might extend to interaction of an individual with a group. The emotional action addressed by the bench is one of people sitting down at opposite ends to avoid strangers (Figure 19.2a and Figure 19.2b; Evans & Wener, 2007). The action of avoidance points to the group of avoidance-orientated emotions, which includes fear, disgust, or contempt (Keltner & Haidt, 1999, p. 369; Keltner, Young, & Buswell, 1997, p. 513; Roseman et al., 1994, p. 207). The cultural beliefs and norms causing such emotions may include the protection of one’s personal space and having learned that strangers may pose a potential danger (Langer, 1989, p. 175). These beliefs may cause emotional tension at the dyadic level, for example, between people who take two seats and thus bar others from sitting down, forcing them to ask for space or remain

standing. In terms of mindful options, the bench addresses emotions of avoidance by offering the option of decreasing physical/social distance without changing seats through the movable seating shells. Beyond the functional level, the bench offers a second level of playfulness and additional complexity. Both solutions can be seen to invoke positive emotions, such as surprise (about the moving shells), curiosity (should I move closer?), and fun (an aspect of play). Concerning the implementation of these mindful options in the design, choice is created through the movable shells offering a choice of moving closer, staying put, or creating more distance. Although this function pertains to the individual, it affects their social interaction both physically and symbolically, thus questioning the individual's beliefs and behavior towards strangers. Through this analysis, we can see how the framework allows for a systematic study of the mindful and emotional actions and consequences of the design in relation to the social situation.

Example 2: The use of cell phones in public spaces

The example of the cell phone starts from an existing situation that is used to build up towards a speculative design specification. This demonstrates how the framework can be applied where there is no known performative object. For this purpose, the example draws together the various aspects of cell-phone usage in the context of public spaces, and particularly public transport, in order to identify potential mindful actions that could inform the design of cell phones. The example draws on observations by the author and on findings from research on this subject (e.g., Monk, Carroll, Parker, & Blythe, 2004; Srivastava, 2005). The aim is to demonstrate how to develop deep thinking about a product and its consequences before starting the actual design process. The purpose is to enhance our understanding and approach to designing products for users by the explicit addition of responsible use for social interaction.

In the context of cell-phone use, it is possible to identify all three modes and levels of interaction: the individualistic interaction of people with their cell phones; the dyadic interaction between the caller and the person called; and the interaction between the cell-phone user and any group surrounding them, although such group interaction can also be broken down into multiple dyadic interactions. In terms of emotional actions, there is the individual calling, answering a call, or talking loudly on the phone, which may be motivated by a range of positive and negative emotions as discussed above. In relation to the group, emotional action can be lacking or passive (e.g., ignoring interaction with and by other people) or disruptive (e.g., deliberately loud voice), indicating a lack of social concern and responsibility, or lack of respect for others. Whether this lack of concern is based on carelessness, or because the interaction with the phone does not fit established patterns and rituals of interaction, cannot be established without user research. It suggests, however, that, contrary to the bench, mindlessness with the cell phone is based on a lack of predefined cultural norms, creating tensions between the individual and the group.

Mindful solutions for mediating such social tensions will thus need to bring the group perspective to the mind of the individual, such as feeling disturbed by inappropriately talking loud or listening to a one-sided, trivial, or inappropriately intimate

conversation. One can imagine a number of choices concerning emotional action in this context, for example, answering or not answering the phone, leaving the joint (group) space or sending an SMS, or talking quietly or louder. Although some of these options are beginning to enter protocols for people's behavior with cell phones, especially talking loudly or loud ringtones remain problematic. The key issue therefore is to integrate an awareness of the different perspectives and choices into the design while raising positive emotions. Indeed, some aspects are already designed into the phone but they are not always used. For example, the phone can be set to silent or to vibrate. Another solution might be to display a message that needs a response before the call can be taken, similar to the warning messages on computers. If such messages offered different choices in a humorous way, they might instill positive emotions and acceptance by the user. When deciding to answer a call, the user might be encouraged to consider lowering the volume of their speech through the phone responding with appropriate and proportional audible feedback.

This discussion is only able to highlight some of the most obvious ideas, because its main purpose has been to demonstrate how the framework enables identifying underlying emotions and emotional actions, and potential mindful choices and perspectives as a basis for developing design solutions that can create awareness of these issues. The example of the cell phone also indicates how user behavior coemerges with the objects used, and how design can be used to impact not just user behavior but also social interactions and attitudes.

Conclusion: Mindful Design for Behavior Change

This chapter has investigated the role of emotion in designing for mindfulness. The study has used a small number of real-world and hypothetical examples to demonstrate the broader application of performative objects as a contribution to design for behavior change. Focusing on performative objects, the investigation has first reviewed the aspects of choice and complexity as means for causing mindfulness. Second, the functional analysis of emotions has revealed their dual role in causing mindless and mindful social interaction. On the one hand, emotions can cause mindlessness because of their immediate context-dependent nature; on the other hand, emotions can be used as an incentive (or deterrent) in designing for mindfulness. The analysis of examples has revealed two possibilities for the intervention of design in social situations: (1) situations where social interaction is problematic due to mindlessness; and (2) situations where an opportunity for mindful social interaction is not recognized. In both situations, existing objects may be redesigned to facilitate mindful interaction. Instead of a discrete object, we can also imagine the redesign of a larger entity such as an interior or exterior environment. In this regard, several examples of performative architecture exist (e.g., Sheldon Scenarios, 2002). Other opportunities for the redesign of interior environments arise from research reports that highlight problem areas, such as aggressive drinking behavior in pubs (Winder & Wesson, 2006).

The outcome of this study is a mindful-emotional framework, which can be used both for the analysis of design objects and for the analysis of social situations to elicit underlying emotions, emotional actions, and premature cognitive commitments. It

is further offered as robust guidance to inform the design of performative objects. The contribution and benefit of this research are a better understanding of the design and broader application of performative objects, and their potential to contribute to behavior change. It will be appreciated that currently this framework is speculative and demonstrates what may be rather than what is (March, 1984, p. 269). Finally, the analysis has pointed to a number of opportunities for further work, which can be used to test the framework in real-world situations.

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20

On Being Mindful of Time

Stuart Albert

The most mindless approach to time is simply to ignore time completely. Whenever we attempt to reason logically or invoke statistical or mathematical principles to explain or predict human behavior, it is easy to omit temporal considerations. Here are two examples.

The A-Temporal Logic of Probability

Here's a simple problem (Mlodinow, 2008, pp. 51–52). A woman has two children. We know that one is a girl. What are the odds that the other is also female?

If you said 50–50, a statistician would say that you were wrong. The right answer is 33%. Here's why. We know that the woman has a girl. What are the remaining logical possibilities? They are: girl–girl, girl–boy, and boy–girl. So, the odds are 1 in 3 that the other child will be a girl. The boy–boy pair is ruled out because we know that at least one child is a girl.

Tricky, right? But there is also something fishy going on. Notice that this description of the problem does not tell us the actual sequence of events. Let's bring time back into this story and see what happens.

Let's assume that the first child born was a girl. Before the second child was conceived, the mother might have wondered what the odds were that she would end up with two girls. The answer depends on *when* she asked the question. If she asked the question *before* she had *any* children, the odds of ending up with two girls are one in four. There are four possibilities: boy–boy, girl–girl, girl–boy, and boy–girl. But *after* she *had* one girl, the odds change. *Then* odds that the next child will be a female are simply 50/50. So, how is it that we got the 33% answer above and the 50% answer here?

The answer has to do with time and timing. The problem as initially presented stated that *one* child was a girl. It didn't say that the *first* child born was a girl, and then the mother wondered about the sex of the next child. What is called a "wrong" answer is actually more realistic. It was based on our understanding that events unfold in sequences, and that questions about odds are often raised in the context of trying to predict the future. Those of you who said 50–50 simply made a series of reasonable assumptions *about the real world*.

Let me give you a second example of a-temporal statistical thinking. It comes from a review of Leonard Mlodinow's book, *The Drunkard's Walk* (Johnson, 2008, p. 14).

The O. J. Simpson Trial

Leonard Mlodinow recalls the O. J. Simpson trial, in which the prosecution depicted the defendant as an inveterate wife abuser. One of Simpson's lawyers, Alan Dershowitz, countered with statistics: in the United States, four million women are battered every year by the male partners, yet only one in 2,500 is ultimately murdered by her partner.

The jury maybe found that persuasive, but it's a spurious argument. Nicole Brown Simpson was already dead. The relevant question was what percentage of all battered women who are murdered are killed by their abusers. The answer, Mlodinow notes, didn't come up in the trial. It was 90 percent.

In the O. J. Simpson story, the key is also one of timing. In one case, we are looking at the problem prospectively. A woman is battered and then murdered (forget about who did it for the moment). What are the odds of that happening? Not great. Relatively few battered women end up murdered by their male partners. (Needless to say, we all want the answer to be zero.) But now reverse the sequence. Assume that a battered woman is already dead. She was one of a relatively small number of battered women who met this fate. The question is, who did it? What are the odds that the person who abused her was the killer? The odds, it turns out, are remarkably high, 90%. So, statistically, the odds that O. J. Simpson killed his wife were 90%, not 1 in 2,500 or 0.04% as Dershowitz claimed.

Why do we make these so-called mistakes? The reviewer of Mlodinow's book, George Johnson, a distinguished scientist and science writer, comments: "The brain, no matter how well schooled, is just plain bad at dealing with randomness and probability" (Johnson, 2008, p. 14). And a few paragraphs later, he adds: "Trust your instincts ... and you're bound to go wrong" (Johnson, 2008, p. 14). I think the source of the difficulty has been misdiagnosed. The problem isn't our instincts. It isn't randomness. It isn't that our poor brain "can't be schooled." All of these things may be true in some situations. But I think an important reason why we make "errors" is that we have left time (in this case, temporal sequences) out of the way we formulate mathematical and statistical questions, *without realizing that we have done so*. We think we have a *real* problem before us, and we set out to solve it. In fact, we have an *imaginary* problem posing as a real one. Real problems always have a temporal order associated with them.

These two examples describe life in the Gated Community of logic and mathematics in which time, with the accompanying fear of change and death, is kept out. When we do include time in our thinking, we tend to use standard ways of visually displaying it, the time line, the circular face of a clock, for example. In this chapter, I want to examine and critique these common forms of visually displaying time. I also want to suggest alternatives to what Langer describes as the limiting mindset of linear time (Langer, 1989, pp. 32–33).

Lines and Arrows

One of the most common ways of visually representing time is the time line. It is the x -axis of many graphs and diagrams. A time line has direction. Usually, by convention, the past is to the left, and the future is to the right. But a time line has a number of other characteristics in addition to direction. It is usually drawn horizontally, which means that we view it head on, perpendicular to our line of sight. It is also usually drawn as a straight line rather than one that is curved or bumpy, so as to provide a constant reference point against which change can be observed.

The art historian, Herbert Read, claimed that images precede ideas and that new images make it possible to think in new ways (Read, 1965 p. 70). So, if we want to improve our sense of timing, and hence our ability to more mindfully control events, I think we need to change the shapes we use to plot, graph, chart, and display temporal information. The way we usually graph and plot data leaves out important information about time, even when we think we have included it. Let me show you what I mean, by describing two alternatives to the straight and horizontal time line.

V0 and V2 Projections

Figure 20.1 is a standard graph of some hypothetical data using what I call a V0 projection, and another graph using the same data, which I call a V2 projection.

The top graph does not have a vanishing point: there is no depth to it, hence, the name, a V0 (V zero) projection. I now plot the same data using two vanishing points, an idea suggested by Brueghel's 1565 painting, Peasant Wedding.¹ Notice what we have gained by displaying data in this way.

- 1 One of the most important features of the V2 projection is the sharp vertical edge of the corner—which represents the present. This line reminds us that the future may not be a continuation of the past. Once we turn the corner, we may run into something completely unexpected.
- 2 Because the V2 projection has depth, it reminds us to look farther back in time, to ask about origins.
- 3 The right vanishing point reminds us to think long term. We will miss risks and opportunities if we do not.
- 4 The V2 projection also has an inside, which we cannot see. That reminds us to look for what is not immediately visible or apparent.

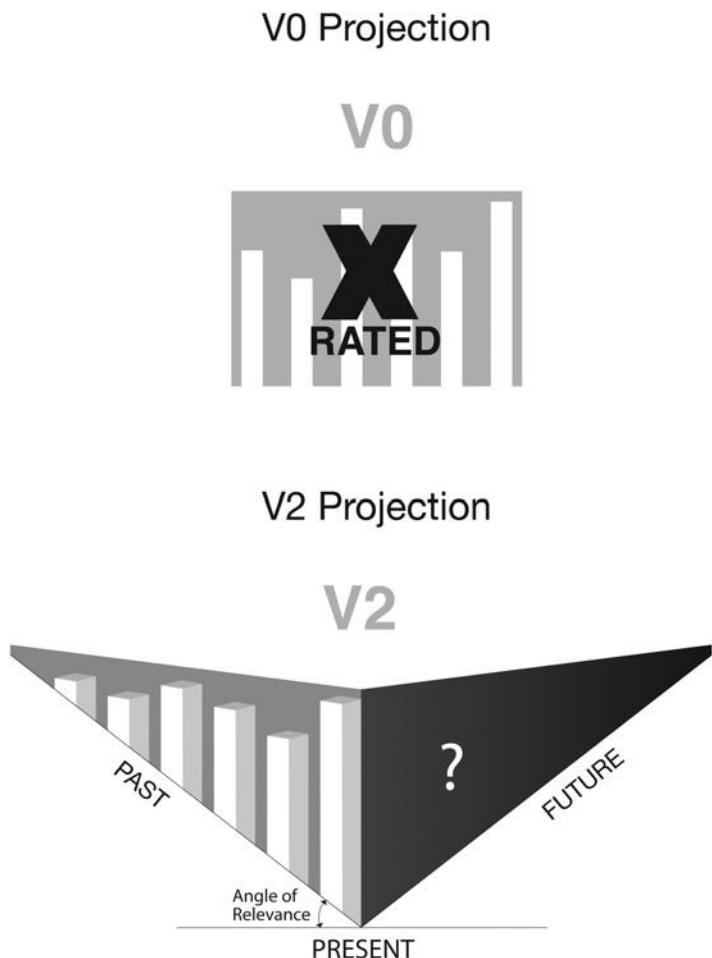


Figure 20.1 Standard graph of some hypothetical data.

- 5 The V2 projection makes it possible to note the comparative importance of the past relative to the future. We can do this by making one side longer than the other, as might be the case in the Middle East, where the past dominates thinking.
- 6 Finally, we can show the diminished relevance of the past for present decisions by adjusting “ R ,” the angle or relevance. If we increase “ R ,” the past becomes smaller more quickly, reflecting its reduced importance. When R is 90° , one sees only the present. The past has vanished. When the past is not relevant, one has achieved closure.

Compare the V2 projection with the standard graph (the V0 projection) in which time is treated almost as a constant, as a stable, level floor from which to observe variation. The message is subtle. The future may be up in the air, but we are rooted. Everything will turn out fine. After all, what goes up goes down. We will return to

equilibrium. It is almost as if we are seated on firm ground watching the spectacle of change unfold above us like a display of fireworks.

When we plot change in this way, as *change over time*, we think we have captured the essence of change, namely variation. But captured is the key word. We have defanged and corralled the real threat, which is the speed of time's passage and the prospect of radical discontinuity. We feel this sense of motion in the V2 projection in a way that we do not in the V0 projection. We are aware that events may change more quickly and unpredictably than we can cope with. The V0 projection has not exactly killed the experience of time passing (our eye still can travel left to right on the graph), but we have slowed or arrested its motion. Adding a vanishing point reminds us of how much we do not know about the past and the future, which opens the door to another kind of understanding based on new information.

I think that the standard HTL (horizontal time line) graph should be *X-rated*. Warning: viewer discretion advised. The full frontal presentation of the data leaves important aspects of time out of the picture. The VO projection is one way the Conventional Mind creates a view of the world that is time-impoverished. It is a perspective that is not mindful of the richness of temporal experience and the possibility of new perspectives.

Two additional comments before I leave the V2 projection. Notice that there is no loss in accuracy in plotting data on the V2 graph: the *y*-axis shrinks proportionally. Second, it is somewhat amusing to find in the structure of a 16th-century painting a better way to capture the dynamism of events in the 21st century.

In the V2 projection, I have taken the standard time line and bent it. I now want to explore another modification. Instead of the time line being drawn as a horizontal line, I want to put in on a diagonal.

The T Map

Figure 20.2, which I call a T map, is another way to highlight qualities that the V0 projection leaves out. The essential idea is to rotate the standard time line (T) up from its usual horizontal position so that it is now on a diagonal.

As we move along this diagonal, let's assume that first A happens, then B, then C, etc. At each of these points, if we look to the right, we see the future as it appears at that moment (the future horizon, or FH). If we look to the left, we see the past, or rather what we remember of it (the past horizon, or PH). Each moment provides a unique view of the past and future as seen from that point in time.

Now, let's assume that we have reached point C. At point C, we look to the right and see events D and E coming. The arrow tells us when D is expected. The dotted lines define what I call the angle of risk (AOR), the risk that D could arrive earlier or later than expected.

Now, proceed further up the diagonal. At some point, we look back into the past. We think that C happened before B. But our memory is faulty. B happened before C, as indicated on the diagonal time line. Some events are no longer remembered at all. They are beyond the horizon.

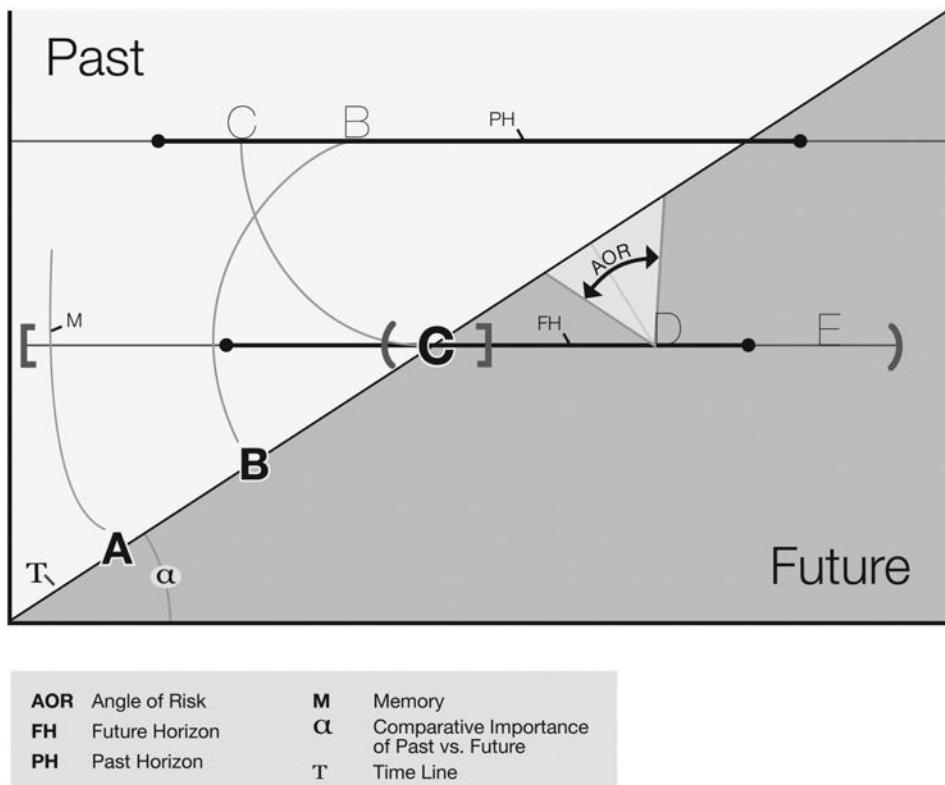


Figure 20.2 T Map, another way to highlight qualities omitted by the V0 projection.

Advantages of the T Map

The T map has a number of advantages:

- 1 When we think about the past and future in order to decide what to do today, we have at our disposal all the tenses of our natural language. For example, the future perfect: “I’ll sell now. That way, *I will have sold* before a downward spiral begins, something I missed last year.” If a graphic display does not contain, or suggest, the same rich set of relationships that the tense structure of our natural language provides, then the display is time impoverished.² Individuals who rely on it can easily miss some of the facts and relationships that they need to make good decisions about timing. They will not be mindful, open to new possibilities.
- 2 Our view of the past and future continually changes. We need to think about what the future will look *like at different points in the future, including the fact that we ourselves are changing*.
- 3 Any given moment, any point like point C on the T map can be grouped with either the past [] and/or with the future (). Which grouping one chooses can affect how urgent a situation is perceived to be, and how quickly one feels one must act. For example, if one has been working on a task for a very long time,

one wants to complete it (the present moment is grouped with the past). “Let’s get it done. We have been working on this forever,” you can hear someone say. But if the present is seen as the first step of a new and possibly uncertain future, one may decide to be more cautious. After all, first steps set precedents.

- 4 The T map makes it easy to compare expectation with reality. What occurred earlier or later than expected or predicted, and why?
- 5 The T map gives us a better understanding of timing risks. A large financial firm is failing. Should the government jump in and try to save it? The concept of moral hazard raises a red flag. If the government saves the firm, so the standard reasoning goes, that will encourage others to take excessive risks in the future. What that line of reasoning omits is what the T-map calls to our attention. First, the present time may be the wrong time (that is, the wrong place on the T map) to invoke the concept of *moral hazard*. If a firm is large and linked to others, its failure could bring down the entire system. Second, the government can learn from its mistakes. If its actions were counterproductive, it won’t repeat them. The government—as well as everyone else—will be at a different point on the diagonal time line in the future. Its view of the past and future will be different, and that will influence what it decides to do. The T map brings these considerations to mind in a way that the V0 projection does not.
- 6 By adjusting alpha, we can change how important the past is relative to the future. When alpha is small, the past has greater significance. When it is large, decisions about timing are more influenced by the future. When it is 90°, we can’t see the past at all. When it is zero, we can’t even see the future, and hence are unlikely to take it into account.
- 7 Because the T map places historical or real-time events on a diagonal, the future arrives at an angle. That reminds us, as did the V2 projection, that the future may not be a continuation of the past.
- 8 The T map helps keep us in the present, the present of time past, and the present of time future.
- 9 The T map helps us remain open to new information. We will be better prepared for events happening at times different from what we expected. We know that the AOR is likely to vary over time.
- 10 The T map makes it easy to think about why one time may be better than other to take a particular action based on what the past and future look like at that time. The most powerful timing rules, the ones we rely on to decide *when* to act are *triples*, refer to past, present, and future. I illustrate these triples in the table below reproduced from *When: The Art of Perfect Timing* (Albert, 2013). I’ve placed a YES in those cells when the window of opportunity is open, and an action can be successful, NO when it is closed, and acting is impossible or inadvisable (Table 20.1).

As the table illustrates, decisions about timing depend on what was (or was thought to be) possible in the past, present, and future. So, if you want to understand the emotions associated with a timing decision, you need to consider all three time periods. For example, compare Row 5 (NO—YES—NO) with Row 7 (YES—YES—NO). The rows are highlighted. In both, the decision is the same: Act now. But there is a difference. In Row 5, this is your first and only chance. The time wasn’t right until now,

Table 20.1 Timing triples.

When is the time right to act?			
Past	Present	Future	Timing rule or implication
NO	NO	NO	Forget about it! No time is right.
YES	YES	YES	Timing doesn't matter. Any time will do.
YES	NO	NO	I'm sorry. It's too late.
NO	NO	YES	Not yet, but the right time will come.
NO	YES	NO	Act now! Opportunities are fleeting.
YES	NO	YES	It looks like you will get a second chance.
YES	YES	NO	Hurry. Act now, before it's too late.
NO	YES	YES	Finally. But don't worry: there's no rush.

Albert 2013. Reproduced with permission from John Wiley & Sons, Ltd.

and the moment is fleeting. Acting later will be impossible. In Row 7, this is your last chance to take advantage of an opportunity that was always present. We feel differently about these two situations, although our decision is the same.

The Plane: Time as a Musical Score

I now want to consider another alternative. I want to represent time not as a line, whether horizontal or placed at an angle, but as a plane, more specifically a plane that has the vertical and horizontal structure of a musical score.³ The score, in Langer's terms, is a new category of visual display (Langer, 1989, p. 63), a new way to illustrate and depict temporal processes and phenomena. For those of you who don't happen to be musicians, here is what a tiny portion of the score for Beethoven's Fifth Symphony looks like (Figure 20.3).⁴

As you can see, different instruments (arrayed vertically) play different parts. The notes comprising each part are played in sequence, from left to right, on or between sets of horizontal lines. Notes played at the same time create chords or harmonies, or, in some music, dissonance. Notes played one after another create melodies. The relationships among the notes comprising the horizontal and vertical dimensions define and create the overall composition.

If you think for a moment about your own actions and those of others, the analogy to a musical score should become clear. Many things are going on simultaneously both inside and outside of your immediate environment. Every action, event, or process has its own rhythm, pace, and sequence. Different actors (individuals, groups, organizations, etc.) will be playing their own tunes, or at least trying to. The way these different actions (notes and melodies) play out together—whether they are in harmony, create dissonance, result in a long period of silence, or just produce noise—create the temporal patterns that define and create your environment.

At the most fundamental (and simplified) level, musical patterns are composed of seven elements. The first five describe the *horizontal dimension* of the pattern: how

Allegro ($\text{\textit{♩}} = 84$)

Flauto piccolo
Flauti
Oboi
Clarinetti in [C
Do]
Fagotti
Contrafagotto
Corni in [C
Do]
Trombc in [C
Do]
Alto
Tenore
Basso
Timpani in [C-G
Do-Sol]

Allegro ($\text{\textit{♩}} = 84$)

Violino I
Violino II
Viola
Violoncello
Contrabasso

5
5

Figure 20.3 Small portion of the score for Beethoven’s Fifth Symphony.

the actions and events that comprise it unfold in time, how quickly they develop, in what order, with what gaps, how long each lasts, and so on. The sixth adds the *vertical* dimension. Most patterns are tall; they will have multiple levels or tracks like floors in a multistorey building. The seventh element is measurement. Measurement is really a metaelement: it applies to all of the previous six. Here is a list of the seven elements.

- 1 *Sequence*. This element describes the order of things, what follows what.
- 2 *Temporal punctuation*. This element directs our attention to beginnings, middles, pauses, endings, etc. Temporal punctuation functions like linguistic punctuation. It both groups (what falls between punctuation marks) and separates.
- 3 *Interval/duration*. This element deals with time in terms of duration. How long until X happens? How long will Y last? How long has Z been going on, etc.?
- 4 *Rate or tempo*. This element refers to how quickly something is happening.

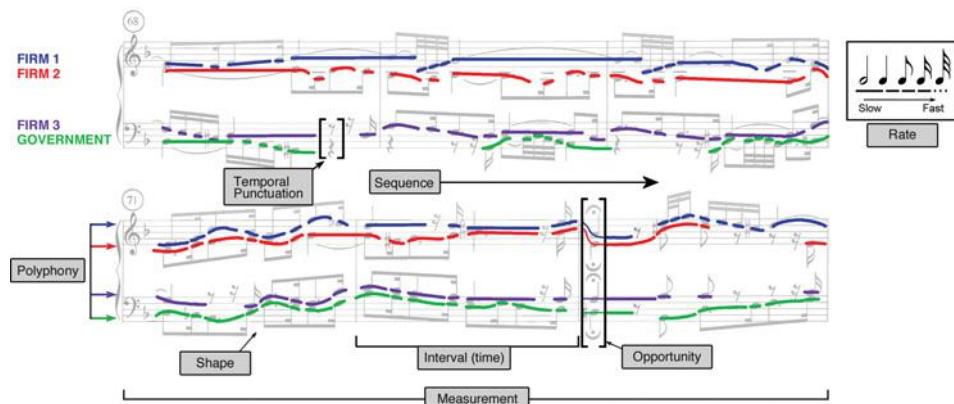


Figure 20.4 Seven elements of temporal architecture.

- 5 *Shape*. This element describes *rhythms and other patterns of movement*, such as cycles, feedback loops, peaks and valleys, etc.
- 6 *Polyphony*. Poly—meaning many—adds the vertical dimension. In any pattern, many things may be going on simultaneously, each with its own trajectory. Polyphony raises the question of their interrelationship.
- 7 *Measurement*. Patterns come in different sizes. A pattern may exist at one timescale but not at another.

So that you can see these elements as part of a simple musical score, one that involves polyphony, I have superimposed labels for these elements in the Bach fugue⁵ in Figure 20.4.

Let's assume that Firms A, B, and C take various actions (sequences of notes) over time. The government is also involved. It has its own course of action. The bottom set of four tracks is a continuation of the top set. There is a time (indicated by the thin vertical rectangle), when all four parts pause (the musical symbol for a rest), which may open a window of opportunity for something new.

I call the patterns that the six elements above form with each other at different levels of scale temporal architecture. Here is a more complete definition (Albert, 2013, appendix).

Temporal architecture is the art and science of finding, creating, analyzing, and using music-like patterns. These patterns, which have the vertical and horizontal structure of musical scores, form when multiple processes are aligned, synchronized, superimposed, or otherwise related to each other in time. The life span of these patterns can vary from seconds to years. Temporal architecture includes the study of the *functions* or *purposes* that these patterns serve, the *qualities* and *meanings* they express, the *emotions* they provoke, the *intentions* they realize or resist, and perhaps most important for the practical actor, the *actions that they permit or prohibit*.

The advantage of a musical score representation of time is that it can help overcome mindless thinking. The musical plane (the vertically and horizontally organized score) is better able to capture the way we experience time than a succession of numbered points on a line or a series of locations on a circular dial of a watch or clock. Let me give you three examples of why this is the case.

Points

When we make decisions or envision choices, we often think of time as a point, that is, as a specific location or place on time line or calendar. When to do X? Answer: 3 o'clock on Friday. I call this way of thinking *Cat-Point thinking*, meaning that we envision a certain category of action occurring at a certain point in time. Thinking about time as a specific location, however, can cause us to miss innovative solutions as well as many of the risks associated with a course of action. Here's an example.

The Healthy Lunch

A company wants to ensure that its executives embrace a healthy life style. What can it do? Let's assume for the purpose of this example that most employees eat in the company dining room. The standard economic solution is to make sure that there are a large number of healthy alternatives available, and that they are priced right: 10 cents for an apple, 10 dollars for apple pie. Provide the right alternatives, add the right incentives, and individuals will make the right choice. This is a Cat-Point formulation. The problem of how to modify human behavior is framed as a problem of choice at a given point in time.

Now, let's look at the problem of how to encourage individuals to eat a healthy lunch in terms of a musical score. Can there be other solutions? Thomas Schelling (1992, p. 173) describes one in which a company's employees were required to order lunch as soon as they arrived in the morning. They then had to eat only what they had ordered. The company reasoned that, since employees would still be full from breakfast, they would make healthier choices about what to eat. I've displayed this solution in the diagram below. Sketching a score diagram (a simplified musical score; see Figure 20.5) allows us to more precisely surface, explore, and understand the risks and benefits associated with this "offbeat" solution.

To read the diagram, look from left to right along each track. The top track (Track 1) shows the sequence of ordering and eating (O and E). In the company's solution, the short time between ordering and eating lunch has been substantially increased and realigned so that the person now orders lunch when he or she arrives at work. The bottom track (Track 2) shows the daily rhythm of hunger and satiation. The employee arrives at the office presumably still full from breakfast, grows hungry, eats lunch, and then gradually becomes hungry again.

I have placed the explicit actions a person takes, ordering and eating, on the treble track, and the actions going on in the background, usually in a lower pitch (the rumblings in one's stomach) on the base track.

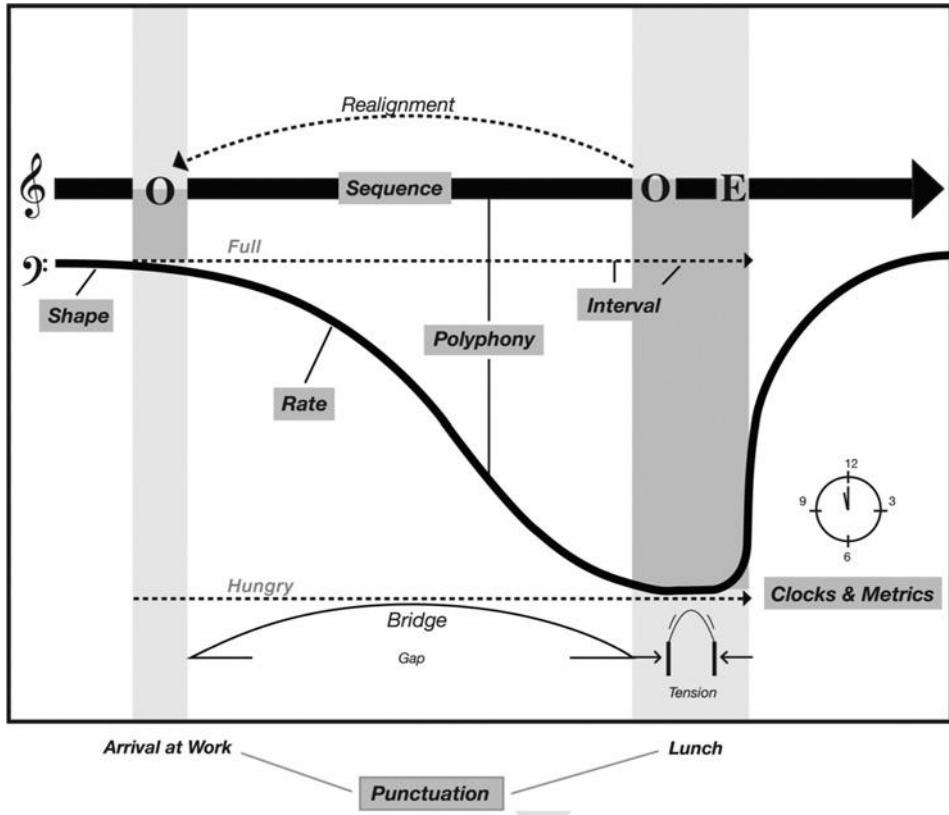


Figure 20.5 Score diagram of the healthy lunch.

All seven elements of temporal architecture are present in this diagram:

- *Sequence*. There are two sequences involved: breakfast followed by lunch, and ordering lunch, followed by eating it.
- *Temporal punctuation*. There are three punctuation marks in the company's solution: breakfast, arriving at the office, and lunch.
- *Interval duration*. The critical intervals are the time between breakfast, arriving at the office, ordering lunch, and then eating it.
- *Rate*. How quickly will the person become hungry after eating breakfast?
- *Shape*. The curve that describes how hungry the person becomes as the day progresses.
- *Polyphony*. There are two tracks indicating two separate processes that are going on at the same time.
- Finally, we need to consider *measurement or clocks and metrics*, the fact this composition is being played out over minutes and hours rather than days and weeks.

To think about a situation musically means, among other things, to look for rhythm. In this diagram, there are two identical rhythms, a short-long pattern that repeats

at different timescales. The first is the rhythm of ordering and eating. Ordering is preparatory and takes a relatively short time in comparison with eating, which takes a longer time. In poetry, this rhythm would be called iambic, a short and unstressed syllable followed by longer stressed syllable, that is, one given emphasis. If it took hours to order a meal that was consumed in seconds, the company's solution would be less likely to work, since the odds would increase that during the long process of ordering, the person would become hungry. Notice that the same short-long rhythm repeats over the course of the day. One feels full for a brief time after eating followed by a much longer period during which one gradually becomes hungry again—which leads to the next meal. One then decides what to eat and eats it, and the pattern repeats. As in fractal geometry, the same pattern occurs at different timescales.

The two vertical columns indicate the company's solution. The right column represents the synchronous risk of ordering while hungry, the left column the advantage of ordering while full. Musically, we can think in terms of chords, two or more notes sounding at the same time. Ordering a big meal when one is hungry, or a small meal when one is not, is consonant; the two conditions are in harmony. Ordering a huge steak when one is not hungry, or a small appetizer when one is famished, is dissonant.

The diagram provides us with information about the risk of ordering the wrong foods when one is very hungry. There are, however, other risks. If employees eat a sugary breakfast, or if they skipped breakfast entirely, they might become very hungry at 10:30. So, for the company's plan to work, the gap between arriving at the office and eating lunch must be bridged. No midmorning snacking on donuts. When we modify the interval between ordering and eating, or the time when people eat or don't eat breakfast, everything changes. We might find ourselves doing something that we might later regret, or pleased that we have avoided a temptation. Like the design of a physical structure, a well-understood temporal structure warns us of potential weaknesses so that we can avoid the risks of a "structural" failure (in this case a decision made at the wrong time, or a gap that can't be bridged). When we think mindfully about a situation, we become open to new and potentially valuable information (Langer, 1989, p. 66). We learn about the risks to which our plans and projects are subject, and how they might be avoided.

Sometimes, changing the temporal architecture of a product or service can lead to a new industry. Think about how a credit card works. The mechanism is a simple modification of the sequence-alignment architecture of the healthy lunch example. Before credit cards were in common use, a customer went to a store, selected a product, paid for it, and brought it home. A credit card inverts this sequence and inserts a long interval between stages. A customer buys the item, brings it home, and then some time later pays for it. The result is a new industry. What has also changed is the relationship between when a product is purchased, when the customer earns the money to pay the product, and when—over time—he or she actually pays for it. In the healthy lunch example, the risk was snacking before lunch. In the case of credit cards, the risk is not being able to pay the bill when it arrives. Comedian Art Buchwald describes what happens when a "Fly-Now-Pay Later plan collides with a failure to make a payment on time. A man from the travel agency comes to your house with a curious electric machine. You sit down in it, the current is turned on, and the machine removes all your memories of Europe (Bly, 1990, p. 19)."

The advantage of the plane compared to the point is that there are more distinctions and relationships (Langer, 1989, pp. 153–170) that can be drawn and hence more ways to solve problems. The vertical dimension adds “thickness.” That helps us think about all the synchronous risks, requirements, and rewards (opportunities) that occur when actions and events occur at the same time.

Lines

The time line is implicit in our thinking about the relationship between the present and the future. Let me give you an example of *time-line thinking* and how a score representation of that relationship would be useful in overcoming its limitations. It is the story of Thales, the ancient Greek philosopher who invented, and profited from, the concept of options. Here is Tom Copeland and Vladimir Antikarov’s version. The original story had to do with olive oil. I’ve taken poetic license and changed olive oil to wine, for reasons that will become apparent.

The Greek Philosopher Thales

... Thales [a sophist philosopher who lived on the island of Milos in the Mediterranean] read the tealeaves and interpreted them as forecasting a bountiful grape harvest that year. In fact, the reading was so favorable that Thales took his life’s savings, a modest amount of money, and bargained with the owners of the wine presses to grant him the right to rent their presses for the usual rate during the harvest season in return for his life saving.

Sure enough, the harvest exceeded all expectations, and when the wine growers rushed to the presses ..., Thales was there. He paid the usual rent to the press owners, as required by contract, then turned around and charged the market price—a much higher amount—for use of the presses, which were in high demand. Thales made a fortune ... (Copland & Antikarov, 2001, pp. 6–7).

All this can be discussed in the technical language of options; puts and calls, the exercise price, the time to expiration, the risk-free interest rate over the life of the option (if one could be envisioned), and so on.

Thales thought that he had solved the problem of timing. The principle, he would argue, is simple. Delay important decisions until you can see what is coming: then act. This is an example of call time-line thinking. In time-line thinking we think about time in terms of direction and distance. One moment follows the next like points on a line. The distant future is more remote—further down the line—than the immediate future. The idea is that if you can get close to the future point you are interested in, you will be better able to pierce the darkness that conceals it, and hence be prepared for what is coming. But if we look at the situation Thales described and are *mindful of context*, we can see that Thales’s plan has serious risks associated with it.

What Could Go Wrong? A Failure to Consider Context

In this version of the story, imagine that Thales had tried the same tactic three years in a row. Each year he was increasingly successful, so he went to a group of

individuals who many years later would call themselves a bank, and borrowed heavily so that he could rent more presses. He was becoming a rich man. But he wanted more, so he pawned everything he owned to expand his operation. After three years, the owners of the presses had enough. They didn't want to make any kind of deal with Thales. In the end, Thales and the owners did reach an agreement, but at a much higher price.

Then a stranger came to town. His name was Beck. Beck claimed that he had invented something called beer. No one paid much attention, but when Beck came down from the mountains where his "laboratory" was located, he was holding a jug of amber liquid. People took a sip. They liked it. They took another sip, and then one after that. Three weeks later, Beck set up a booth at the yearly wine festival promoting his new drink. Soon, wine had competition, particularly since Beck didn't charge very much for his new discovery (as a bench scientist, he didn't yet understand pricing).

Meanwhile, some presses, which had been brought into service, had not been used for a long time. As a result, they developed mechanical problems. Unfortunately, these weren't discovered until the week before they were to be used. The needed parts had to be shipped from Italy. En route, not only did the boat run into a serious storm that delayed the shipment, but when the boat arrived, the captain disclosed that over 90% of the parts were lost, including a sailor who tried to save the shipment but was swept overboard.

All this didn't matter in the end for Thales, however, because just when the grapes were to be harvested, he had a stroke. He had previous symptoms, but ignored them. He lingered for three days and then died. At the funeral, the owners of the wine presses expressed great sorrow, praised his courage and good name, but said nothing to his three sons about the deal their father had struck with them for the rental of the presses. Six months after Thales died, his sons, wanting to carry on his work, took up the study of philosophy. Many years later, all three died in poverty.

This alternative scenario, while fanciful, includes contextual factors that might reasonably be present in any situation like this: competition, supply-chain issues, the health of the main players, the failure of technology, the need for succession planning, and so on. Let's look at this revisionist history in terms of the seven elements that make up a musical score.

Sequence

Let's begin with the wine presses. Every technology has a life cycle. First, it is invented, then put to use. After a while, it will fail and need repairs. Ultimately, it will be discarded, replaced, or superseded as new technology is developed, or its intended use changes. Thales might not know when these different stages will occur, but he can be certain that wine presses, like any technology, will move through them (possibly many times). Since he was betting his life's fortune, he needed to think about the life stage of the presses. Would they be in good working condition when they were needed? There was a second sequence; namely, the warning signs preceding his stroke. I included this sequence as a reminder that any time-rich description includes internal events (what is going on in the life of an individual, inside a firm or organization) and not just external ones. When I sketch a score diagram, I generally put external factors

in the treble clef and the internal one in the bass clef, as I did in the healthy-lunch example.

Temporal punctuation

Temporal punctuation refers to beginnings, ending, pauses, etc. that break up the flow of time.⁶ The date of the yearly wine festival is an example. The approximate date of the harvest season is another example. Punctuation helps us to anticipate the events that surround each punctuation mark, and therefore anticipate what might occur and when. Borders and boundaries are inherently times of risk and opportunity.

Interval/duration

Thales needed to recognize that unused equipment might develop problems over time, problems that will be discovered only when the equipment is used, which may be too late to get them resolved in time.

Rate and tempo

Thales needed to ask the right questions. How quickly will beer catch on? How will the market for a product develop: all at once, in fits and starts, or at a slow steady pace? Is there a time during the year when customers will be more open to new products or when new products can gain the most exposure? In this example, if Beck missed the yearly wine festival (*punctuation*), the threat raised by his new product would materialize more slowly.

Shape

When we think about shape, we look for patterns of rise and fall, for rhythms of various kinds, or for anything that is different from a simple linear process. In this example, because grapes ripen at more or less at the same time, and because they can't be stored for long periods of time, the demand for the presses will be immediate. It is the long growing season, combined with a short harvest, that brings about the spike in demand. If this shape were reversed, a short growing season followed by a long harvest, the presses would not be overwhelmed, and their owners would not be able to charge high rents for their use.

Polyphony

Polyphony means many voiced. To listen to polyphonic music, you have to follow each melodic strand separately, making a mental effort to disentangle the way it is interwoven with others.

In the Thales story, we can see how three independent strands come together. Bad weather develops (one melodic strand) just when the shipment of spare parts is needed (a second melodic strand), which occurs right when the demand for the idle presses will be greatest (a third melodic strand), creating the perfect storm.

Measurement: clocks and metrics

Thales is not a young man. This may be his only chance to make a killing, so he is willing to risk his life's fortune on one bet. Beck, on the other hand, is a young man. He can take his time; think long term. Different actors pay attention to different clocks, which affects what they do and when.

Of course, if Thales knew nothing about technology, if he was only interested in a single deal, if he had no one to whom he wanted to leave his fortune, or if he was independently wealthy, and didn't care whether he lost money, none of the above considerations would matter.

If Thales was thinking about time at all, he was engaged in *time-line thinking*. He was looking horizontally out from the present into future, rather than vertically, trying to find patterns in what was going on at the same time at different timescales. Those patterns, which were the source of synchronous and asynchronous risk, weren't secret. Thales just had to know where to look for them. It is almost as if there were a magician that kept Thales looking in one direction while the real action was going on someplace else. To be mindful requires that we pay attention to the larger context of action.

There were not only a number of risks that Thales did not see, but also a number of missed opportunities.

Missed Opportunities: What a Score Representation + the T Map Might Have Revealed

- 1 Thales missed the fact that mechanical presses break down. He could have performed an initial inspection and included a clause in the contract to the effect that the presses must be in good working order. When we are mindful, we recognize that fixed elements may not be fixed at all: they can, and will, change.
- 2 Thales apparently didn't anticipate the need for replacement parts. If he had, it would have raised questions about their availability. That in turn would have revealed that the parts came from Italy. He could have considered the prospect of bad weather and how that would affect shipping schedules. As a result, he could have stockpiled spare parts. He didn't think about the larger temporal and historical *context* of his actions.
- 3 Thales failed to think about succession planning, namely future context. He could have told his sons what he was doing and included them in the contract.
- 4 Thales could have placed all the meteorologists in the area under an exclusive contract so he would have a monopoly on weather forecasting. The two-dimensional structure of a musical score directs our attention to the vertical as well as the horizontal, to what should (or should not) be done simultaneously. Our actions can be chords, not just a string of single notes.
- 5 Thales could have taken better care of himself. He should not have ignored early warning signs of stroke, assuming they were present, and might have taken out life insurance (had such existed). A musical score reminds us that every element, such as a person's health, has a shape. Nothing remains constant forever.

- 6 Thales missed the need for a multiyear contract. If he made a fortune one year, the cost of renting the presses wouldn't be out of sight the next. He didn't think about the future, *as seen from the future*, a perspective that is make salient by when we display time using the diagonal line of the T map.
- 7 Thales could have created a secondary market for his contract, and sold it to others when it became clear that the harvest would be a good one *before* it was discovered that the presses needed repair. When we think about a situation mindfully, we discover that there are multiple points where we can intervene.

All of these opportunities were missed because Thales did not have a sufficiently rich time-rich description of the situation before him: He didn't know the score!

Circles

In addition to the time line, the most common visual representation of time is the circle, as can be found on the numbered dial of our watch, or on the face of a clock. We can also find circles in the way we represent important logical concepts, such as a feedback loop (Figure 20.6).

The difficult with visualizing feedback as a circle is that it leaves the state of the entity receiving the feedback unchanged, as if it were not subject to effects of time. Adding a time lag, an interval before feedback is received, while helpful, is not enough to surface all of the relevant time-dependent factors involved in thinking about feedback. So, instead of a circle, let's consider the concept of feedback from the perspective of a two track musical score (Figure 20.7).

In the diagram above, an action is taken. Some time later, it has an impact, which lasts for some period of time. I've labeled this interval ED2 to indicate that the interval is composed of at least three stages. At some point, the consequences of an action exist. Then they are *detected*. Then they are *disclosed* or communicated to relevant

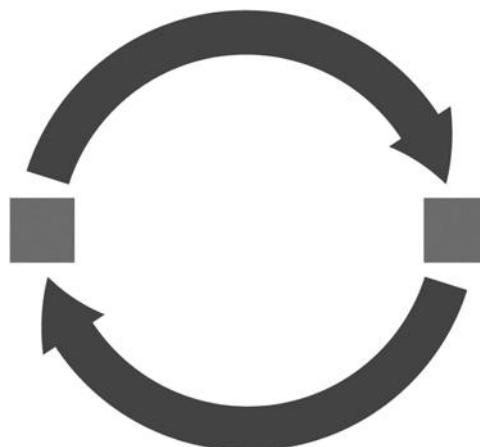


Figure 20.6 Standard feedback loop.

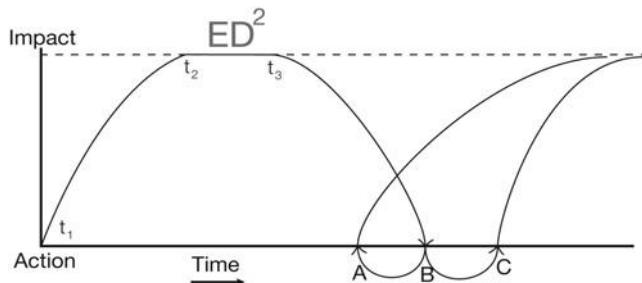


Figure 20.7 Feedback as a score diagram.

parties, including those waiting for feedback. I've included two kinds of loops in the diagram, one that loops backward (B to A), and one that loops forward (B to C). In the backward loop, the actor acts before, or in anticipation, of feedback. In the forward loop, she acts after she has received feedback. This two-level diagram brings the following intervals to our attention.

- 1 The time from when an action is taken until the first consequences of that action begin to appear (*e*).
- 2 How long before these consequences are *detected*.
- 3 How long before they are communicated (*disclosed*).
- 4 Finally, how long before or after receiving feedback new action is initiated.

Each of these intervals defines a specific risk as well as presents a potential opportunity. An action may have little impact—ever. Alternatively, an action may have immediate and dramatic consequences for all involved. But what if the consequences are hidden or kept secret, and as a result, a person makes the wrong decision? Or perhaps feedback is so delayed that the person no longer wants or needs it. She may have left the organization or moved on to another position. Considering the four intervals above introduces a set of distinctions that makes us more mindful about what consequences follow or might follow from our actions, and when we will find out about them.

Conclusion

My suggestion in this chapter is that when we visually display temporal processes, we should use the stratified vertical and horizontal structure of a musical score. We need the two-dimensional plane of a score to capture the richness of temporal experience, which a line, even one that curves back on itself as a circle, cannot provide. Thus, when we think about causality, we should think in terms of chords and chord progressions rather than simply about what comes *before* or *after* something else. The latter treats time as a single dimension, represented by the time line. Chords remind us to consider the vertical, to think about what can or should cooccur. To think about time mindfully, we need to consider simultaneity as well as succession. Without

copresence nothing would exist, and there could be no possible experience of succession. As Husserl said, "Simultaneity is nothing without temporal succession and temporal succession is nothing without simultaneity, and thus correlatively, constitution of simultaneity and constitution of temporal succession are inseparable (Husserl, 1991, p. 386).

Another way to say this is that to be mindful of time requires a time-rich description, one that includes all seven elements of temporal architecture, and the patterns that the first six of these elements form with each other at different timescales. Time-rich descriptions are needed if we are to find the novel distinctions that lead to new ideas and new solutions, which is at the center of a mindful approach to time and to temporal processes in general.

Notes

1. See a discussion by Weismann (1974, pp. 210–213).
2. I discuss the issue of time-impoverished description more fully in Albert (2013).
3. This discussion closely follows ideas I developed in Albert (2013).
4. <http://www.wmich.edu/mus-gened/mus170/BeethovenSymph5-4.gif>
5. Bach (1745).
6. See also Weick (1977).

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Mindfulness and the Neuroscience of Influence

Emily B. Falk

The concept of mindfulness as present-oriented awareness, coupled with flexibility in thinking and creating new categories (Langer, 1989), has been directly applied to problems ranging from conceptualizing and promoting creativity to reducing prejudice to improving health and longevity (Alexander, Langer, Newman, Chandler, & Davies, 1989; Langer, 1989, 2009; Langer, Bashner, & Chanowitz, 1985; Langer & Imber, 1980). From an academic standpoint, the basic tenets of mindlessness versus mindfulness recur throughout social psychology. These ideas form a theoretical basis for models explaining a range of human behaviors, whether directly referred to in these terms or not. Indeed, this conceptualization of mindfulness and Eastern-inspired forms of mindfulness have been highly influential in elucidating the overlap and connection between mind and body, and in promoting health and well-being.

Given the powerful effects of mindfulness on health, a growing body of literature has examined biological correlates of mindfulness practice. For example, neuroscientists have begun to uncover structural and functional correlates of Eastern-inspired forms of mindfulness in the brain. Although relatively little work has specifically examined the neural correlates of Langer's mindfulness (present-oriented awareness, coupled with flexibility in thinking and creating new categories), in the current chapter, I argue that doing so will shed light on important social neuroscience questions. First, extending current research beyond Eastern-inspired forms of mindfulness and related concepts such as mindfulness meditation to also understand the neural bases and effects of Langer's social-cognitive mindfulness can help clarify common and distinct mechanisms associated with each. Second, understanding these neural underpinnings may shed light on common and distinct pathways leading to the cognitive and health benefits of each form of mindfulness. Third, this type of work will facilitate more efficient

connection to the existing social psychological literature. Finally, Langer's mindfulness as a dispositional trait is also likely a moderator of many commonly studied neurocognitive effects, and so its inclusion in social neuroscience investigations could shed light on a variety of neurocognitive processes. Thus, more work incorporating measures of dispositional mindfulness, as well as examining situations that promote state mindfulness, is likely to expand our understanding of the brain and its associated psychology beyond what has already been addressed by extant social-cognitive neuroscience research on mindfulness.

Given that most neuroscience research on mindfulness has focused on Eastern-inspired forms of mindfulness, in the current chapter I will provide a brief overview of social-cognitive neuroscience investigations of the neural correlates of this form of mindfulness. In addition, I will speculate about ways in which Langer's mindfulness (which is defined in more social-cognitive terms, as compared to Eastern forms of mindfulness and mindfulness meditation) might operate in similar or distinct ways from the forms of mindfulness studied in existing neuroimaging research. I will address the idea that trait mindfulness is likely to moderate many well-documented social-cognitive neuroscience findings. As one example to illustrate how this might be conceptualized, I will focus on Langer's social-cognitive mindfulness as a potential moderator of the neural bases of persuasion and social influence, as well as ways in which mindfulness may help explain certain brain-as-predictor relationships that are presently poorly understood. Questions include: In what ways might mindfulness moderate currently observed neural correlates of social influence? Can a mindfulness lens help explain why neural activity predicts variance in behavior change that is not currently explained by self-report?

Mindfulness and the Brain

A growing body of research explores the neural correlates of mindfulness meditation and other Eastern-inspired forms of mindfulness (Cahn & Polich, 2006; Treadway & Lazar, 2009). This growth parallels increased interest in scientific mechanisms that underlie the effects of Eastern forms of mindfulness intervention on health-relevant outcomes (Baer, 2006; Didonna, 2009). Many of these studies seek to understand the neural processes that take place during mindfulness meditation, as well as longer-term structural and functional consequences of such meditation.

Given that enriched experience fosters brain development across the lifespan, it is logical that mindfulness of a variety of forms should also alter the structure and function of the brain. In particular, it is now widely accepted that the brain is plastic, undergoing changes throughout life, according to experience (Maguire et al., 2000; Rosenzweig, Bennet, & Diamond, 1972). In her discussion of mindful aging, Langer (1989) notes that this capacity for development throughout the lifespan is often ignored; instead, Western society conceptualizes growing older in terms of inevitable decline. Consistent with Langer's view, a number of studies of mindfulness meditation and other Eastern-inspired forms of mindfulness also reinforce the conclusion that the mind, body, and brain are plastic.

Structural changes associated with mindfulness

Studies of mindfulness meditation have examined the neural and behavioral consequences of mindfulness meditation in terms of both brain structure and function. For example, studies examining brain structure have demonstrated that long-term mindfulness meditation practice results in structural changes in cortical thickness (Lazar et al., 2005), as well as increased gray-matter concentration implicated in bodily perception (such as the anterior insula; Hölzel et al., 2008); thus, paralleling other strength-models (Muraven & Baumeister, 2000), it is possible that long-term mindfulness practice builds brain function as other forms of exercise build muscle. Experimental evidence also suggests that mindfulness practice can alter the structure of brain systems (effectively toning brain “muscles” to engage in relevant cognitive and affective processing). For example, participants who are randomly assigned to a mindfulness meditation intervention, compared to waitlist controls, show widespread structural changes across the brain (including changes in neural regions such as the posterior cingulate cortex, the temporo-parietal junction, and the cerebellum; Hölzel et al., 2011).

Functional changes associated with state mindfulness

Functional magnetic resonance imaging (fMRI) studies have also demonstrated differences in the brain activity observed: between meditators and nonmeditators; between those higher and lower in trait mindfulness; and between those assigned to mindfulness interventions versus controls. Participants randomly assigned to mindfulness-based stress reduction also demonstrate widespread increases in functional connectivity compared to control subjects (Kilpatrick et al., 2011). Finally, participants randomly assigned to a mindfulness meditation intervention evidence positive changes in immune function (Davidson et al., 2003). Consistent findings across these studies implicate neural systems involved in bodily perception, attention, and emotion regulation in mindfulness-related practice; however, the direction of effects across studies has not been consistent.

Studies comparing meditators and nonmeditators have demonstrated differences in neural regions associated with attentional control (e.g., dorsal anterior cingulate cortex [dACC]) and with perception of bodily states (e.g., anterior insula), though the direction of results has not been consistent across studies (Brefczynski-Lewis, Lutz, Schaefer, Levinson, & Davidson, 2007; Hölzel et al., 2007); on the one hand, meditation increases attentional control and hence should be reflected with increased neural activity in attentional processing regions. However, meditators also have become more skilled at achieving these results as they practice and hence may not require the same degree of activity in order to achieve parallel results (Treadway & Lazar, 2009). One recent study demonstrated increased activity in attention networks during mindfulness meditation compared to mindwandering in novice meditators, suggesting one pathway through which effects of mindfulness may initially take hold (Dickenson, Berkman, Arch, & Lieberman, 2013).

Studies comparing short-term mindfulness training to control conditions also suggest that mindfulness practitioners show better ability to regulate anticipatory anxiety and unpleasant emotions associated with pain (Gard et al., 2011; Zeidan et al., 2011).

Perhaps counterintuitively, this ability is associated with increased activity in neural regions associated with sensory perception, and decreased activity in lateral prefrontal emotion-regulation regions (Gard et al., 2011; Zeidan et al., 2011). It is possible that cultivation of present-minded awareness allows practitioners to dissociate sensation from evaluation. Participants who are assigned to mindfulness training also show functional changes in left-sided activation (previously implicated in positive affect), suggesting that the practice may alter this basic functioning (Davidson et al., 2003).

Complementing the experimental findings described, long-term practice of meditation is also associated with decreased prefrontal cortical activity during exposure to emotional images; whereas nonmeditators employing mindfulness techniques show decreased reactivity in neural regions implicated in affective processing (e.g., the amygdala). Thus, activity in experienced meditators employing mindfulness techniques suggests increased acceptance of current emotional states, and lack of neural changes in the face of affective stimuli (Taylor et al., 2011). This type of equanimity in the face of change is one characteristic that characterizes Eastern forms of mindfulness.

Another possibility that is consistent with Langer's description of mindfulness is that mindfulness intervention expands the practitioner's ability to flexibly interpret their position within context. For example, participants assigned to a mindfulness intervention condition differ from controls in how their brains come to represent the self (Farb et al., 2007): those who have practiced mindfulness-based stress reduction over the course of weeks show more dissociation between neural representations of the self across time (e.g., in terms of stable traits, which the authors refer to as "narrative focus"), and in the present moment (which the authors refer to as "experiential focus"), than novices. To the extent that individuals are able to see themselves from multiple other perspectives, we would expect to observe increased ability to think flexibly about a range of topics (potentially including pain).

Functional differences associated with trait mindfulness

A separate group of studies have examined neural responses to a range of tasks in nonmeditators according to levels of trait mindfulness—in other words, whereas the studies above examine differences associated with specific mindfulness-related activities (e.g., meditation), studies of trait mindfulness examine variability according to participants' self-reports of how they tend to approach the world and scenarios encountered. This early group of studies has focused primarily on the relationship between trait mindfulness and emotion regulation. Findings suggest that those higher in some forms of dispositional mindfulness (Brown & Ryan, 2003) may recruit prefrontal resources more easily during emotion regulation of different kinds, including affect labeling (Creswell, Way, Eisenberger, & Lieberman, 2007) and reappraisal (Modinos, Ormel, & Aleman, 2010). Levels of trait mindfulness also moderate responses to highly arousing images very early in the processing stream (Brown, Goodman, & Inzlicht, 2013).

Summary and extensions

In sum, reviews of the neural bases of Eastern-inspired forms of mindfulness suggest that mindfulness practices such as mindfulness meditation produce unique

patterns of neural activation that “[appear] to promote long-term structural and functional changes in brain regions important for performing clinically relevant functions” (Treadway & Lazar, 2009), and that mindfulness meditation evokes substantially different patterns of activity from the brain at “rest” (Treadway & Lazar, 2009). In particular, consistent patterns across studies link mindfulness to structural and functional changes in brain regions associated with bodily perception and emotional processing. Results are consistent with the emphasis of mindfulness practitioners and researchers on mind–body connection, and may suggest mechanisms relevant to health effects of mindfulness.

Although not as thoroughly studied within the neuroscience community to this point, Langer’s form of mindfulness shares common ideals with more Eastern-inspired forms of mindfulness-related meditation practices; however, they are conceptually distinct in several key ways (Langer, 1989). Both types of mindfulness have been associated with positive health effects and broader indices of well-being (Didonna, 2009; Langer, 1989). More Eastern forms of mindfulness, and mindfulness meditation in particular are conceptualized as being practiced effortfully. By contrast, Langer’s mindfulness is conceptualized in terms of finding new ways of categorizing and viewing daily encounters in a way that Langer argues is not more effortful than the alternative (mindlessness). As such, results reviewed above pertaining to trait levels of mindfulness are likely to be most relevant to elucidating the neural correlates of Langer’s form of mindfulness, and in understanding how it might moderate other social, cognitive and affective processes. For example, as reviewed, a small number of studies have demonstrated that trait mindfulness moderates brain responses to emotional stimuli during affect labeling and reappraisal tasks. Langer argues that mindfulness allows us to see the world from multiple points of view and, as such, might allow a wider range of labels and interpretations for any given experience, as well as, by definition, greater facility with reappraisal.

Although social neuroscience studies of mindfulness have focused most heavily on changes in attention and emotion regulation related to mindfulness, decades of social psychological research suggest that mindfulness also moderates many other basic social psychological processes. Thus, incorporation of measures of mindfulness into a wider range of social neuroscience investigations is likely to inform our understanding of both the brain and mindfulness. As one example of how this might be accomplished, I devote the remaining portion of this chapter to an exploration of one set of core concepts in social psychology (persuasion and social influence) and ways in which mindfulness might moderate the neural bases of these processes.

Mindfulness as a Moderator of the Neural Bases of Social Influence: An Exploration of Broader Incorporation of Mindfulness in Social Neuroscience

Neural correlates of persuasion and social influence

In contrast to the decades of research that have characterized psychological and physiological mechanisms of persuasion and other forms of social influence (Allport,

1935; Chaiken, Liberman, & Eagly, 1989; Eagly & Chaiken, 2005; Hovland, 1949; Hovland, Janis, & Kelley, 1953; Petty & Brinol, 2012; Petty & Cacioppo, 1986a, 1986b), neuroimaging work examining the brain's representation of these processes is in a relative state of infancy (Falk & Lieberman, 2013; Falk, Way, & Jasinska, 2012; Lieberman, 2010). As such, there is still much to uncover. Researchers interested in understanding persuasion and social influence have looked to the brain in order to answer questions that have been challenging to answer using self-reports and direct behavioral observation alone, and to identify common and distinct mechanisms of a range of persuasion and broader influence processes. Given that mindfulness clearly moderates individuals' responses to potential sources of social influence (Langer, Blank, & Chanowitz, 1978; Santos, Leve, & Pratkanis, 1994), examining the conditions under which mindfulness moderates neural responses to social inputs, and in what ways, is likely to shed light on both mechanisms of influence and on basic neuroscientific questions about the social brain.

Much of the recent neuroimaging work on social influence has focused on the ventral striatum and ventromedial prefrontal cortex (VMPFC; Falk, Way, & Jasinska, 2012), which are key components of the brain's reward system (Haber & Knutson, 2010; Knutson, Adams, Fong, & Hommer, 2001; Knutson & Cooper, 2005; McClure, York, & Montague, 2004). Across several studies, activity within these putative reward structures, during exposure to social information, is associated with participants conforming to the opinion of others. For example, in one early study of the neural bases of influence effects (Klucharev, Hytonen, Rijpkema, Smidts, & Fernandez, 2009), neural activity was recorded using fMRI, while male participants were presented with female faces and asked to rate the faces according to attractiveness. Directly following their own rating of the faces, participants were subsequently presented with the ratings of peers. Following the scanner session, participants rerated the faces. Discrepancy between the participants' initial ratings and the "peer" ratings led to subsequent conformity on average (changing one's opinion in the second rating session to be consistent with the group). In the brain, decreased activity in the ventral striatum was associated with discrepancy between one's own opinion and the opinion of the group. This "discrepancy signal" was specific to social influence—the neural signal was greater when the reference group ratings were said to be provided by other people, as compared to when the reference group ratings were said to be generated by a computer. In addition to tracking social value of stimuli during initial exposure to the opinions of others (Klucharev et al., 2009), activity in the brain's reward system also appears to be positively associated with ratings of others, when they are higher, compared to lower, than participant's initial ratings (Zaki, Schirmer, & Mitchell, 2011).

A parallel study by Campbell-Meiklejohn, Bach, Roepstorff, Dolan, and Frith (2010) examined the converse effect. In this study, participants made ratings of music, which were sometimes concordant and sometimes discordant with information provided about the ratings of "musical experts." Results from this study indicated that participants showed increased activity in the ventral striatum when their own opinions about music were consistent with the opinions of two "expert raters" (Campbell-Meiklejohn et al., 2010). This activity overlapped with activity in response to being given monetary rewards in response to their ratings. This provides evidence first for modulation of the reward system by social, in addition to nonsocial, rewards. Second,

this overlapping neural activity between monetary and social rewards may suggest that being consistent with experts produces a reward signal in the brain. The authors speculate that this reward may come from the feeling that concordance with expert ratings suggests that one has good musical taste, or taste that is socially valued.

Follow-up work by Campbell-Meiklejohn and colleagues (2012) pharmacologically manipulated levels of dopamine in the brain by administering the dopamine reuptake inhibitor, methylphenidate (also known as Ritalin), in order to examine its effects on conformity. The researchers found that the Ritalin group showed more exaggerated conformity effects as compared to a placebo control group (Campbell-Meiklejohn et al., 2012). Although neural effects were not assessed in this study, these data are consistent with the hypothesis that dopamine signaling in the striatum sensitizes individuals to the opinions of group members, and associated social rewards of conformity (Falk, Way, et al., 2012).

Finally, just as activity in the brain's reward system is moderated by directly provided social cues (e.g., the preferences or ratings of others), activity within the reward system is also moderated by indirect signals of social value (in effect "social placebos") and can be modulated by the mere presence of others. One clear demonstration of this effect comes from a study in which participants were asked to taste and rate wines that were priced at different levels. Although the actual wine fed to participants was held constant, participants believed that the wines they were tasting were different. They rated the more expensive wines as tasting better and showed increased activity within the brain's reward system (in the VMPFC) while drinking wines that they believed to be more expensive (Plassmann, O'Doherty, Shiv, & Rangel, 2008). Receptivity to peer influence in adolescence also appears to be tied to the brain's reward system (Casey, Getz, & Galvan, 2008; Steinberg, 2008), and the VS in particular (Chein, Albert, O'Brien, Uckert, & Steinberg, 2010). The mere presence of peers increases adolescents' susceptibility to risk taking and is associated with heightened sensitivity within the VS (Chein et al., 2010). In addition, during adolescence, the brain's emotional systems develop more quickly than the brain's cognitive control system, which results in an imbalance of the strength of emotional signals in relation to the brain's capacity to exert cognitive control and regulate such emotions (Casey et al., 2008; Chein et al., 2010; Steinberg, 2008).

One way of viewing this body of research suggests reason for pessimism—the mindless use of an "expensive = good" heuristic (Cialdini, 2009) may trick us, and cost us money, and the presence of peers may lead to risky behavior in adolescence. Levels of activity within the VS are associated with risky behavior in the presence of peers in teens, and VMPFC are associated with participants willingness to pay for items (Plassmann, O'Doherty, & Rangel, 2007), as well as purchase decisions (Knutson, Rick, Wimmer, Prelec, & Loewenstein, 2007). Furthermore, encoding of value signals in these brain regions appears to occur outside of our conscious awareness and in cases where we aren't consciously evaluating (Tusche, Bode, & Haynes, 2010).

These data may also suggest a silver lining, however. As Langer has noted, mindfulness training may increase the ability of the VMPFC to focus selectively on cues that maximize happiness. The brain's reward system, and VMPFC in particular, encodes and integrates many different value signals (e.g., healthiness and taste, in addition to social value, when choosing foods; Hare, Camerer, & Rangel, 2009; Hare,

Malmaud, & Rangel, 2011). The VMPFC gives different weight to attributes according to one's motivational goals (Hare et al., 2009, 2011). Given that the VMPFC responds to many different possible forms of value, the mindful consumer might actively choose to focus on some attributes over others to maximize happiness. As such, the VMPFC may be a fruitful target for studies examining effects of mindfulness interventions on happiness. Likewise, the mindful teen might be in a better position to conceptualize many ways of being "cool."

In sum, in multiple separate studies, activity in the reward system appears to be modulated by social feedback. Neural activity within the reward system appears to increase when one is in line with a valued reference group, and to decrease when one is out of line. Across different paradigms, activity within the brain's reward system covaried with the fit between participants' opinions and the opinions of others. These data are consistent with the idea that the social reward of fitting in promotes conformity (Cialdini & Goldstein, 2004).

Potential moderation by mindfulness

How might these findings be moderated by mindfulness? We might expect that more mindful people, or people in a more mindful state, might evidence different responses to persuasion and other forms of social influence effects than those who are less mindful. First, it is well documented that, although mindfulness can open us to the views of others, it can also reduce mindless susceptibility to social influence. As noted by Langer (1989): "Once we become mindfully aware of views other than our own, we start to realize that there are as many different views as there are different observers" (p. 68). She further suggests that by seeing the multiple possible viewpoints that one might take on, we gain more choice with respect to how we respond.

Thus, instead of mindlessly changing her opinion of music based on the views of an expert, an expert rating might prompt a more mindful consumer to consider the different aspects of a song that the expert would have considered to arrive at the displayed rating. This, in turn, might be associated with greater neural activity in perspective taking and executive control regions of the brain. By contrast, in a situation where others rate a face or a piece of music differently than we have, instead of viewing the discrepancy as a threat, we may be prompted to consider other possible ways of viewing the stimulus, which, in addition to neural systems associated with perspective taking, might also be associated with more extensive processing in sensory regions of the brain (mindfulness is likely to change the way we physically see, hear, etc.), as well as within the reward system (mindfully processing stimuli is likely to be rewarding).

This concept is also consistent with literature in the emotion regulation literature suggesting that emotions can be up- or downregulated in a top-down fashion (Ochsner et al., 2009). In the context of social influence, mindfulness might not systematically change the ratings that individuals make (e.g., in the music study described above, more and less mindful people might each change their opinion following expert ratings), but might do so for very different reasons (heuristically expert → authority → change, versus expert → prompts consideration of different stimulus features → person finds beauty where they hadn't heard it previously).

The differing mechanisms that lead to social influence in mindful and mindless participants could be evident in examining neural activity in a way that is not evident based on observing the outcome of self-reports such as the second ratings described above, or even in the number of reasons generated (NB: elaboration, as captured in the classic Elaboration Likelihood Model of persuasion, and mindfulness are not synonyms, and may be represented quite differently in the brain). For example, arguments may be processed centrally with a relatively high degree of elaboration without being mindful, and mindful processing does not necessarily require more effort than mindless thought (Langer, 1989). High degrees of elaboration can engage more mindful critiques of arguments, however, effortful processing can also call to mind knowledge acquired under other circumstances that need not apply in the current circumstance, and/or overlearned beliefs may serve as starting points for seemingly logical arguments that constrain the way a thinker views the current situation. In other words, it is possible to engage in high degrees of elaboration without mindfulness. Likewise, it is possible to process cues mindfully and peripherally (Langer, 1992). To the extent that arguments are considered within the framework of ideas that were acquired under one context, without full consideration of the current context, these so-called premature cognitive commitments may still limit the degree to which incoming information can be fully leveraged. Within the brain, we might expect that increased mindfulness would be associated with greater connectivity across networks that link sensory input, memory, and generation of novel concepts, or in systems associated with abstract thought.

Thus, in addition to considering central versus peripheral processing in furthering our understanding of the neural bases of persuasion and the neural precursors of behavior change, it will also likely prove useful to consider mindfulness. Research examining trait mindfulness as a moderator of currently documented effects will be of interest in defining the boundary conditions of the effects observed. Furthermore, in considering these results and their potential moderation by mindfulness, it is important to keep in mind that no brain region operates in isolation, just as no psychological process operates outside of a social context. Thus, the involvement of any neural system in the process of making an attitudinal evaluation is actually a product of the interaction of multiple brain systems, which in turn is operating within a social context.

Acknowledging this complexity, Wil Cunningham and colleagues have suggested that incoming stimuli are initially registered in relatively fast-operating, affective processing regions, including the brain's reward system, but are subsequently iteratively reprocessed between such affective processing regions and higher level executive control systems (Cunningham & Zelazo, 2007; Cunningham, Zelazo, Packer, & Van Bavel, 2007). In parallel with the Elaboration Likelihood Model, they suggest that the degree of iterative reprocessing depends on contextual factors, internal motivation, and social cues. The results of this iterative reprocessing are stimulus evaluation and goal-directed action. Mindfulness is likely to affect this process in at least two ways. First, increased mindfulness may increase connection and processing of incoming stimuli between affective processing regions and the executive control system. Second, mindful consideration of different aspects of the incoming stimulus is likely to alter the weight given to different aspects of the stimulus.

As currently conceptualized in investigations of the neural bases of social influence, neural activity in the ventral striatum is thought to index a discrepancy signal wherein agreement with others is more rewarding than not agreeing. Subsequent viewing of stimuli that others value is also conceptualized as more rewarding than viewing stimuli that others don't value. However, participants who are more mindful might spontaneously have more ways of conceptualizing beauty or quality, due to their increased tendency to actively construct distinctions and see novel distinctions in the ordinary (Langer, 1992). They might show more facility in simultaneously maintaining their initial preference rating, while seeing the merits of the peers supposed ratings (Langer, 1989). Hence, more mindful participants might not view initial discrepancy between the participant and peer ratings as prompting a need to conform, but might instead prompt participants to consider what might be beautiful in the face of another and/or what might be viewed as strange or undesirable (in effect making more categories of attractive and unattractive). Participants processing the social cues in a more mindless fashion, by contrast, might have more difficulty simultaneously representing positive evaluations of both their own view and a seemingly contrasting view. Neural evidence for such effects might parallel the results suggesting that mindfulness alters neural representations of the self across time (Farb et al., 2007), such that individuals higher in trait mindfulness, or those exposed to a mindfulness intervention, might show both more discrepancy in representations of the self across time, and less of a discrepancy signal to information contradicting their own view, and might show less discrepancy within the reward system when confronted with potentially contrasting views to their own.

Finally, the idea that one key pathway to social influence is through the brain's reward system also suggests a potential route to leverage influence to actively recreate such rewards in situations when we might not otherwise experience reward. Indeed, a number of forms of meditation, and other religious activities, appear to achieve salutatory effects, perhaps by reducing negative affect or increasing social support. In the first section, I reviewed evidence suggesting that mindfulness meditation reduces unpleasantness and anxiety associated with pain and is also associated with decreased activity in lateral prefrontal brain regions that have been implicated in cognitive control and emotion regulation (Gard et al., 2011; Zeidan et al., 2011). Interestingly, in a separate line of work, Christian participants with strong beliefs in the power of intercessory prayer evidenced decreased activity in medial and lateral prefrontal executive control brain regions when they believed that messages were delivered by individuals with charismatic abilities, compared to the same statements delivered by individuals not labeled as having such powers (Schjoedt, Stokilde-Jorgensen, Geertz, Lund, & Roepstorff, 2011). As Langer (1989, 2009) argues, placebos are very powerful in part due to the power of the mind–body relationship, and this may also apply to active intervention by prayer and other forms of mind focus. Although many of us require outside influence to spur our bodies into responding (e.g., through the use of placebo medicines or through strong belief in intercessory prayer), it is likely possible to activate parallel brain mechanisms without such stimuli, and hence achieve similar results. Just as placebos can help the mind/body heal itself, attention to certain forms of external cues can also alter our pleasure and corresponding neural activity in response to experiences (Langer, 2009).

Mindfulness and brain–behavior relationships

The neuroscience studies reviewed above manipulate psychological processes as independent variables and treat neural activity as a dependent variable. These “brain-mapping” studies are useful in exploring the neural mechanism that are associated with psychological processes of interest (e.g., mindfulness, social influence), and can help identify psychological phenomena that share common versus distinct underlying neural mechanisms. A growing body of literature, however, has also begun to harness what we have learned from such brain-mapping studies in social and cognitive neuroscience and neuroeconomics to predict outcomes outside of the lab. In particular, we can use our knowledge of the brain in order to choose neural regions *a priori* that are hypothesized to predict outcomes outside of the neuroimaging lab. In this type of brain-as-predictor model, neural activity during basic laboratory tasks is used to predict real-world outcomes longitudinally outside of the laboratory (Berkman & Falk, 2013).

Employing this type of brain-as-predictor approach can help us test competing theories and can help us link what we have learned about the brain in the controlled laboratory environment to more complex real-world behaviors. However, in many cases, neural activity predicts behavior change above and beyond self-report measures (Falk, 2010). In other words, these studies might suggest that the brain contains information that is implicitly registered but is not accessed by conscious self-report. For example, neural activity in VMPFC, in response to public-health-service announcements, has been used to predict individual health-behavior change over the course of weeks (Falk, Berkman, Mann, Harrison, & Lieberman, 2010) or months (Falk, Berkman, Whalen, & Lieberman, 2011), above and beyond what is explained by participants’ reports of their attitudes toward the health behaviors, their intentions with respect to the behaviors, their confidence in their ability to change, and their ability to relate to the ads. Likewise, neural activity in VMPFC has also been used to predict population-level behavior change in response to persuasive messages (Falk, Berkman, & Lieberman, 2012) and other socially relevant stimuli (Berns & Moore, 2012), above and beyond participants’ self-reports.

Thus, one logical question is whether the information encoded in the brain is inaccessible to self-report because it cannot be consciously accessed, or whether, instead, the information is not captured by self-reports due to mindlessness. It has long been recognized that many important psychological processes occur outside of conscious awareness, and that conscious introspection can alter or disrupt these processes (Dijksterhuis, 2004; Nisbett & Wilson, 1977). However, Langer (1989) suggested that some of the processes that we conceptualize as subconscious might be made conscious if we attended to our own thoughts more clearly. She argues that just as placebos can alter the relationship between brain and body, so too we might alter these processes without the need for a pill. It stands to reason, then, that if it is possible to exert top-down control over the body by being more in touch with the mind, one might also be better in touch with the mind by attending more to the body; as practitioners of nearly all forms of mindfulness suggest, the dissociation between mind and body creates a false dichotomy that may have negative consequences when it comes to understanding ourselves and the antecedents of well-being. Of course, it is also likely that some of the

discrepancy between variance in behavioral outcomes that is predicted by the brain, and not by self-report, will be resolved by measuring other self-report constructs that have not yet been explored, and by examining moderators of influence processes. For example, in addition to using mindfulness as a tool to improve our ability to forecast our actions, mindfulness is likely to moderate the strength of the relationship between neural activity and behaviors that follow.

Summary and Conclusion

In this chapter, I have reviewed evidence for systematic changes in brain structure and function brought on by diverse forms of experience, including the active practice of mindfulness meditation, as well as trait mindfulness. Although the neural correlates of Eastern forms of mindfulness and mindfulness meditation have been more extensively explored than more social-cognitive forms of mindfulness, such as Langer's mindfulness, we now know that lived experience alters the brain throughout life. Hence, mindfulness or mindlessness, too, should affect the brain accordingly. The current literature on mindfulness meditation falls into three categories: studies of long-time meditators compared to novices, studies comparing those who have undergone a relatively brief mindfulness training intervention (on the order of days or weeks) compared to a control group, and studies examining dispositional mindfulness. Across studies, neural systems associated with attention, perception of bodily awareness, and emotion regulation differ between those higher and lower in mindfulness. This is true of short-term functional variation within specific networks as well as differences in structure.

Findings from studies of dispositional mindfulness are likely to provide the best starting point for forming hypotheses about how social-cognitive mindfulness is likely to moderate brain function in contexts beyond those currently studied. Mindfulness is likely to moderate a much wider range of processes than have been currently explored or documented in the social neuroscience literature. The incorporation of trait and state levels of mindfulness within neuroscientific investigations stands to benefit both our understanding of the clinical and social psychological phenomena under study and our understanding of brain function.

As one example of how mindfulness might be more deeply integrated into social neuroscience inquiry, I reviewed selected examples of neuroimaging findings pertaining to the neural bases of social influence and speculated about how mindfulness might moderate underlying neural function within this context. In particular, a growing body of studies suggest that the brain's reward system is sensitive to a wide range of social cues, including whether our opinions conform to the opinions of others. Researchers have suggested that the social rewards of conformity may have had evolutionary benefits in terms of group cohesion and protection of individuals within the group (Cialdini & Goldstein, 2004; Lieberman & Eisenberger, 2009). However, several factors contribute to any given overall evaluation of the value of a stimulus, which are integrated within the VMPFC (Hare et al., 2009, 2011). Increased mindfulness might lead to increased control over the weighting of these different value signals, expansion of the list of attributes that are seen as desirable, and increased happiness through focus on social cues as one of many possible ways of computing value.

Likewise, increased mindfulness may facilitate parallel effects to forms of placeboic influence exerted by sugar pills or certain religious rituals or beliefs. Mindfulness meditation increases attention to bodily states and increases present-oriented awareness. Correspondingly, mindfulness is associated with increased activity in neural systems associated with sensory awareness and with decreased activity in cognitive control regions. These findings may suggest that mindfulness practice decreases active engagement of cognitive control, or simply that less effort is required to achieve parallel results. In either case, increased mindfulness may allow individuals to simulate social influence effects within their own minds and bodies to achieve positive results.

Further study that simultaneously examines neural function during experiences of influence, including connectivity between regions, as well as changes in structure in response to changes in mindfulness may be especially helpful in uncovering links between state and trait levels of mindfulness, and the ways that we are mindfully or mindlessly open to cues from those around us. In turn, this form of investigation stands to increase not only our understanding of mindfulness and of influence but also our ability to integrate diverse forms of measurement to predict behavioral outcomes.

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Part III

Leadership and Organizational Behavior

Applications of mindfulness interventions in organizational contexts have been shown to promote more effective leadership and distress tolerance in work-related settings. The incorporation of mindfulness training and meditation into the workplace has also been shown to foster greater collective mindfulness and more mindful organizational cultures. This section of the handbook addresses the broadening of managerial cognition and behavior that is offered when mindfulness is brought into the workplace.

Sutcliffe and Vogus review the literature on collective mindfulness, particularly, the process by which the application of core elements of both Western- and Eastern-based mindfulness practices enables organizations to function more efficiently and manage uncertainty, complexity, and change. Jordan and Johannessen combine the concepts of mindfulness and organizational defenses to shed light on challenges that are specific to collective mindfulness—for example, challenges to maintaining mindful organizational cultures over time—and demonstrate how this opens up new directions for research on mindful organizing. Through the use of case studies, Ritchie-Dunham shows how the application of Langer’s conception of mindfulness into organizational practices can help leaders effectively deal with the uncertainties introduced by social change. More specifically, he explores the application of mindfulness solution in the contexts of an electric company, school, and textile company. Pirson addresses mindfulness within the work context. He outlines the beneficial outcomes associated with bringing mindfulness into varying work environments including schools, businesses, and hospitals. He demonstrates how mindful management affects different aspects of the organizational context including culture, learning and innovation, and decision-making. Riskin discusses the current and potential roles of both Western- and Eastern-based mindfulness teachings in the context of law and dispute resolution, while Rogers offers a look at the latest methods developed to help integrate both approaches to mindfulness into the legal profession.

22

Organizing for Mindfulness

Kathleen M. Sutcliffe and Timothy J. Vogus

*It all started with a one-inch-wide band of fire that crept across
the fireline into fresh grass...*

—Cerro Grande firefighter

On the evening of May 4, 2000, as part of a 10-year plan to reduce hazardous fuels, firefighters preemptively ignited a controlled burn¹ on a steep hillside in the Bandelier National Monument outside of Santa Fe New Mexico.² Early in the burn, personnel realistically expected that the burn plan was doable, that resources were sufficient, that the dispatch system was responsive, and that the weather conditions were suitable. But, as the burn became unexpectedly more active and complex, small misjudgments grew and created larger problems that eventually grew into a crisis. Within 48 hr, events overwhelmed firefighting crews and the system. A tiny spot fire that kept flaring up every time firefighters thought they had put it out eventually escaped and grew into the Cerro Grande wildfire, one of the most devastating wildfires in United States history—a fire so hot it melted the soil. By the time the fire was controlled several weeks later, 18,000 people had been evacuated, 48,000 acres had been consumed, and 274 homes and laboratory buildings had been destroyed. Total damages to Los Alamos, New Mexico, the adjacent Los Alamos National Laboratories, and Santa Clara Canyon, site of the historical Pueblo Puye Cliff Dwellings, exceeded \$1 billion.

The question of how a small band of fire can produce a billion dollars in damage naturally has many answers. Critics claimed, for example, that leadership was inadequate; that monument and forest service leaders recklessly proceeded with the plan in the face of strong countervailing evidence.³ But our analysis painted a more complex picture (Weick & Sutcliffe, 2007). Failures at Cerro Grande were tied to what leaders and firefighters expected, their inability to “see” that their expectations were not being fulfilled and to catch early indications that they were not, and their inability to make

small adjustments that could have forestalled the crisis. In our view, failures at Cerro Grande were failures in collective mindfulness (Weick & Sutcliffe, 2007).

In this chapter, we examine collective mindfulness⁴ and the mechanisms of mindful organizing as means for managing amidst uncertainty, complexity, and change. Although some organizations and institutions experience crises on the scale of Cerro Grande, most organizations experience crises of a much smaller scale every day. After all, crises are relative to what organizations and their members expect won't go wrong. When Federal Express grounds a faulty aircraft because a worn part cannot be repaired, it may not cost lives for Federal Express, but it is a relative disaster to the millions of customers who were expecting an engine part, proposal, manuscript, or legal brief. It is a disaster to those who counted on Federal Express and expected that it would not fail in delivering what it had promised. Small events gone wrong may not cost billions of dollars in damages, but they can cost reputations, market shares, and careers. When organizations organize for mindfulness, they are less likely to be blindsided by events that they didn't see coming and less likely to be disabled by events that do catch them unawares (Weick & Sutcliffe, 2007).

We begin by describing the conceptual foundation of collective mindfulness, which followed initial work by Langer and colleagues (e.g., Langer & Abelson, 1972; Langer, 1978, 1989a) and was fueled by our research on high-risk organizations. We then describe processes of mindful organizing and move on to examine how this research domain has evolved over the past decade by reviewing some of the more recent empirical research. Then, we discuss how processes of mindful organizing link Western and Eastern conceptions of mindfulness and end with a set of research questions and prospective avenues for future research.

Conceptual Background

The perspective on organizational mindfulness that we articulate in this chapter emerged from research on *high-reliability organizations* (HROs)—organizations such as aircraft carriers, air-traffic control (and commercial aviation more generally), and nuclear power-generation plants (see Rochlin, LaPorte, & Roberts, 1987; Roberts, 1990; Weick, Sutcliffe, & Obstfeld, 1999) that operate complex technologies in complex, dynamic, interdependent, and time-pressured social and political environments.⁵ Although diverse, studies have shown that these high-risk organizations share a set of operating commonalities and characteristics that enable nearly error-free performance in settings in which errors should be plentiful (see Roberts, 1993; Vogus, 2011). Specifically, HROs possess highly trained personnel, continuous training, effective reward systems, frequent process audits, and continuous improvement efforts. More distinctively, these organizations are characterized by an organization-wide sense of vulnerability, a widely distributed sense of accountability for reliability, deep concern about misperception, misconception, and misunderstanding that is generalized across a wide set of tasks, and redundancy and a variety of checks and counterchecks as precautions against potential mistakes (Roberts, 1990; Schulman, 2004).

We began our research when the HRO literature was considered to be an “exotic outlier” at the periphery of mainstream organization theory (Weick et al., 1999, p. 81),

disconnected from studies of more ordinary, everyday organizations. Scholars such as sociologist, Dick Scott (1994, p. 25), had questioned this state of affairs and had proposed that this growing body of research be more broadly diffused and integrated into research on organizational effectiveness and organizational learning. During this same period, changes were occurring in organizational environments; environmental volatility and complexity appeared to be increasing, as were pressures for higher quality and more highly reliable performance across many industry sectors (Ilinitch, D'Aveni, & Lewin, 1996; Sitkin, Sutcliffe, & Schroeder, 1994). Our preliminary analyses of the HRO literature suggested that HROs warranted closer attention both theoretically and practically because of their capabilities to adapt and to suppress inertia in complex, dynamic environments. Thus, our goal was not only to better explain how HROs achieve highly reliable performance but also to create bridges between HRO research and mainstream organization and management theory.

Our work built on, but differed from, earlier studies of high reliability, which tended to focus on system characteristics, bureaucratic mechanisms such as organizational structure and formal processes (e.g., policies and procedures, extensive training, etc.), technological redundancy, and other activities aimed at anticipating or precluding untoward events (Roberts, 1990, 1993). Organization theorists had proposed for some time that the capacity to repeatedly produce high-quality collective outcomes came from highly standardized routines and reproducible actions or patterns of activity (e.g., Hannan & Freeman, 1984, pp. 153–154). But, in our comprehensive, integrated reanalysis of studies of HROs, we observed different patterns and proposed that organizations concerned with reliable performance under trying conditions enact “aggregate mental processes” (Weick & Roberts, 1993, p. 357; Weick et al., 1999).

The focus on collective mental processes reflected growing currents in psychology (e.g., Langer, 1989a) and organization theory. Sandelands and Stablein (1987), for example, described organizations as mental entities capable of thought, and Hutchins (1990, 1991) followed, suggesting that organizations are distributed information-processing systems. Westrum (1992, 1997) argued that highly reliable organizations are generative, thinking, and protected by a comprehensive envelope of human thought (Westrum, 1997, p. 237). Similarly, Weick and Roberts (1993), drawing together insights from a number of scholars including Asch (1952) and Ryle (1949), argued that reliable operations on naval aircraft carrier flight decks resulted from the “collective mind,” embodied in the interrelating of social activities. Two important unanswered questions guided the development of our work on collective mindfulness: How is this capability of mind brought about? And what form does it take?

HROs avoid mistakes or small problems that can cumulate and achieve highly reliable performance not because of organizational invariance, but rather because they are able to continually manage fluctuations (Schulman, 1993; Weick et al., 1999, p. 88). The uncertainty, complexity, and volatility facing HROs make them vulnerable to surprises and conditions that can change without warning, and these changes can have large and negative consequences. To remain reliable, these organizational systems must be able to handle unforeseen situations in ways that forestall negative consequences. This requires capabilities or processes that enable people in these organizations to become aware of variations, vulnerabilities, and discrepancies, focus on them, and act on them. These capabilities don't necessarily come from standard

operating routines, in part because unvarying procedures and static hierarchy cannot handle what is not anticipated. HROs manage unanticipated situations and fluctuations in working conditions through well-developed and stable processes of cognition and variations in action patterns. Following Langer (1989a), we labeled this capability to induce a rich awareness of discriminatory detail and a capacity for action, collective mindfulness.

In our original conception, mindfulness was not about single individuals being mindful or engaging in meditative practices. Rather, it was about patterns of organizing that result in a quality of organizational attention that increases the likelihood that people will notice unique details of situations and act upon them (Weick & Sutcliffe, 2006, 2007). Mindfulness goes beyond the awareness of current operations and projecting into the future to include deeper exploration and refinement of expectations and the development of capabilities to deal with present and emerging challenges (Weick & Sutcliffe, 2007). In other words, mindfulness functions by counteracting the tendency to simplify events into familiar categories, strengthening the capability to anomalyze events (Weick & Sutcliffe, 2006, p. 518), and improving capabilities to cope more wisely with what is seen (i.e., held in mind).

Processes of Mindful Organizing

Mindful organizing is a function of a collective's (such as a subunit or work group) attention to context and capacities to act. It provides a basis for individuals to interact continuously as they develop, refine, and update shared understanding of the situations they face and their capabilities to act on that understanding. When workgroup members focus sustained attention to operational challenges, they enhance the likelihood that they will develop, deepen, and update a shared understanding of their local context and emerging vulnerabilities. As they better understand what they face, they enhance the collective's ability to marshal the necessary resources and capabilities to act on that understanding in a flexible manner that is tailored to the unexpected contingency. Five interrelated processes constitute mindful organizing: preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and flexible decision structures. Collectively, these processes and associated practices help people focus attention on perceptual details that are typically lost when they coordinate their actions and share their interpretations (Weick, 2011). This expands capabilities both to anticipate and defend against foreseeable risks or surprises and to bounce back from dangers after they have become manifest (Wildavsky, 1991, p. 77). More simply, processes of mindfulness increase the likelihood that organizational members will be able to detect and correct or cope with errors and unexpected events more swiftly. We describe these processes of mindful organizing in more detail below.

Preoccupation with failure

A preoccupation with failure reflects the organization's ongoing wariness that analytic error is embedded in ongoing activities (Weick et al., 1999, p. 91). This

“intelligent wariness” (Reason, 1997) drives proactive and preemptive analyses of possible vulnerabilities and treats small failures, mistakes, and near misses as indicators of potentially larger problems. Worrying about failure is a distinctive quality of mindful organizing. People are encouraged to actively search for the innocuous or seemingly insignificant deviations (e.g., weak signals) that might not warrant attention but might indicate that the system is acting in unexpected ways. This concern with failure is an effort to avoid hubris, the liabilities of success (Miller, 1993), or the arrogance of optimism (Landau & Chisholm, 1995), which sometimes contribute to inertia and mindlessness.

Reluctance to simplify interpretations

Reluctance to simplify interpretations means that a collective does not take the past as an infallible guide to the future. Instead, its members are socialized to make fewer assumptions, to bring more perspectives to bear on problems and decisions, and to actively question received wisdom and ensure that key variables are not overlooked. In practice, this means frequently discussing alternatives as to how to go about their everyday work (Vogus & Sutcliffe, 2007a). In part, this is an issue of requisite variety. The law of requisite variety asserts that the variety of a system such as an organization, team, or individual, must be as great as the variety of the environment that it is trying to regulate (Ashby, 1956). It is often assumed that random variety is “requisite,” but, in fact, the type of variety that is brought to bear is critical (see Dimov, Shepherd, & Sutcliffe, 2007). The variety sought by more mindful organizations is that which provides insight into their particular environments and ongoing activities. In other words, through questioning assumptions and offering diverse alternatives, a reluctance to simplify interpretations enlarges the interpretive variety of a work group such that its members are able to see more possibilities. Consequently, reluctance to simplify interpretations is the means by which organizations can create and draw on requisite variety, and more effectively detect and cope with the unexpected.

Sensitivity to current operations

Sensitivity to operations means creating and maintaining an integrated big picture of current situations through ongoing attention to real-time information. Organizations that have real-time information and situational understanding can forestall the compounding of small problems or failures by making a number of small adjustments. Small adjustments are opportunities to stop mistakes and errors from lining up in such a way that they grow into a bigger crisis. Many untoward events originate in latent failures; loopholes in the system’s defenses such as defects in supervision, training, briefings, and hazard identification (Reason, 1997). Being in close touch with what is happening here and now means that latent problems can get the attention they need.

Commitment to resilience

A commitment to resilience involves ongoing enlargement of capabilities to recover from the unforeseen and unanticipated. Such capabilities include greater skill at

improvisation, learning, multitasking, and adapting (Sutcliffe & Vogus, 2003). Most organizations, like people, try to anticipate possible dangers by creating, improving, and revising plans and procedures to incorporate the lessons from past experience. But it is not possible to totally reduce uncertainty and create procedures to anticipate all situations and conditions that shape people's work (Wildavsky, 1991). Thus, more mindful organizations have a strong commitment to developing a capacity to cope with unanticipated surprises as they come up. Capabilities for resilience are a consequence of an extensive action repertoire, which is built through training and simulation, varied job experiences, learning from negative feedback, and ad hoc networks that allow for rapid pooling of expertise to handle unanticipated events (Weick et al., 1999).

Flexible decision structures

Flexible decision structures (also referred to as deference to expertise; Weick et al., 1999; Weick & Sutcliffe, 2007) arise when, in the face of problems or unexpected events, a collective pools the necessary expertise and utilizes it by enabling the person or people with the greatest expertise in handling the problem at hand to make decisions, regardless of formal rank. Typically, in hierarchical organizations, important choices are made by important decision makers who can participate in many choices. Mindful organizing expresses a different priority. When unexpected problems arise, the organization loosens the designation of who is the "important" decision maker in order to allow decision-making to migrate along with problems (see Roberts, Stout, & Halpern, 1994, p. 622). The result is that hierarchical rank is subordinated to expertise, which increases the likelihood that new capabilities will be matched with new problems assuring that emerging problems will get quick attention before they blow up. In other words, the organization has more skills and expertise to draw on. This flexibility enables the system to deal with inevitable uncertainty and imperfect knowledge (Weick et al., 1999).

A preoccupation with failure, reluctance to simplify interpretations, and sensitivity to operations are aimed at anticipating vulnerabilities, contingencies, or discrepancies either to preclude them or to prevent them from accumulating into bigger problems or crises (Weick & Sutcliffe, 2007). Jointly, these three processes enable a rich representation of the complexity of potential threats. A commitment to resilience and flexible decision structures jointly comprise the pool of expertise and the capacity to use it in a flexible manner that allows for swift recovery from unexpected events. Taken as a whole, these processes constitute mindful organizing.

Research on Organizational Mindfulness

Although theory on organizational mindfulness has grown over the past decade, empirical research has lagged. Below, we selectively review the more general findings—for example, evidence of construct validity and linkages to important outcomes. We start by reviewing a number of studies from healthcare, where research on

organizational mindfulness is most prominent. Then, we review some research from outside the healthcare domain.

Organizational mindfulness in healthcare

Medical errors are a pervasive problem in healthcare organizations. Although the actual number of medical errors and their preventability are contested (Classen et al., 2011; Hayward & Hofer, 2001), the facts are that medical errors are frequent and costly in terms of human lives and expense to the healthcare system (Institute of Medicine, 2000). Moreover, one of the more troubling facts about errors is that most of them are not “objective” facts waiting to be picked up for the asking. Errors become errors after the fact, in the dynamic unfolding of the uncertainties and vagaries of medical treatment. They are, as Paget (1990, p. 93) argues, “an indigenous feature of the work process as it unfolds.” Mindful organizing, with its emphasis on improving system awareness and alertness as well as the capacity to act, is an important means to managing error and its untoward consequences in the healthcare context.

Vogus and Sutcliffe (2007a) sought to establish construct reliability as well as the convergent, discriminant, and criterion validity of a 9-item measure of mindful organizing in a study of 1685 registered nurses from 125 nursing units in 13 hospitals. The results confirmed that the measure was a precise, unidimensional measure of mindful organizing at the unit level that closely resembled the content domains identified in earlier work (e.g., Weick et al., 1999; Weick & Sutcliffe, 2001). Vogus and Sutcliffe (2007b) also examined the relationship between mindful organizing and the commission of medication errors. The findings showed that fewer medication errors occurred over the subsequent six months on units with higher levels of mindful organizing. Moreover, the negative association between medication errors and mindful organizing was stronger when registered nurses reported high levels of trust in their nurse managers and when units reported extensive use of standardized care protocols. Additionally, Vogus (2004) examined antecedents of mindful organizing and some mechanisms through which these antecedents have their effects. He found that human resource (HR) practices such as selective staffing, extensive training, developmental performance appraisal, and decentralized decision-making were positively associated with mindful organizing and performance reliability. These practices resulted in higher levels of mindful organizing by increasing the levels of trust and respect in communications and interactions. In another study of hospital nursing units, Vogus, Tangirala, Lehman, and Ramanujam (2012) explored the effects of workgroup professional characteristics on mindful organizing. They found that professional experience had a curvilinear relationship with mindful organizing (i.e., a positive relationship with diminishing returns at high levels of experience). They further found that the effects of experience on mindful organizing were diminished when a workgroup had high variability in its experience, but they were strengthened when members of a workgroup collectively had high professional commitment.

Additional research confirms the validity of the mindful organizing construct. In a laboratory study of student teams, Vogus and colleagues (2012) examined the discriminant validity of mindful organizing and demonstrated its distinctiveness from

several related work-group constructs including communication frequency, transactive memory, and several teamwork behaviors. In addition, the findings showed that mindful organizing uniquely predicted the likelihood that a team would build a safe bridge that withstood testing. That is, a one-unit increase in mindful organizing (on a 1–7 scale) made a team 2.5 times more likely to build a safe bridge.

Other studies in healthcare affirm the salutary effects of mindful organizing. For example, Madsen, Desai, Roberts and Wong (2006) and Roberts, Madsen, Desai, and Van Stralen (2005) conducted a qualitative longitudinal study of a Pediatric Intensive Care Unit (PICU) and found that the introduction of mindful organizing practices was associated with lower levels of patient deterioration on the unit, an exceptional achievement given the medical fragility of the patients. Caregivers were continually alert to the possibility that they had missed something (preoccupation with failure). Constant in-service training contributed to caregivers' abilities to interpret and question data that appeared relevant to their working hypotheses (reluctance to simplify interpretations). Collaborative rounding by the entire patient care team created an up-to-date picture of potential threats to safety for each patient (sensitivity to operations). Frequent postevent debriefings enlarged the repertoire of possible actions caregivers could take in the future to recover more quickly from unexpected events (commitment to resilience), and patient care decisions migrated to bedside caregivers who had more experience with a specific patient (deference to expertise). In another study, Knox, Simpson, and Garite (1999) studied hospital obstetrical units and found that those with better safety performance and fewer malpractice claims were distinguished by the features of mindful organizing. Vogus and colleagues (2012) similarly found that higher levels of mindful organizing were associated with higher manager ratings of patient safety and care quality.

Organizational mindfulness in nonhigh-risk contexts

Ray, Baker, and Plowman (2011) examined organizational mindfulness in a sample of U.S. business schools with dual goals of empirically validating the organizational mindfulness construct and exploring the usefulness of mindful organizing for the educational context. In addition to validating a measure of mindfulness and its constituent processes, Ray et al. found that individuals in different organizational roles (e.g., Deans, Associate Deans, and Department Chairs) differed in the extent to which they perceive their colleges to be mindful: Individuals at the top have more positive perceptions of mindfulness than those in other roles. In a rigorous longitudinal case study of Novo Nordisk, Rerup (2009) found that stable focused attention to weak signals (i.e., preoccupation with failure, reluctance to simplify interpretations, and sensitivity to operations) led to recovery from crisis and subsequent highly reliable performance. In a study of habitual entrepreneurs, Rerup (2005) found that the processes of mindful organizing contributed to venture success, but that this relationship may be curvilinear (suggesting that mindfulness is helpful only up to a point). Lastly, Vogus and Welbourne (2003) examined innovation in a sample of software firms and found evidence that HR practices unleashed practices of mindful organizing that contributed to reliable innovation over time.

Mindful Organizing as Integrating Western and Eastern Conceptions

As research on organizational mindfulness has grown, the artificial distinctions between Western and Eastern views have blurred. Langer (1989b, p. 79) early on highlighted similarities in Western and Eastern conceptions of the mindful state, and noted that differences lay in processes and techniques through which mindfulness is achieved. For example, Langer noted that the mindful state of deautomatization, in which “old categories break down and the individual is no longer trapped by stereotypes ... and rigid distinctions,” is similar to the mindful state described in her work (Langer, 1989b, p. 79). Still, the idea that a “chasm” exists between West and East perspectives persists among some scholars, particularly those studying individual mindfulness. But a chasm exists among scholars studying organizational mindfulness as well (see Weick & Sutcliffe, 2006).

In our initial conceptualization of organizational mindfulness, we built on Langer’s (1989a, 1997) early thinking that “routines induce mindless action and that performance improves when coded information is differentiated more fully and more creatively” (Weick & Sutcliffe, 2006, p. 516). We argued that differentiation “is a joint product of refining existing categories, adopting new categories, and developing greater awareness of multiple perspectives on context.” Through this lens, a variant of an information-processing perspective, organizations consist of embedded routines through which information is stored, processed, and coded in a computational manner (Lant & Shapira, 2001). Mindless information processing induces mindless action (and subsequent poor performance), so there is a need to counteract these tendencies in organizations (Weick & Sutcliffe, 2006; Levinthal & Rerup, 2006). From this perspective, mindfulness is seen as an antidote to mindlessness. In other words, organizing in a way that enables seeing similarities in things thought different and differences in things thought similar (Langer, 2005, p. 16) is privileged (Weick & Sutcliffe, 2006). Through this “Western” lens, perception and conception are in the foreground.

In contrast, Eastern perspectives on mindfulness more explicitly associate it with processes of attention and attending. For example, mindfulness is described as “non-superficial awareness. It sees things deeply, down below the level of concepts and opinions ... it manifests itself primarily as a constant and unwavering attention that never flags and never turns away” (Günaratana, 2002, pp. 147–148). It emphasizes a state of consciousness in which attention is focused on present-moment phenomena occurring both externally and internally (Dane, 2011). As Wallace (2005, p. 226) describes, mindfulness is “the nonforgetfulness of the mind with respect to a familiar object having the function of nondistraction.” Mindfulness also entails “enhanced attention to and awareness of current experience or present reality” (Brown & Ryan, 2003, p. 822). Through this lens, mindfulness is seen as a way to discipline attention by making it more stable and vivid. From this “Eastern” perspective, becoming alert and aware, and keeping present details in mind are in the foreground.

A closer consideration of organizational mindfulness shows how it blends and integrates the two perspectives. It accentuates perceptions (i.e., awareness of details) of the Eastern perspective, and also accentuates conceptions (i.e., differentiation of

conceptual categories) of the Western perspective. This suggests that the chasm may be more artificial than real at least as it pertains to our understanding of organizational mindfulness.

To better understand these links and how organizational mindfulness works, it is necessary to understand what it means to organize. “[O]rganizing implies generalizing ... the subsumption of heterogeneous particulars under generic categories” (Tsoukas, 2005, p. 124). Organizing requires coordinating. But coordinating has important implications for generalizing. As the need for coordination increases, “interdependent people substitute categorically-based knowing for perceptually-based knowing” (Weick, 2011, p. 24). In other words, people impose discrete concepts on continuous perceptions. But the danger in substituting (known as a shareability constraint [Baron & Misovich, 1999, p. 587; Freyd, 1983, p. 192]) is that perceptual details get lost as people shift away from details. Processes of mindful organizing weaken the shareability constraint, and develop both sides of mindfulness: the capability to discriminate details and the capability to continuously notice. Mindful organizing provides a basis for this dual capability.

Processes of mindful organizing enable organizations to differentiate coded information more fully and more creatively, and develop a rich awareness of detail. “Such differentiation is a joint product of refining existing categories, adopting new categories, and developing greater awareness of multiple perspectives on context” (Weick & Sutcliffe, 2006, p. 516). The differentiation that results from conceptual refinement embodies the Western perspective. It is one means to improve attention. But the five mindful organizing processes also influence concentration (e.g., attentional stability) and insight (i.e., attentional vividness; Weick & Putnam, 2006; Weick & Sutcliffe, 2006), which is at the core of the Eastern perspective. Preoccupation with failure, with its focus on emerging failures, induces concentration and potentially vivid insights. Reluctance to simplify interpretations and sensitivity to operations increase the vividness of insight by replacing conceptual categories with awareness of current details, but possibly at the expense of concentration. Commitment to resilience involves vivid attention to whatever is at hand in an effort to ascertain how one might resume whatever was interrupted. Finally, deference to expertise made possible by flexible decision structures involves efforts to stabilize attention by routing decisions to experts who are best able to focus on the present phenomenon without distraction. In sum, although organizational mindfulness derives from a Western perspective on mindfulness, it also operates in a manner consistent with an Eastern perspective.

Future Directions and Conclusion

Although research on organizational mindfulness is growing, there are a number of unresolved questions and promising directions for future research. Among the many issues that need further conceptual development and empirical research, we single out five: linking individual and organizational mindfulness; the effects of organizational mindfulness on organizational members; the interplay between affect and mindfulness; mechanisms through which mindfulness is created; and the outcomes of mindfulness.

We have broadly referred to variety in perspectives on mindfulness, but at no point in this chapter have we focused on individual mindfulness. That omission reflects our perspective that organizational mindfulness is collectively enacted, resulting not from individual mindsets or intrapsychic processes in individual minds, but rather from patterns of action and interaction (Weick & Sutcliffe, 2007). Two important unanswered questions are: Is there a link between individual and organizational mindfulness? And, if so, through what mediating mechanisms might the two be linked? Fiol and O'Connor (2003), for example, propose that individual mindfulness leads to organizational mindfulness, and they are linked through top executive team scanning and interpretation practices. If individual mindfulness is established as an antecedent of organizational mindfulness, one could explore the extent to which routines of mindful practice can be enabled through employee training programs or other methods and, in turn, generate both individual and organizational mindfulness (Sadler-Smith & Shefy, 2007).

Little is known about the subjective experience of working in contexts where mindful organizing predominates. On the one hand, some have proposed that organizational mindfulness is effortful and costly (Levinthal & Rerup, 2006; Vugus & Welbourne, 2003), particularly in terms of the sustained commitment and effort required from front-line employees where mindful organizing processes usually are deployed (Roe & Schulman, 2008). High commitment and intensive effort, on the one hand, could lead to employee exhaustion and turnover. On the other hand, processes of mindful organizing might increase engagement and lower turnover because it provides social support and resources that can improve the work environment, improve performance, and also enhance learning (Weick et al., 1999). These competing hypotheses merit further exploration.

There may also be a reciprocal relationship over time between mindful organizing and individual-level affective and normative processes. Organizational commitment describes an employee's psychological attachment to an organization. Affective commitment reflects the employee's positive emotional attachment, whereas normative commitment reflects the extent to which an individual commits to an organization out of obligation (Meyer, Allen, & Smith, 1993). Affective commitment, might lead an individual or group to engage in the discretionary behaviors that comprise mindful organizing. Mindful organizing also might influence affective commitment to an organization. That is, mindful organizing with its intense focus on delivering highly reliable performance may align with the deeply held organizational values that inspired individuals to join the organization. Concomitantly, mindful organizing could fuel normative commitment. The goal of assuring highly reliable performance might generate normative commitment in the form of a moral duty rather than indebtedness (Meyer & Parfyonova, 2010) and lead employees to fulfill their obligations to their organization (e.g., collaborating with coworkers and staying up to date on new knowledge in their profession and industry). Thus, the effects of mindful organizing on employee commitment might further reinforce and deepen the processes of mindful organizing over time.

As theorized, mindful organizing processes improve overall reliability by enhancing attention to perceptual details, conceptualization of those details, and the ability to act on what is "seen." Although researchers have examined reliable outcomes more

generally, such as the reliable administration of medication, more research examining the more proximal outcomes (e.g., alertness, awareness of details, attention, etc.) is needed. This could be supplemented by laboratory experiments or in-depth observational studies. In addition, few studies have investigated interventions to induce organizational mindfulness. And it is not known whether particular practices under some circumstances may inadvertently have perverse effects (e.g., serve to make attention less stable and less vivid; Weick & Sutcliffe, 2006, p. 519). Thus, field experiments that track the implementation and effects of particular mindful practices over time (e.g., a new leadership practice such as safety rounds in hospitals) would be useful empirically and practically, and would help to catalog the theoretical conditions under which organizational mindfulness is most likely to emerge.

Research on organizational mindfulness emerged, in part, to better understand organizing processes that counteract failures of foresight (i.e., failure to discover and correct discrepancies that can grow into crises). For decades, scholars have taken for granted “failure of foresight” as the most prominent explanation for crises and accidents (Reason, 1997). But a recent study by Barton and Sutcliffe (2009) calls into question this received wisdom. In their study of wildland firefighting, they found that awareness of small cues was not sufficient to interrupt ongoing patterns of action that were under way. Psychological and contextual factors created strong “dysfunctional” momentum that prevented firefighters from changing course, which, in most cases, led to negative outcomes. These findings suggest that organizational mindfulness may be critical to present-moment awareness and distinctive understandings, but it may be insufficient to overcome momentum and inertia in current actions. These findings suggest that there is a need for longitudinal studies that examine how mindful organizing influences the capability to change course or adapt and adjust in real time.

For high-risk organizations and some organizations in other industries concerned with safety and reliability (e.g., healthcare), mindfulness is a potentially costly strategy (Levinthal & Rerup, 2006; Rerup, 2005; Vogus & Welbourne, 2003) but worth the cost because the costs of failure are often catastrophic. But what leads more ordinary organizations to embrace mindful organizing in the absence of obvious threats (e.g., business schools; Ray et al., 2011)? One proposition is that mainstream organizations choose to pursue mindful organizing in the absence of obvious threats for reasons of organizational identity and appropriateness (what kind of organization do we want to be, and how do we want to go about our business?), rather than reasons related to consequentiality (Weick et al., 1999, p. 114). Although organizational mindfulness is an expression of organizational identity, the choice to pursue it is likely to be shaped by the organization’s top leaders. But issues of consequentiality still matter, as mindfulness may be crucial to ongoing competitiveness and innovation (Barton, 2010). Thus, exploring organizational mindfulness in lower risk organizations might necessitate an expansion of what it means to be highly reliable or to be reliability-seeking (Vogus & Welbourne, 2003).

Finally, we need to better understand the outcomes of mindful organizing. There is growing evidence of the salutary effects of mindful organizing on reliability and safety (e.g., Bigley & Roberts, 2001; Madsen et al., 2006; Rerup, 2009; Vogus & Sutcliffe, 2007a, 2007b; Vogus et al., 2012). But examining a wider array of outcomes may be useful. For example, what is the link between organizational mindfulness and organizational resilience? Resilience requires “improvement in overall capability, i.e.,

a generalized capacity to investigate, to learn, and to act, without knowing in advance what one will be called to act upon" (Wildavsky, 1991, p. 70). Operating resiliently means "learning through fast negative feedback, which dampens oscillations" (Wildavsky, 1991, p. 120) and highlights the importance of general knowledge, technical facility, and command over resources so that knowledge can be combined in unexpected ways to address emerging threats. It also may be useful to explore the extent to which mindfulness influences opportunity outcomes such as successfully entering new markets or introducing new innovations. Are organizations with higher levels of organizational mindfulness better able to detect and respond to market opportunities and otherwise adapt more quickly? Evidence suggests that organizational mindfulness is associated with innovation (Vogus & Welbourne, 2003), but this relationship and its form require further and more direct examination.

To summarize, we have described the origins of organizational mindfulness, the processes through which it is enacted, discussed extant research efforts in this domain, and closed with gaps in current research and fruitful avenues for scholars to pursue. Capabilities to recognize small disturbances and vulnerabilities as they emerge and to cope wisely before these turn into a tragic flaw would seem both theoretically interesting and organizationally important. Scholars have made some progress, but there is much more work to be done.

Notes

1. Although wildland firefighting is generally reactive as firefighters suppress fires, in recent years it has become much more proactive as a means to manage dead trees and debris on the forest floor (e.g., hazardous fuels in forests) and stimulate germination of desirable vegetation.
2. See Weick and Sutcliffe (2007) for a more extensive description and analysis of the Cerro Grande fire.
3. Critics insisted that everyone knew that that area, at that time of year, was prone to dry humidity and high winds; conditions that exacerbate fire danger. If firefighters proceeded with the burn, they risked disaster if they lost control of it. At the same time, it could be disastrous if they did not proceed with the burn. The slopes of Cerro Grande already were dry. If there were a lightning strike or human carelessness, which are not unusual in the spring, the area could ignite with catastrophic consequences. Thus, if the burn wasn't initiated, the same winds that militated against starting it might drive an uncontrolled wildland fire toward Los Alamos, with terrible consequences.
4. We use the terms *collective mindfulness*, *organizational mindfulness*, and *mindful organizing* interchangeably throughout this chapter.
5. High reliability generally conveys the idea that high risk and high effectiveness can coexist, that some organizations must perform well under very trying conditions, and that it takes intensive effort to do so.

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Mindfulness and Organizational Defenses

Exploring Organizational and Institutional Challenges to Mindfulness

Silvia Jordan and Idar Alfred Johannessen

Introduction

What are the particular characteristics and challenges that arise when we consider mindfulness as a social and organizational practice? In this chapter, we propose to consider organizational and institutional sources of defensiveness (Argyris, 1990a; Argyris & Schön, 1978; McGivern & Ferlie, 2007; Power, 2007; Schön, 1983; Vince, 2001, 2002; Vince & Saleem, 2004) that can get in the way of implementing and maintaining organizational mindfulness. Combining the concepts of mindfulness and organizational defenses enables us to shed light on challenges that are specific to collective mindfulness and opens up new directions for research on mindful organizing.

An extensive body of research, particularly studies of high-reliability organizations (HROs), has applied the concept of mindfulness to work teams and processes of “mindful organizing” (Argote, 2006; Ashforth & Fried, 1988; Barton & Sutcliffe, 2009; Levinthal & Rerup, 2006; Louis & Sutton, 1991; Oliver & Roos, 2003; Weick, 2011; Weick & Sutcliffe, 2001; Weick, Sutcliffe, & Obstfeld, 1999). These studies define mindfulness in line with Ellen Langer and colleagues (Langer, 1989, 1997; Langer & Moldoveanu, 2000) as heightened awareness of context and alternative ways to deal with it, recognition of multiple perspectives, and the drawing of novel distinctions as opposed to overreliance on existing categories and routines.

Langer’s own work has focused on individual mindfulness, but commenting on future leadership challenges, she has also formulated her own vision of *organizational* mindfulness. To promote mindfulness in their organizations, leaders

would not only be mindful themselves; their most important responsibility would be to enable their followers to be mindful as well. One might argue that in an increasingly complex world—where work cuts across all types of institutional boundaries—the leader’s only task may be to promote and harness “distributed” mindfulness. (Langer, 2010)

Distributed mindfulness may work if organization members adopt two assumptions; that many challenges in contemporary organizations are unknown and unknowable, and that each actor's actions are sensible and reasonable from their own perspectives. The first assumption suggests that leadership means relating to new information and finding new answers, and the second may lead organization members to be curious, rather than judging of each other, and more tolerant of risk taking.

The literature on organizational mindfulness describes related ideas. Shared mental models and shared behavioural patterns are seen as factors that allow organizational members to act collectively in mindful ways. Here, mindfulness turns from a cognitive concept to an aspect of organizational culture (Bierly & Spender, 1995; Weick, 1987). Much of the theorizing developed while seeking explanations for reliability in organizations operating in complex and hazardous environments. In HROs such as nuclear power plants, air-traffic-control systems and medical-emergency units, processes of mindful organizing have been associated with recognizing early warning signals and coping resiliently with unexpected events (Faraj & Xiao, 2006; Weick & Roberts, 1993; Weick & Sutcliffe, 2001, 2007). In this perspective, resilience is achieved by a shared cultural mindset, as "there is variation in activity, but there is stability in the cognitive processes that make sense of this activity" (Weick et al., 1999, p. 87). Accordingly, Weick and Sutcliffe (2001, 2007) identified five characteristics of mindful organizing that make up a mindful organizational "infrastructure"; preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise.¹ These five aspects of collective mindfulness are enacted both at the level of direct interactions in dyads or small groups, for example, in practices of mutual checking and questioning, and at the level of organization-wide practices such as heterogeneous team composition, job rotation, or review meetings on near misses (Jordan, 2010; Jordan, Messner, & Becker, 2009; Weick & Sutcliffe, 2001). These processes may help organization members keep more of their attention open to discrepancies, surprise, and continual learning. They counteract overconfidence, groupthink (Janis, 1982), and normalized deviance (Vaughan, 1996), as mindful attention "captures unique particulars, i.e., differences, nuances, discrepancies, and outliers that slow the speed with which details are normalized. These visible anomalies foreshadow potential problems and opportunities, and preclude incubation until events become unmanageable" (Weick & Sutcliffe, 2006, p. 518).

An understanding of collective mindfulness as a cultural phenomenon implies that organizations do not "possess" mindfulness once and for all but constantly need to enact and recreate a mindful culture. The odds and difficulties of maintaining a mindful organization culture *over time* have thus far been somewhat neglected in organizational mindfulness research (Nævestad, 2009; Maitlis & Sonenshein, 2010). To some extent, this is not surprising, as HRO studies form part of "positive organization research" (Vogus, 2011) that explicitly focuses on characteristics that make some exceptional organizations highly reliable despite complex and hazardous conditions. Since these explorations sought to explain the successful exceptions, the emphasis was on the positive. At the same time, some studies in this area have challenged and refined our understanding of collective mindfulness. Some authors have asked if less mindful processes under some conditions can be beneficial for organizations

and live alongside more mindful practices (Levinthal & Rerup, 2006). Others have explored in more detail what may promote or undermine mindful practices in the first place (Busby, 2006; Dunbar & Garud, 2009; Snook, 2000; Vaughan, 1996; Weick, 1988, 1990, 1993, 2010; Weick & Sutcliffe, 2003). We aim to take this debate further by introducing perspectives on organizational reflection and defensiveness that help to systematically address a set of challenges to implement and maintain collective mindfulness. We build upon Jordan et al. (2009) who noticed that the literature on organizational mindfulness and critical reflection can be combined in useful ways, as they addressed similar phenomena from different perspectives. In particular, research on critical reflection can deepen our understanding of the challenges to organizational mindfulness by taking into consideration power dynamics, emotions, and pressures to conform to institutional demands.

Combining the concepts of organizational defenses and mindfulness, we argue that mindful organization cultures may be challenged by organizational actors' quests for avoiding social situations of embarrassment or threat. Organizational defensiveness can result from internal dynamics, for example, face-saving and mutual suspicions between superiors and subordinates, or between different areas of expertise such as "the accountants" and "the engineers," and may be aggravated in the course of managerial activities such as performance evaluation, budgeting, and quality control. Organizations do, however, not live in isolation. They seek to adapt to their wider context, such as conforming to dominant management ideals (e.g., "good corporate governance," "enterprise risk management"), cultivating a favorable image to external stakeholders, or responding to laws and regulations. Such adaptation can trigger defensive responses if and when the coping focus becomes one of avoiding potential embarrassment or threat.

We argue that more "micro" interactive and more "macro" institutional sources of defensiveness differ only in degree and not in principle. Concepts of organizational defenses thus help integrate insights from different literatures and enrich our understanding of organizational mindfulness. In the following, we first review factors that have been reported to reduce organizational mindfulness and go on to discuss how concepts of organizational defensiveness can help identify and understand challenges to sustain organizational mindfulness over time. We then go on to consider sources of defensiveness both within organizations and on a broader institutional level. We conclude by outlining areas for further investigation.

Impediments to Organizational Mindfulness

To explain variance in reliability, organizational mindfulness studies have looked closely at factors that concern the quality of collective attention and interaction, and how this may affect the ability to notice early warning signals or to mobilize resilience when an organization is hit by an unexpected event (Barton & Sutcliffe, 2009; Roberts, 2009; Weick, 1990, 1993; Weick & Sutcliffe, 2001, 2003; Weick et al., 1999). While several empirical and anecdotal accounts are drawn upon to describe and theorize on successful collective mindfulness (Weick & Sutcliffe, 2001, 2007; Weick et al., 1999), less systematic attention has been paid to *problems of practicing and*

maintaining organizational mindfulness. From those studies that mention challenges to organizational mindfulness, we can identify a common theme: that mindful engagement may pose perceived threats to social actors in organized contexts. Such threats are mainly to do with (1) perceived risk of blame and loss of public credibility, (2) fear of interpersonal tensions caused by voicing critique, and (3) conflicts and uneasiness associated with deviating from accepted, institutionalized ways of working and organizing.

Risk of Blame and Loss of Public Credibility

In order to minimize personal risks facing critical events, organizational members may prefer sticking to standard interpretations and routines rather than exerting judgment and creating novel categories and action responses (Fiol & O'Connor, 2003). If people are afraid of being held accountable for mistakes, a strict work-to-rule may appear as the safer option (Ashforth & Lee, 1990). Based on the concept of behavioral commitment (Salancik & Pfeffer, 1978), Weick and colleagues argued that mindless behavior is likely to increase the more we commit ourselves publicly and irrevocably to a particular interpretation and course of action (Weick, 1988, 2006; Weick & Putnam, 2006; Weick & Sutcliffe, 2003). As actions become more public and irrevocable, they become harder to undo, and when actions are also volitional and related to professional autonomy, they become harder to disown. Publicity, irrevocability, and volition thus increase the tendency of selective attention, confident action, and self-confirmation, as illustrated by the case of "cultural entrapment" in the Bristol Royal Infirmary that led to failed recognition and amendment of enduring poor performance in pediatric cardiac surgeries (Weick & Sutcliffe, 2003).

Pluralistic Ignorance

Some studies have pointed out how the fear of interpersonal tensions and embarrassment associated with speaking up in front of others may hamper organizational mindfulness (Barton & Sutcliffe, 2009; Maitlis & Sonenshein, 2010; Rerup, 2009; Weick, 1990). Weick (1990, p. 588) used the term "pluralistic ignorance" to describe the tendency to refrain from publicly voicing concerns and cognitively framing the situation as "I am puzzled by what is going on, but I assume that no one else is." Lack of psychological safety (Edmondson, 1999, 2004; Edmondson, Bohmer, & Pisano, 2001), shared norms such as those promoted by "macho cultures" (Wicks, 2001), and deference to the "general," rather than situational, expertise of others (Barton & Sutcliffe, 2009) have been identified as factors that discourage voicing concerns in public. Low-status individuals may become overly reliant on "experts" and abdicate their own responsibility for contributing to the safety of the situation. In addition, pluralistic ignorance can be amplified if communication is disturbed by distance, noise, or smoke, or if team members are strangers (Ramanujam & Goodman, 2003; Vendelø & Rerup, 2011; Weick, 1993).

Institutional Work

Lastly, processes of mindful organizing have been reported to clash with accepted (e.g., hierarchical and centralized) ways of organizing in some contexts. In such institutional climates, it can be problematic to maintain mindful processes such as deference to expertise, as Madsen, Desai, and Roberts's (2006) account of a pediatric intensive care unit illustrates. Here, two leading physicians sought to implement a more democratic practice between doctors and nurses granting nurses more discretion, since they believed that this would make effective treatment easier. These decentralized structures met opposition from other departments. Madsen et al. (2006, 246) concluded, "Any organizational design that differs from an accepted, institutionalized model in its industry is necessarily fragile."

In a similar vein, other authors have argued that sensemaking in crises often serves to maintain institutions in which organizations are embedded. When coping with a crisis people tend to engage unwittingly in "institutional work" that maintains existing rules and norms, protects their professional identity, and legitimizes and restores trust in the social institution in question (Brown, 2005; Brown & Jones, 2000; Carroll, 1995; Wicks, 2001; cf. Pidgeon, 1997; Sagan, 1995).

As these case studies illustrate, perceived threats associated with emotions such as embarrassment, shame, and defensive feelings of pride may reduce the likelihood that people depart from set ways of thinking and acting, and voice critique in public. Maitlis and Sonenshein (2010) noticed that the role of such emotions has not been given much attention in mindfulness research thus far. Similarly, Weick (1995) had stressed the importance of power, politics, and institutional pressures for organizational sensemaking, but this has rarely been followed up in mindfulness research (Maitlis & Sonenshein, 2010; Weick, Sutcliffe, & Obstfeld, 2005). By contrast, related themes have been prominent in research on critical organizational reflection. For example, Jordan (2010) illustrated, using the case of novice nurses in anesthesiology, that not only is reflective practice (Schön, 1983) a matter of cognitive and interactive capacity, but also it requires the shared "willingness" to appear not-knowing or to question a superior's authority in public (cf., Yanow & Willmott, 1999, 2001). That willingness may depend on emotions such as fear, embarrassment, and shame as well as power relations between different professions or organizational functions (Reynolds & Vince, 2004; Vince, 2001, 2002; Vince & Saleem, 2004).

In what follows, we outline the relation between mindfulness and reflective practice, and we suggest that existing analyses of organizational defenses in relation to reflective practice may extend the organizational mindfulness debate.

Organizational Defenses and Mindfulness

The body of research on critical organizational reflection (Jordan, 2010; Nicolini, Sher, Childerstone, & Gorli, 2004; Raelin, 2001; Reynolds, 1998; Schipper, 1999; Vince, 2001, 2002; Vince & Saleem, 2004; Yanow & Tsoukas, 2009) has its main roots in Schön's and Argyris's work on the reflective practitioner (Schön, 1983, 1987) and the distinction between "single-loop" and "double loop" learning in

organizations (Argyris, 1976; Argyris & Schön, 1978). Schön investigates how individual practitioners such as psychotherapists, architects, and managers engage in critical questioning of their own expectations, knowledge, and the adequacy of practiced routines while acting (“reflection-in-action”). Reflective practice involves paying heightened attention to the “objects” of one’s practice, be it a technical construction, a plan, or a patient, and to have available multiple frames of reference beyond just applying textbook rules or standard operating procedures. In their joint work, Argyris and Schön focus more on reflective learning in the context of group and organizational dynamics. They particularly analyze defensive behavioral patterns that inhibit groups and organizations from challenging their assumptions and ways of operating when experiencing gaps between intention and outcome (“error”). Individuals and collectives, they argue, tend to respond to perceived errors by minor behavioral adjustments (single-loop learning) and tend to refrain from challenging the current practice and the underlying thinking and objectives more fundamentally (double-loop learning). Sticking to existing assumptions, interpretations, and routines, even in the face of major organizational crises, is particularly prevalent when social actors are faced with potential embarrassment and threat, and in response adopt more control-oriented defensive behavioral patterns (Argyris, 1990a). The defensive patterns described by Argyris and Schön may lead organizations to press mindlessly ahead on a set course, unimpressed by new information and deaf to warnings, whereas more mindful organizational practices involve the opposite (Barton & Sutcliffe, 2009).

We see the concept of organizational mindfulness as intimately linked to critical reflection. For example, a reflective practitioner’s perception of surprise or a collective’s recognition and framing of an error depend on individual and collective sensitivity to irregularities, deviances, and discriminatory detail, that is, mindfulness. Therefore, mindful awareness of multiple perspectives and discriminatory context details can be seen as a prerequisite for critical questioning of shared assumptions and routines. At the same time, Weick and Sutcliffe’s (2007) processes of mindful organizing *comprise* reflective practices such as second-guessing and deference to expertise rather than authority. If mindfulness and critical reflection are related (and partly overlapping) concepts, then insights from each stream of literature can inform the other (Jordan et al., 2009).

In the literature on reflective practice, the idea that organizational defenses can get in the way of sensemaking and learning is important. We will argue that theories on organizational defenses can also expand our understanding of how organizational mindfulness can be challenged or undermined. In addition, concepts of organizational defenses can help make a connection between internal organizational processes and external contexts. We discuss defensiveness in internal organizational dynamics first, and second as a means to link those dynamics with wider institutional contexts.

Organizational Dynamics and Mindfulness

Defensive organizational dynamics have been discussed as major obstacles to critical organizational reflection and learning (Argyris & Schön, 1996; Ashforth & Lee, 1990; Bain, 1999; Beer & Eisenstat, 1996; McGivern & Ferlie, 2007; Vince, 2001).

Argyris and Schön observed in their experimental and interventionist studies an almost universal tendency for people to switch from a learning-oriented pattern to a control-oriented pattern when faced with potential embarrassment and threat (Argyris, 1986; Argyris & Schön, 1996). Faced with situations of conflict and disagreement, social actors tend to adopt defensive behavioral patterns that secure unilateral control and lead them to confirm, rather than challenge, preexisting assumptions (Argyris, 1994a). They also tend to be blind to the switch ("skilled unawareness"; Argyris, 1990a, pp. 21–23) *and* to be blind to the fact that they are blind. This dual unawareness Argyris and Schön saw as an integral part of the "algorithms" (theories-in-use) that humans follow in practice when facing difficult problems (Argyris & Schön, 1992). If we think of this in terms of mindfulness, we can say that the unawareness proposed in Argyris and Schön's perspective constitutes a form of mindlessness about mindlessness (Argyris, 1989).² In line with this observation, Langer has for decades argued that mindlessness is pervasive (e.g., Langer, 1978; Langer et al., 1978).

The automatic skills still often permit good communicators to succeed in defensive moves that avoid conflict and upsetting others and self. The cost is that difficult, yet important, issues become hard to address and to resolve. If this takes root in an organizational culture, it can be described as an organizational defensive routine (ODR): "Organizational defensive routines are actions or policies that prevent individuals or segments of the organization from experiencing embarrassment or threat. Simultaneously, they prevent people from identifying and getting rid of the causes of the potential embarrassment or threat" (Argyris, 1990a, p. 25). ODRs have been shown to develop in situations where potential organizational dilemmas need to be handled such as in performance reviews (Argyris, 1991), power relations between corporate and divisions (Argyris, 1990a), strategy implementation (Argyris, 1985; McLain Smith, 2002), the implementation of safety procedures (Bain, 1999), and management information systems (Argyris, 1977). Most of these examples involve managerial technologies that call for analytical rigor, but they also have the potential for making actors feel threatened. Under such conditions, actors tend to reason in defensive and self-sealing ways, often counter to the rigor that they espouse (Argyris, 1990b, p. 505).

ODRs can be set in motion by mixed messages that seek to tone down difficult underlying issues. For example, more elaborate accounting practices may be "sold" as assistance rather than control, for fear of triggering resistance. Line managers may still see it as control and hold back these concerns for fear of coming across as disloyal. Their dilemma is that they now don't have a way of addressing these concerns and finding solutions together with the accounting side and seek forms of covert adaptation instead. Right from the start of the process, the dilemmas surrounding controls have thus been made "undiscussable" (Argyris, 1990b).

A dilemma for the advocates of sound accounting practices may be that their methods cannot "account for the full complexity and uniqueness of a given context" (Argyris, 1990b, p. 503), and simultaneously, they feel committed to defending them as objective and rigorous. They may feel that admitting the dilemma would make them vulnerable. Denying it renders working out solutions with line managers difficult (Argyris, 1990b).

As defensive routines develop further from such first moves, parties begin to create explanations about each other's actions that take the shape of negative attributions

that are very hard to test without causing upset. They are now in a double bind: to not raise the concerns will leave the dilemmas unresolved, whereas to raise them will easily set in motion a sequence of mutual blame. Gradually, parties become less able to act collectively and may begin to engage in activities such as budgeting games, or in stalling implementation of a joint strategy (Argyris, 1985). While people caught in defensive routines are mostly aware of the difficult issues not discussed, the full flow of the dynamic is usually outside of the players' awareness. In particular, parties may have developed a systemic blindness to how they have a share in the responsibility for perpetuating these routines (Johannessen, 2012).

Reflecting back over decades of research since 1974, Argyris and Schön (1992, p. xxii) reported that they had come to see organizational defensiveness as almost omnipresent.³ In the meantime, other researchers have confirmed widespread defensive patterns (Ashforth & Lee, 1990; Vince & Saleem, 2004), and some have connected them to other types of avoidance than Argyris and Schön had described. For example, Vince (2001) joined calls for including unconscious emotions in the understanding of organizational defensiveness (Diamond, 1987) and also proposed directing more attention to politics, since any organization has a political power structure (an "establishment"). Organizational dynamics generated from the interplay of suppressed emotions and taken-for-granted power relations often undermine critical reflection. Established power relations and associated emotions such as fear of losing influence and control are often suppressed or denied in organizational discourses. With such defenses in operation, the emotions may continue to influence sequences of events and have ripple effects that escape the understanding of those involved (e.g., why well-intended initiatives run into the sand; Vince, 2001).

We have seen how defensiveness can imply individual mindlessness (e.g., skilled unawareness) and how organizational defenses can keep important issues out of collective awareness (e.g., denied dilemmas or suppressed emotions). We now return to the processes of mindful organizing (Weick et al., 1999; Weick & Sutcliffe, 2007) to look in more detail at how organizational defenses may have an impact on them. Out of the five processes of mindful organizing, we focus on preoccupation with failure, reluctance to simplify interpretations, and deference to expertise as examples.

Preoccupation with failure describes healthy ways by which an organization can stay vigilant and be sensitive to weak signals of impending trouble. Mindsets such as "I could be wrong, somehow" (Jordan, 2010) and institutionalized concerns with near misses (March, Sproull, & Tamuz, 1991) may, for example, promote learning from, and avoiding, mistakes (Weick & Sutcliffe, 2007). Organizational defenses may undermine such forms of organizational mindfulness if perceived risk of embarrassment is present, for example, when people are afraid of being held accountable and blamed for reported failures or near misses. Perceived threat can be related to how failure reports and performance appraisals are handled in a particular organization. Moreover, norms and behavioral patterns fostered by training, and by professional and organizational cultures, can influence the shared readiness to scrutinize one's own expertise and to openly discuss mistakes (Ashforth & Lee, 1990; Schön, 1983). Argyris (1991) investigated performance measurement practices of young employees in an international consulting firm. Since the "best and the brightest" had been selected for these jobs, he expected to find a group that would be particularly good at learning, but the group

reacted to scrutiny with strong defensiveness. Argyris's interpretation of this is that the subjects had been trained and become very skilled at solving single-loop problems. They held themselves to unrealistically high standards of excellence and had a very low tolerance for error and failure (Argyris, 1991). Similarly, in an ethnographic study of an oil company, Bain (1999) pointed out that safety issues often are seen as threatening, and gave an example of how management bypassed operators when implementing a new redundancy. A recommendation to add an extra high-level alarm to an oil storage tank that overflowed was implemented instead of addressing the sensitive issue of why the operators ignored the existing alarm. By approving the redundant alarm, the local managers did not uncover any behavior patterns that might result in future incidents while at the same time claiming that they were doing everything possible to manage safety (Bain, 1999).

All organizing implies simplification at the risk of developing organizational blind spots, but HROs have been reported to counterbalance this "because they make fewer assumptions and socialize people to notice more" (Weick et al., 1999, p. 42). They feature *reluctance to simplify interpretations* by creating "requisite variety" in perspectives (e.g., recruiting team members from different backgrounds and job rotation) and by institutionalizing skepticism (e.g., through adversarial reviews). Weick et al. (1999) cautioned that the presence of divergent perspectives alone is no guarantee against oversimplification and suggested that interpersonal skills are important to negotiate disagreements between divergent voices in a team. But those skills may not be sufficient if organizational defensive routines are present, such as Argyris (1990a) suggested in his critique of the Rogers's Commission's report of the Challenger disaster. Argyris (1990a) pointed out how several engineers warned against the Challenger launch, that key players heard the warnings, interpreted them differently, and failed to discuss this. In a teleconference leading up to the decision, the engineers repeatedly warned against launching. One engineer testified that the listeners at NASA were not pleased with this recommendation, but he did not test this assumption or explore what led management to be displeased. When management had decided to launch, the engineers were given a final opportunity to speak up, and remained silent. They later said that they held back their concerns so they would not appear to be challenging the management's right to make decisions (Argyris, 1990a, pp. 37–43).⁴

Weick and Sutcliffe (2007) characterized *deference to expertise* as an organizational capacity for containment once a critical event has taken place. It describes mechanisms whereby HROs allow the formation of spontaneous groups based on competence, rather than formal authority, and that leave enough resources uncommitted to make such reallocation possible (Weick & Sutcliffe, 2007). While HROs such as fire departments and aircraft carriers are often structured in a hierarchical way, hierarchy yields to expertise and experience under critical conditions, making flexible and rapid responses to surprise possible (Bigley & Roberts, 2001). As Weick et al. (1999, p. 49) put it, "effective HROs ... loosen the designation of who is the 'important' decision maker in order to allow decision-making to migrate along with problems." This mechanism requires that hierarchically superior people recognize and openly admit lack of own expertise, and that those with more situational knowledge step forward and are given temporary decision-making responsibility. Since these moves can be associated with loss of control and uncomfortable confrontation, they have the potential of evoking

fear of threat and embarrassment of the social actors involved. Furthermore, defensive routines may have developed between organizational subgroups, for example, subgroups related to different professional backgrounds or functional departments. In such cases, relaxing authority and functional divisions to permit decision-making to migrate may be severely hampered by mutual suspicion and unwillingness to engage more deeply with the expertise of others. Vince and Saleem (2004), for instance, illustrated how defensive patterns of caution and blame undermine the practice of communication between hierarchical layers and across subsystems. Arguably, if such interactions are limited, it becomes difficult to recognize situationally relevant expertise in the first place, and deference to expertise will be inhibited.

While Argyris's interests as an organizational psychologist are microfocused on the way people interact defensively and skillfully, his organizational learning theory relates in many ways to broader institutional and societal characteristics (Bokeno, 2003). Not only do Argyris and Schön see defensive attitudes preserving "face" for self and others and protecting unilateral control and images of rationality as dominating and ubiquitous, but also, importantly, they regard them as *socialized* orientations. Schön (1983, 1987) saw the educational system (in the 1970s) as being stuck in a simplistic "technical rationality" that failed to equip students to become reflective practitioners. Similarly, Argyris (1991) argued that, in the 1980s, the educational system trained smart students in solving single-loop problems combined with a perfectionism that made them vulnerable when facing double-loop challenges. In this way, taken-for-granted societal ideals or "ideologies" about what constitutes good professional expertise (e.g., calculative rationality and unilateral control) play a relevant part in maintaining microlevel defensive interactions within organizations (Bokeno, 2003). In the next section, we use defensiveness as a conceptual link to discuss in more detail how broader institutional dynamics may interact with organizational defenses and pose challenges to organizational mindfulness.

Institutional Dynamics and Mindfulness

As we saw in the previous section, refraining from engaging in public inquiry and open dialogue may be a matter of avoiding conflict and embarrassment, vis-à-vis other organizational members, and may also arise from anxiety of appearing irrational, unprofessional, or irresponsible in the eyes of external stakeholders. Organizations do not operate in an "empty space" but depend on and connect to various stakeholders within an institutionalized environment. Taken-for-granted ideals embedded in legal, regulatory, and societal contexts can thus have an impact on thinking and interacting within organizations. The organizational mindfulness literature has tended to look at organizational norms and practices somewhat detached from their broader social and institutional contexts. In contrast, studies that deal with regulatory regimes and the governance of risk investigate the emergence and rationales of supraorganizational ideals, rules, and regulations (Hood, Rothstein, & Baldwin, 2001; Miller, Kurunmäki & O'Leary, 2008; Power, 1996, 2004, 2007, 2009). In the following, we discuss how the concept of defensiveness can help link organizational processes with such broader institutional and societal dynamics.

Legal and regulatory requirements for accountability, often reinforced in the aftermath of events such as corporate scandals and accidents, can put important external demands on the organization. Legal demands are often generalized and inherently ambiguous. Faced with uncertainties posed by such ambiguity, some organizations seem to overreact by creating excessive levels of formalization and standards of uniformity beyond what is mandated by the law. Characterized by institutionalist research as “legalization” and “litigation mentality,” organizations may thus respond to enforced regulatory demands with overproceduralization and excessive documentation in an attempt to symbolically assure organizational legitimacy (Bies & Tyler, 1993; Meyer, 1983; Scott, 1994; Sitkin & Bies, 1993, 1994). Via the emphasis on overproceduralization and rigid work-to-rule, legalization is clearly opposed to Weick and Sutcliffe’s (2001, 2007) processes of mindful organizing.

Argyris (1994b) argued that overrigid procedures are enacted, because organizational actors generally strive to prevent the creation of embarrassment and threat of being caught violating laws. The root cause of legalization thus lies in general organizational tendencies to enact defensive routines, rather than in the laws themselves (Argyris, 1994b). Attending to recent discursive shifts in regulatory climates, Power (1996, 2007) took a slightly different perspective in his analyses of similar phenomena. He argued that particular regulatory discourses and regimes *do* matter, with certain regimes being more prone to the enactment of defensive organizational responses than others. Power did not primarily see this as a matter of specific laws, but focused more on regulatory “climates” and discourses in which particular laws and regulations are embedded. In his analyses of the “audit society” (Power, 1997) and integrated “enterprise risk management” rationales (Power, 2007), Power investigated how recent regulatory regimes and associated ideals of governance and management have emerged and speculated on their impact on organizational practices. In this perspective, recent attempts of “enforced self-regulation” are seen as a combination of neo-liberal ideals of entrepreneurship and increased concerns for auditability and transparency fuelled by centralist anxieties of control. Initiatives for auditable self-regulation are situated in the context of a shift from the welfare state to the regulatory state, the emergence of new public management, and the rise of quality-assurance models of organizational control (Power, 1997). Organizations are thus facing an audit “explosion” that, since the 1980s, have set diverse “rituals of verification” in motion in areas such as financial audit, value-for-money audit, environmental audit, and research assessment (Power, 1997). Since the 1990s, such ideals have been increasingly attached to the governance of risk (Power, 2007). Such regulatory regimes typically advocate the audit of system compliance, checking whether an accepted control system is in place, rather than directly inspecting organizational activities (Power, 1996).

In line with the legalization argument, producing generally accepted, auditable control systems may entail an exacerbated concern with documentation, measurement, and procedure so as to construct visible signs of “reasonable practice.” Rather than fostering critical scrutiny and reflection, rituals of verification institutionalize the production of comfort and reassurance in the face of regulatory anxiety (Pentland, 1993; Power, 1996, 2003). Auditable, legitimate forms of standardized practice produce comfort for auditees as they ensure against potential blame. Moreover, they

produce comfort for auditors and society in general by producing an illusion of control. Regulators are protected from the anxiety caused by conflict with professionals that more direct inspection of processes might entail (McGivern & Ferlie, 2007). In this way, audit and enterprise risk management programs and technologies reaffirm order rather than furthering practices of mindful critique of established patterns of thinking and acting. Creating auditable systems of control may thus work well for defensive reputation management, but potentially less so for effective internal control (Power, 2000).

At its best, internal control could mean mindful awareness of early warning signals and learning from failures or near misses, but the increasing emphasis on auditability, systems compliance, and reputational risk may involve more time and attention dedicated to the detailed documentation of audit trails. As a consequence, actual practice may become somewhat decoupled from formal procedures and documentation. Drawing on Power's (1996) "audit society" thesis, McGivern and Ferlie (2007) illustrated such dynamics with the example of medical appraisals that medical professionals use as a defensive box-ticking exercise, achieving compliance by presenting their practice as legitimate while continuing to practice as before. At worst, formal procedures are prioritized so highly that organizational members are led away from engaging in professional judgment and practice that is less amenable to standardization and measurement (Power, 2007). In this case, mindful interrelating and organizing would be more directly affected.

Conclusion

In this chapter, we have sought to explore the particular challenges that may arise when attempting to maintain mindful organizational cultures over time. Weick and Sutcliffe (2007) developed their framework of ideal processes of mindful organizing based on case studies on HROs that show examples of how teams and organizations interact in ways that permit a high degree of adaptive learning, and a high capacity for coping with critical events. As we have shown, some studies also report tensions and difficulties in establishing organizational mindfulness, but lack more systematic theorizing on these challenges. Many reported challenges relate to how defensive phenomena of various kinds may undermine or disturb the processes of organizational mindfulness that are thought to equip some organizations with a high degree of reliability. We argued that concepts of organizational defenses can help us make better sense of how individual instances of defensiveness may transform into features of an organizational culture, take on a life of their own, and prevent organizational members from engaging in processes of mindful organizing. The concept of defensiveness helps to theorize on different, albeit interconnected, challenges to organizational mindfulness. While we can learn from Argyris and Schön's analyses of the intricacies of defensive interactions within organizations, institutional theories add to our understanding of how ideologies and institutional logics—as "external" sources of defensiveness—come about and become reinforced within and between organizations. These two perspectives thus place different emphasis on agency and structure, but are not incompatible.

To conclude this chapter, we discuss how a more thorough concern with organizational defenses opens up several avenues for future research on organizational mindfulness. To start with institutional dynamics, we may ask how different regulatory regimes interact with organizational defenses. Examples of mindful practice in HROs often involve using professional discretion in deviating from standard procedures in exceptional situations, and informal micropractices of framing problems in nonstandard ways (Weick & Sutcliffe, 2001). In regulatory climates that idealize quantifiable and auditable work-to-rule, mindful professional practice may be avoided to minimize potential blame. Few empirical studies have investigated such dynamics, and repeated calls have been voiced for detailed accounts of the practices and effects of internal control systems in interaction with divergent regulatory regimes and institutional actors such as consultants, professional bodies, and the media (Hood et al., 2001; Power, 2000, 2007).

Regulatory action (and its chances of succeeding in its intentions) also depends on the accompanying managerial technologies and the way in which they are implemented. In the examples from Argyris, we see how some of these technologies in use (e.g., management information and accounting systems) may be caught up in defensive routines. Risk and safety are areas of great concern for society, and some technologies are explicitly designed to manage these areas. For instance, reports of failure and near-misses and risk-management devices such as risk matrixes, registers, and indicators seek to heighten mindful awareness of risk factors (see, e.g., Collier & Agyei-Ampomah, 2007; COSO, 2004). A closer study of the implementation and use of these technologies that also would explore their interaction with defensive organizational patterns would be welcome.

We have seen that organizational mindfulness can be undermined by organizational defenses. We have also seen that some regulatory climates and societal discourses may increase the propensity to engage in defensive proceduralization and work-to-rule (Power, 1997, 2007). But if we do take existing HRO accounts on organizational mindfulness seriously, the question arises as to how some organizations may succeed in preventing or effectively dealing with organizational defenses. We may then ask whether HROs create behavioral worlds that have less defensiveness than average, and, if so, how have they developed? To reduce organizational defenses, Argyris and Schön (1996) had suggested two interventions: (1) to do research that could bring specific defensive routines in the organization to the surface and make them discussable; and (2) to train organization members in learning-oriented ("Model 2") skills so they could successfully discuss and resolve the underlying issues. Other theorists, such as Vince (2001), had suggested creating spaces to legitimately discuss and effectively work through omnipresent power issues and emotional dynamics. The HROs reported to have high levels of organizational mindfulness have (to our knowledge) not gone through the cures prescribed by Argyris and Schön or by Vince. We may therefore want to look more closely at examples of mindfulness in HROs and ask two questions: (1) Although not trivial, do those examples after all constitute single-loop learning under conditions of low threat? (2) In the examples where the answer may be "no," what do these examples look like under closer scrutiny? Could it be that HROs somehow manage to create nondefensive lacunas (e.g., to routinely

discuss nonroutine safety issues) but that they act more traditionally in other areas (e.g., in disagreements over pay)?

Mindful organizational practices developed in some exceptional HROs caught the attention of researchers at Berkeley, who studied, scrutinized, and conceptualized them. Later, some of the findings were popularized and offered as recommendations for those who might want to learn from the HROs (Weick & Sutcliffe, 2007). Some consulting companies (e.g., McKinsey) and regulatory bodies (e.g., nuclear power regulatory bodies in the US) are now taking up concepts from the HRO literature, and combine it with their own ideals of quantification, measurement, and top-down strategies for developing safety cultures (Levy, Lamarre, & Twining, 2010; United States Nuclear Regulatory Commission, 2012). Studying the journey of these ideas and their transformation may be interesting in several ways. One question is what happens along the way, and whether anything is lost in translation, for example, by the influence of regulatory regimes and managerial ideologies. Another is to identify conditions under which consultants and other professionals may succeed or fail in helping organizations develop any of the desired qualities. Finally, one may ask under what conditions espoused ideals of mindfulness can themselves fall victim to organizational defenses.

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Notes

1. Deference to expertise was labeled “underspecification of structures” in earlier versions of the framework (Weick et al., 1999).
2. When teaching people alternative, learning-oriented skills, the first level of change therefore is to become mindful of the mindlessness, a complicated process for any interventionist, since the accompanying pain and loss of control will trigger new defenses (Argyris, 1989).
3. Argyris (1990a, p. 30) argues that defensive routines are commonplace and can lead to a self-perpetuating cynicism, “Employees in industrialized societies appear as fatalistic about them as peasants do about poverty.”
4. Focusing on a particular aspect of defensive interaction, Argyris’s (1990a) discussion is complementary to Vaughan’s (1996) later analysis of the Challenger disaster. Vaughan argued that deviance in O-ring performance became gradually normalized and seen as an “acceptable risk” in NASA’s culture of production (managerial “can do” attitude) and a culture of structural secrecy (interaction patterns that systematically undermine transmission of detailed information and the “attempt to know”).

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24

Mindful Leadership

James L. Ritchie-Dunham

“Why can’t we develop much more comprehensive responses to our most challenging issues in Vermont?,” asked the leadership of the Maverick Lloyd Foundation, a significant philanthropy in Vermont. They were a leading force in a network of hundreds of not-for-profit organizations working to address social, economic, and environmental challenges in the state. As the result of a myriad of independent initiatives undertaken by these hundreds of organizations, Vermont led the country—and the world—on many fronts, especially in next-generation responses to energy efficiency and renewable energy. For example, Vermont created the first energy-efficiency utility, paid for taking watts out of the system through increased efficiency.¹ Vermont also led the nation in the percentage of its electricity coming from renewable energy sources, supported by aggressive regulatory policies. And, while these relatively large steps moved Vermont ahead of the pack, the Foundation’s leaders felt that much more was possible. To them it seemed that a small state like Vermont, with fewer than 700,000 inhabitants, should be able to undertake a more coordinated, collaborative effort aimed at more aggressive goals for more radical solutions. What would it take to make this happen?²

There are many elements of this story that could explain why such an innovative state had not been able to address such large issues in a more comprehensive manner. It could be that the people in Vermont lacked resources, experience, education, technology, or interest. Any one of these would be sufficient to explain the lack of comprehensive social change, but the state is rich in all of these. Instead of a lack of resources, the issue might be uncertainty in the economics, politics, and social dynamics of these large-scale issues. There are many seemingly conflicting perspectives to integrate, adding to the political complexity and uncertainty. Each perspective has its own incentives, making it difficult to see information available to other perspectives, which added to the economic complexity and uncertainty. Given partial and

conflicting perspectives, people attempting comprehensive solutions could have mischaracterized the context for large-scale issues, thus misidentifying the problem and possible solutions, elements of uncertainty in the social dynamics.

Three different interpretations of these elements of uncertainty and complexity—thinking, relating, and intention—suggest very different approaches. The thinking school suggests it is a lack of systemic thinking and integration—it is a systems-level problem requiring a systems-level solution. This could be accurate, as the many efforts within Vermont tended to focus on symptomatic solutions addressing a small part of the system. While each solution might be important, to address specific needs, such as building solar panels, shutting down a nuclear facility, or passing a water-use bill, these solutions do not encompass the dynamics of the whole system. This school assumes a lack of clear, comprehensive reasoning, which it might fix with a cognitive approach like systems modeling. A few attempts had been made in the state to address the comprehensive nature of energy policy through systems modeling, without any significant, large-scale consequences.³

The relating school suggests the problem is a lack of relationship. This could be true: different perspectives conflict on what the context is, what the problem is, and what the solution is. Proponents of this school suggested relationship-building convenings across the state, engaging tens of thousands of Vermonters in hundreds of meetings, coming up with summary findings and possibly better relationships among the individual citizens, without shifting statewide policies.⁴

The intention school suggests that the problem is a lack of collective will to act together. This could be so, as little was done collaboratively across the state, with most people taking up their own small-scale efforts with great vigor. The intention school's recommended approach tends to focus on leadership that builds a shared vision, identifies strategic leverage points for action, and engages large-scale processes.⁵

Another possibility is that all three schools are needed, at the same time. This Handbook provides two different organizational-level perspectives that integrate the thinking, relating, and intention schools. Sutcliffe and Vogus looked to high-reliability organizations for the complex organizational structures and processes that support healthy human interactions (relating) and that support ongoing alertness (thinking) through clear incentives and action plans (intention). The focus is on understanding the organizational complexity that supports ongoing, ever-ready alertness. Taking a very different tack, Langer teases out very simple, highly efficient and effective mechanisms of mindfulness to leverage a small amount of effort into large changes. This chapter applies Langer's high-leverage focus on mindfulness to new perspectives, categories, and information to develop an approach that interweaves effective thinking, relating, and intention.

This chapter also takes up the perspective of the leader of the organizational effort. As a leader, the power to exploit organizational uncertainty resides in the mindfulness of everyone in the organization.⁶ Enabling this distributed mindfulness is strategic to every aspect of the mindful leader's organization (Langer, 2010).

What is mindful leadership? Leadership focuses on building shared meaning for the purpose of enabling change to deal with contentious problems (Dunoon & Langer, 2011). Langer's mindfulness perspective focuses on noticing new things (Langer, 1989b). When you are mindful, you are looking for change, and you embrace it.

Things are always changing, whether you embrace the change or not, so you are better off understanding how to deal with it, versus believing that you can hold it still or run away from it. Putting these two concepts together, mindful leadership uses mindful processes in a mindful culture to see, name, and work with uncertainty.

Mindful leadership is about mindful process. Leaders use strategic processes to guide their organizations through uncertainty. These strategic processes attempt to engage large parts of the organization in recognizing *new categories* (business opportunities and threats), responding to the emergence of *new perspectives* (stakeholders), and processing *new information* (feedback from the marketplace), showing how to avoid the dangers not yet arisen. Nonetheless, leaders today tend to provide yesterday's solutions to today's problems, as if things remain static. Leaders need to be aware that things are always changing and that things look different from different perspectives—uncertainty is the rule not the exception (Langer, 2010). Once leaders understand this, they can exploit the power in uncertainty through mindful processes that surface new categories, perspectives, and information.

Mindful leadership is also about mindful culture. Langer's mindfulness research showed that when a leader values uncertainty, they are less likely to be authoritarian, and workers are more likely to admit to problems rather than hide them (Langer, 1989a). Mindful leaders respect their followers and realize that mindful solutions can come from anyone in the organization. Research also shows that the mindful leader is seen as more charismatic, authentic, and trustworthy (Langer, 1989a). An organization's mindfulness leaves its footprint in its products, making them more successful. Employees encouraged to be mindful will take fewer sick days, have fewer accidents, work harder, and be more productive (Langer, 1997). Thus, mindful leadership increases organizational innovation, efficiency, and effectiveness, the three gold standards of organizational performance.

Translating social psychological insights from the laboratory to the field is challenging, especially in the complex social settings and long time frames of most leaders. To show how these mindfulness insights were applied in the field, we use the case-study method. The rest of this chapter focuses the lens of Langer's mindfulness research on the context of mindful leadership through four case studies of leadership.⁷ I use the mindfulness lens to diagnose each leadership situation and suggest a mindfulness solution. I translate the mindfulness solution into organization practices, which I use to resolve the four cases. These include the importance of *new perspectives* in an electric company, *new categories* in a school board, *new information* in a textile company, and the use of all three in a statewide project.

New Perspectives

An electric utility, with a monopoly serving 20 million consumers, found itself in a strategic crisis. The government was proposing to deregulate the retail part of its business. To better understand the complex reality they might face in a deregulated retail world, the company asked the author to help them take a systemic look at their strategy. As part of the process, the leaders were asked to describe the goals, objectives, and possible actions that each of their stakeholders would take. It became clear very quickly

that the leaders had a very limited and dated understanding of the particular worldview of the different stakeholders. These stakeholders included their consumers, regulators, their own corporate board, managers of different areas of their business, local communities, and their competition. For example, when asked about their end user, they said, "She wants cheap energy." When asked, "How do you know?," it became clear that it had been many years since the last time they had talked to their end users. Basically, believing they already knew what their stakeholders wanted from them, the leaders paid little attention to them. While that might have worked in the past, in a very stable, heavily regulated environment, it was clear that now they needed to know.

Looking at this case through the mindfulness lens, the central theme is the openness to new perspectives. Langer has referred to this as a societal cognitive commitment to content, which means that people commit beforehand to see a social situation from a specific, predetermined cognitive context (Langer, 1994). Cognitive commitment means committing to or freezing what is processed cognitively and how it is processed (Chanowitz & Langer, 1981).

Two experiments highlight the openness to new perspectives. In one experiment, a subject was asked to write *ababab* as long as it was enjoyable (Karsten, 1928). The subject did until he was completely weary, physically and mentally, to the point that his hand was numb. The researcher then asked him to sign his name for another purpose, and he did so quite easily. She did the same with reading poetry until the subjects were hoarse, yet they were no longer hoarse when complaining about the exercise. Put into a new context, they seemed to find their "second wind"; a second later, they were no longer exhausted (Langer, 1989a, p. 136). In another set of experiments, children who were used to sitting still in class were asked to look at a map for 45 s. In condition 1, they sat still, while in condition 2, they walked, and in condition 3, they shuffled their feet while sitting. They were all then asked to identify as many landmarks as they could. The children placed in a new context, not sitting still, remembered significantly more than those who remained in the same sitting-still context (Carson, Shih, & Langer, 2001). By having their context shifted, from one place to another, they now experienced the activity from another place, another point of view, another perspective.

Translating this to the world of organizations, when a leader closes themselves off to the perspective of others, they lose the opportunity to understand the richness of different dimensions that other perspectives bring. Additionally, they miss the chance to see how their organization's actions impact the lives of others. They might do this because they fail to see that what seems like an incorrect answer—one not aligned with their own—might actually be a correct answer when seen from another's perspective. People tend to believe that the two perspectives, mine and yours, are the same, but they are not. Summarizing Langer's findings about the mindfulness of new perspectives, an actor's behavior makes sense from their perspective (Langer & Brown, 1992). They do what they do for a reason. The leader's ability to perceive and understand this reason depends on their mindfulness, their openness to other perspectives. This openness leads to more possibilities to creatively choose from, and it increases the probability of success of the change.

This suggests a solution for the energy company's strategic challenge: recognize that the company's stakeholders have good reasons for their actions, and that these reasons, going forward in a deregulated world, will be different than they were before. By being

open to these new perspectives, the company increases the number of possible actions it can take to satisfy the stakeholders' multiple needs, and it simultaneously increases the probability of successful change.

Various organizational practices have evolved in the past years to support leaders and their organizations in being more mindful of the evolving perspectives of their multiple stakeholders. We will focus on two here: the process of inquiry and the framework of multiple stakeholders. Inquiry, popularized in the 1990s by Peter Senge through organizational learning, differentiates the question from the answer, listening from talking, and wanting to understand the other from wanting to explain oneself (Senge, 1990). This simple process of asking or inquiry seems to be one of the most difficult for many leaders. If you want to know what someone else is thinking, ask and listen, with the intention of understanding her perspective.

The other organizational practice is the framework of multiple stakeholders (Freeman, 1984). Three key lessons, relevant to mindfulness, have been learned over the evolution of this framework. First, a stakeholder is anyone who has a stake in the actions of the organization—the organization's actions impact them, and their actions impact the organization. Second, not including a stakeholder's actual perspective is equivalent to saying that the impact of its response to the company's actions is zero. Since we just defined that the stakeholder's actions do impact the organization, the only value we know to be wrong is zero—they do impact the organization. Therefore, it is important to understand the stakeholder's current perspective. Third, if you think you know what someone else is thinking without asking, the probability that you are wrong approaches 100%. Given these three lessons, since stakeholders do impact the organization, and we do not know what they are thinking now without asking, we return to the first practice—we ask. Many texts have been written on these two practices that help leaders and their organizations be more mindful of new perspectives.

Coming back to the energy company, leadership decided it was important to understand the perspectives of the different stakeholders. They started with the desire to understand, to want to know what the stakeholders thought. What are their intentions, objectives, and motivations? How might they react to different actions the company might take? Once they wanted to know, it was relatively easy to find people within the company who had both a connection to a particular stakeholder and the capacity to inquire with them. The company quickly discovered two things. First, the cost of getting the information was far less than the cost of not knowing. Second, what they thought the stakeholder would say, beforehand, was completely wrong—they learned something new in every case. And, now they knew the stakeholder's perspective, in his and her own words. These perspectives were incorporated into the systemic overview of the company's strategy. As we finished the project, the company's president shared that he loved the exercise, and that from now on he would require his executives to describe the impact of their strategic proposals in terms of the different stakeholders. Whom does the strategy you propose affect? What do the different stakeholders want, relative to the strategy? How do you know? Did you ask them?

In this case, Langer's perspective on mindfulness to new perspectives admonishes leaders to remember that every person has a different experience, based in their own context. Mindfulness to the perspective of the other is necessary for seeing,

understanding, and embracing that part of uncertainty that resides in the reaction of the other.

New Categories

The board of trustees for a private school is responsible for the stability of the school's finances. In the majority of private schools, tuition covers only two-thirds of the operating costs. To cover the other third of the costs, most schools typically have an annual fundraising campaign. Even with a sizable endowment, the board found it necessary to ask the school community for donations every year. Over the years, a pattern became clear: nobody liked asking families in the school to make a donation. A board member said why: "Tuition is already very high for most families. Asking them for more is painful."

Langer's mindfulness research highlights a critical dimension in this case—the creation of new categories (Langer, 1994). The individual tends to commit unconsciously to processing the information with only one predetermined filter. Over many studies, Langer's lab has demonstrated the ability to open this unconscious process with a very simple twist. Instead of stating that something "is" a certain way, when it is stated conditionally as "it could be" a certain way, another more mindful universe opens up. It seems simple, and it is. Dozens of experiments validate this cognitive key for opening the human mind to new categories (Langer, Bashner, & Chanowitz, 1985).

In one experiment, subjects were shown three objects and given a questionnaire about them (Langer & Piper, 1987). For half of the subjects, the first paragraph read, "Object A is a rubber dog's chew toy; Object B is a polygraph pen; and Object C is a hair dryer attachment." For the other half of the subjects, the first paragraph replaced "is" with "could be." As the subjects completed the questionnaire, the experimenter told the subjects that they had made a mistake and needed an eraser. With the half that read it "is" a chew toy, only one of 20 subjects thought of using the rubber toy as an eraser. With the half that read it "could be" a chew toy, 40% saw that it could also be a rubber eraser. By only changing from "is" to "could be," the majority of the people were able to see that the rubber chew toy could be categorized in two different ways: as a chew toy and as an eraser.

This research on mindfulness to new categories proposes a solution to the school board's difficulty with fundraising. Putting one's attention on the situation and context, one can use conditional phrasing to open up to and name uncertainties. Two organizational practices support the mindfulness to new categories—scenario planning (Georgantzas & Acar, 1995; Godet, 1987; Wack, 1985) and double-loop learning (Argyris, 1977, 1993). Both practices conditionally surface underlying assumptions—is it this way, or could it be this other way? Scenario planning develops and explores alternative futures in uncertain environments, evaluating the system's future resiliency to these different possibilities (i.e., how would we do if this played out or that played out? Can we be resilient enough to thrive under both scenarios?). Double-loop learning seeks feedback about the consequences of one's actions, adjusting both the actions that cause the consequences (single-loop) and the assumptions guiding the actions taken (double-loop). This practice asks if the mental model of cause and effect is correct or could be recategorized more accurately.

Applying the practices of mindfulness of new categories to the school board, three fixed categories that the board members carried appeared: the assumption of scarcity; the lack of financial resources on the part of the families in the school; and the need to beg for more of what they did not have. Applying scenario planning and double-loop learning, the board members began to examine these three fixed categories. First, they saw that the reality in which they lived was one of abundance for most of the school's resources—excellent teachers, parents who were dedicated to the pedagogy, creative and engaged students, and a large, beautiful campus with a functional and architecturally extraordinary building. They realized that the only thing that seemed scarce in their experience was the money that they did not want to ask the families in the school to give. They were able to open the category of scarcity to the possibility of abundance—it could be abundant.

Exploring the second fixed category, the lack of money in the community, the board members saw that it could be that there was plenty of money. Many of the families had large houses and nice cars, and took summer vacations overseas every year. And these same families loved the school, which they expressed by being very involved in many aspects of the school's life. They began to see that the category of "not enough money" could be "they don't give their money to the school." Playing with different future scenarios for this category, board members saw the possibility that the families with ample financial resources did not make big donations to the school because nobody had expressed an interest in them. "We only asked them for their money. We did not try to understand what they valued. What do they give their money to? Why?" Opening the category from "there's no money" to "we have not asked them what their contribution could be," the board began to get excited about engaging these families in conversations about their passions. That would be a fun conversation to be in with them. What would they like to see come alive in our community? As the board's mindfulness about this second category opened, the third category began to open—the need to beg people for money they do not have. They now saw that it was not true that people did not have money, and they saw that they were very excited about the inquiry with these families. As they recognized this, the board opened the third category from "don't beg" to "engage people who can make a more significant contribution." With the opening of the board to these three new categories, the energy to grow the school's financial resources skyrocketed, and a new pathway for engaging the school community's creativity opened.

In summary, mindfulness research suggests the importance of having leaders and their organizations be open to new categories. Being mindful to new categories, leaders pay attention to the situation and the context, fitting the solution to the context. This mindful awareness brings in much greater creativity for embracing uncertainty, leading to much more efficient and effective solutions that satisfy the needs of many more groups.

New Information

The leaders in a textile company observed a behavior pattern—they were very good at finding data to support the idea-of-the-day that they were trying to sell to their

employees and customers. “See? This information confirms my idea, therefore we should ... (insert the idea being sold).” As a consequence of the observed behavior, they saw that often the information they collected confirmed a mistaken idea, leading to unintended consequences, and thus lower efficiencies. Instead of facing uncertainty, they hid it, constantly surprised by the outcomes. As they began to recognize this pattern, they discovered another phenomenon. Often they had, right in front of them, the information that would have helped them avoid the unintended consequences; but they did not pay attention to it. They asked, “Why?”

Langer’s research on mindfulness of new information observes that people tend to preprogram their heads for the information they want to see. Langer describes this phenomenon as a premature cognitive commitment to process—I know what information I want to find to confirm the reality I want to see, so I am closed to perceiving other information (Langer, 1994). This research suggests much better results when one is able to pay attention to what is directly observable and discernible in the situation, and not getting lost in inferences or premature conclusions.

In an experiment in a nursing home, half of the residents were asked to decide for themselves when to water a plant they were given, where to receive visitors, and whether to see a movie. This simple instruction engaged the residents in receiving new information—requiring them to process it to inform a decision they had to make. The nurses on staff made these three decisions for the rest of the residents, as they usually did. The transformation was huge, with the more mindfully engaged residents participating more, being happier, more alert, and more active, and living longer (Langer & Rodin, 1976; Rodin & Langer, 1977). These results came from simply “giving residents something new to look at” (Langer, 1989a).

Organizational practice in the past couple of decades has evolved the art of refutation—looking for information that disconfirms the hypothesis—observing that a hypothesis is stronger the harder it is to disconfirm (Popper, 1959). This is the antidote to the confirmation bias, where one looks for information to support the hypothesis. Thus, a more rigorous process tries to disconfirm the hypothesis. Two organizational technologies support refutation—the content of a well-designed scorecard and the process of storybusting. Scorecards, like the “balanced scorecard,” provide information from different strategic areas of the organization in a systemic way, showing the status of each area, and the relationships among the areas (Kaplan & Norton, 1992). This scorecard helps the leaders see both the whole system and its parts, at the same time, keeping attention on all of the content and not getting lost in the weeds of one area (Ritchie-Dunham, Morrice, Anderson, & Dyer, 2007). The storybusting process starts with a leader’s “story,” her cause–effect hypothesis of the relationship between a strategic intervention and the systemic consequences of that intervention. As Langer’s research demonstrates, people tend to believe the stories they create, closing themselves off to other possibilities. Storybusting changes the focus from defending a story to attacking the same story—the process of refutation. What information would help me bust the story I created?

The textile company applied both the scorecard and storybusting technologies. They designed a scorecard that included future-oriented indicators for overall, company-wide performance—the number of new consumers and free cash flow for investment—and past-oriented indicators for the local-level performance of processes

that protected the integrity of the products, business systems, culture, and capital management (Leaf & Hulbert, 2010; Ritchie-Dunham, Throneburg, Leaf, & Hulbert, 2010; Throneburg, 2011). The scorecard gave them the content. Storybusting gave them the process. Every time leadership came together to review the strategy, they reminded themselves of their “stories,” the hypotheses they proposed between interventions and expected consequences. Calling these stories, they used the information in the scorecard to try to bust their stories. For example, one director said:

I thought that launching the new website and the advertising campaign simultaneously would increase traffic to the online store, increasing profits without impacting our manufacturing processes. A few things could bust my story. One, it could have cost us more than we increased revenues. Two, it could have taxed our business systems or our culture. So, normally I would look at the online sales information for an increase, proclaiming success if I found it. Now, I look at sales, the number of new users, the net financial impact on cash available for future investments, and the four integrities. This partially blows up my story; there are impacts in other areas. On the other hand, this process enriches my story, helping me see dimensions of the interactions of the parts that I did not see before. I learned something.

In this case, mindful processes supported leaders in being more open to new information. This mindful opening allowed more learning and greater creativity, strengthening leadership’s ability to embrace the uncertainty it faced.

All Three Together

Revisiting the case with which this chapter opened, a small group of foundations in Vermont decided that it was time to shift gears. While Vermont had long been the home of groundbreaking innovations in energy efficiency, renewable electric energy, and regulatory protection of the environment, this group felt it was time to step up the game, taking on a much more audacious, statewide goal of shifting the whole energy sector in the state (electricity, heating, transportation, and efficiency) to renewable energy. When they looked across the hundreds of renewable-energy-related efforts in the state, they saw many great initiatives each pushing their own perspective, with very little collaboration among them. The result was incredible innovation on relatively small scales. They realized that previous processes in the state minimized the possibility of an audacious energy future, by minimizing perspectives, categories, and information. They wanted to see if large-scale social change was possible. I saw that this large-scale effort would require opening a large group of people to new perspectives, categories, and information, all at the same time. I looked to Langer’s mindfulness research to see if all three had been worked on together at the same time, to see what lessons could be learned.

In a five-day experiment, 17 subjects between the ages of 70 and 75 years old were taken to a retreat where half of them were centered in the present reflecting on their experience 20 years earlier, and half of them were centered in the past (Langer, 2009). This experiment shifted the context/perspective, information, and categories

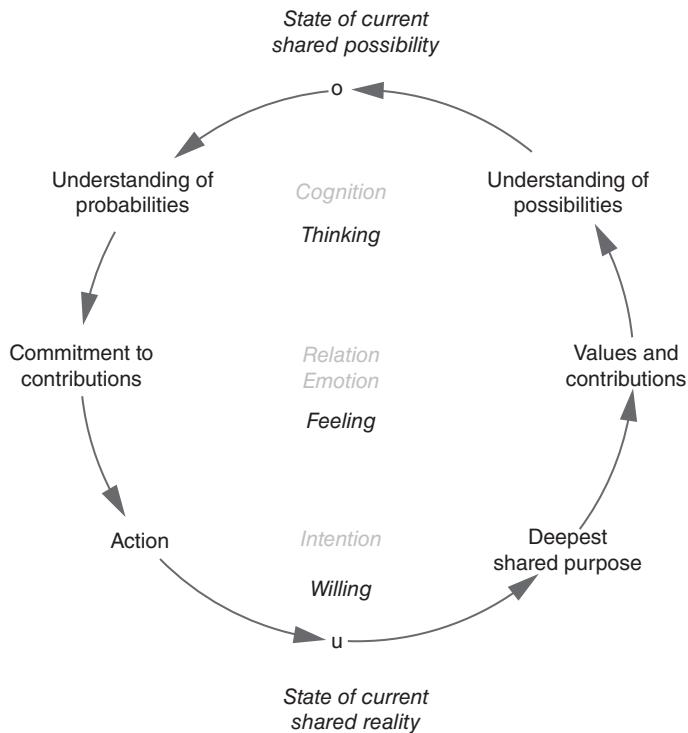


Figure 24.1 Mindful meeting process (Ritchie-Dunham, *in press*).

of the subjects. At the end of the retreat, both groups showed significant differences from when they started—they looked younger, their hearing improved, they ate more heartily and remembered more, and their hand strength increased. Additionally, the half centered in the past experienced greater physiological and psychological changes than the half centered in the present—they experienced significantly improved joint flexibility, sitting height, manual dexterity, near-point vision, and mental processing (Langer et al., 1990). This study was replicated in 2010 with six celebrities on the BBC program “The Young Ones.”⁸

Translating this mindfulness research to the organizational development literature exhaustively describes the importance of a few key processes for large-scale social change, which we integrate and summarize here with the “mindful meeting” process, as depicted in Figure 24.1. Starting on the bottom-right of the circle, at the deepest shared purpose, leadership sets the context, the vision for why the group is coming together. This uniting purpose provides the vision for and defines the playing space in which everyone has been convened. It seeks alignment of higher purpose. This alignment of purpose is contrasted with the more common experience of not knowing the purpose of a meeting or effort, and being at cross-purposes in what the purpose should be.

The second element aligns people around the values and contributions each individual brings to the group. Why are you here? Why am I here? Making explicit and

sharing the specific reason each person is involved both reminds each individual of the contribution they are being asked to make and what they can expect from the others. This alignment of contributions contrasts with the experience of not knowing why people are in the room and what unique perspectives they are specifically expected to contribute.

The third element explores the individual and group understanding of the possibilities that can be seen through the unique contributions of each person. This element aligns people around what can be seen in the rich possibilities opened collectively, painted by the differences in the rich textures pointed at by the light of each individual, contrasting with the more common experience of each person focusing at most on what can be seen from the partial perspective they bring.

This process seeks alignment within each element and amongst the three elements. While alignment within any one of the elements strengthens the group's process, alignment among them leverages this much further. It is within the shared deeper purpose that each individual can be invited to make their unique contribution, highlighting unique textures of the possibilities the group can begin to see.

The fourth, fifth, and sixth elements then convert the possibilities seen into the probabilities the group can choose to manifest. As each individual sees themselves within the probabilities seen by the group, they find their commitment to actions that address the shared purpose. This aligns and integrates participants around their commitments to the group process, responsibilities they each take up for specific actions.

To this organizational development process, Scharmer (2007) highlights the work with mind, heart, and will within the process. In this process, the deeper shared purpose and action both address issues of intention in the will. The individual's contributions address issues of relatedness, the heart level. Possibilities and probabilities address issues of thinking in the mind.

Langer's mindfulness is interwoven throughout this mindful meeting process, clarifying what content is being processed (*new information*), how an individual's mental model is processing it (*new categories*), and how to inquire about how others are processing the information (*new perspectives*). From the lens of this mindful meeting process, an assessment of the Vermont case shows a lack of alignment statewide within each of the six elements in Figure 24.1 and among all six elements, suggesting a process that aligns within and across the elements.

To address the challenge in Vermont, a small group of foundations embraced a process that invited new perspectives, categories, and information, resulting in a statewide mandate for a radical new energy future. Pulling together many of the insights described in the three cases above, the process focused on: (1) agreeing across many stakeholder groups on the collective goal of Vermont's ability to determine its own energy future through affordable, renewable energy; (2) creating clear maps of each of the many perspectives that influence the supply of and demand for renewable energy, that each perspective felt accurately represented their perspective; (3) sharing these individual-perspective maps interactively with each other; (4) integrating the individual-perspectives into a collective-perspective story, in which each individual saw themselves, and how the different perspectives interrelated; (5) identifying leverage points to mobilize the whole system towards the agreed-upon goal; and (6) proposing specific action plans for implementing the leverage points.

In this process, people who had been in conflict with each other for many years over the right action plans and right outcomes were able to see the authenticity in and value of each other's perspective and how they each contributed to the larger goal they all desired. This opened them to new perspectives, from each other and from the collective. They also opened to new categories through this process, from anti-this and anti-that, constantly disagreeing with each other, to agreeing that they all had different contributions to the same category of pro-Vermont energy sovereignty. They also opened the category of my-efforts-alone to my-efforts-and-our-efforts. Possibly the biggest category shift was from seeing thousands of small intervention points, each spearheaded by a small group, to seeing four leverage points that they all played into. And this process opened the people to new information. Halfway through the process, they stumbled upon a great surprise: experts in each of the energy sectors (electricity, heating, transportation, and efficiency) were completely convinced that they could make a shift to 100% renewable energy in 20 years. They were each equally convinced that it would be impossible to accomplish this in the other three sectors. When they opened themselves in the conversation to new information from each other, they were shocked that they each believed it was possible, for their sector, and thus they saw that they could do it across all four sectors. Another shift across the state in new information was the ability to see who would join the effort. From the beginning to the end, they were constantly told that nobody would sign up for such a process, and definitely not for such a goal. Everyone was completely convinced of this, as this is what they always saw in Vermont, until they saw who was already in the room. This happened all the way to the governor's office, which used the outcomes from the process to guide the formation of the state's new 10-year Comprehensive Energy Plan, enacted in 2011.⁹ In summary, this process leveraged three key insights from Langer's mindfulness research about openness to new perspectives, new categories, and new information to support a statewide effort to embrace an uncertain energy future.

Summary

When leaders are able to recognize and embrace the uncertainty they face, they can see how they can control the situation, they can learn about new aspects of the situation, and they can find new ways to satisfy different perspectives within the system. This recognition of uncertainty allows the leader to grow, and it enables the leader to develop a dynamic, not static, relationship with their environment (Dunoon & Langer, 2011).

Through four cases, we saw leaders who consciously engaged in the uncertainty they faced. We saw how they were able to do that more mindfully through organizational practices (see Table 24.1), and the benefits they received from it. Increasing the mindfulness of leadership increases the quality of available knowledge, proposed solutions, organizational engagement, and outcomes. It also positively impacts the perception people have of the leader. We hope that through mindful leadership of the uncertainty your organization faces, you as a leader can now begin to unleash greater power within your organization.

Table 24.1 Translation of mindfulness insights into organizational practices.

<i>Mindfulness attribute</i>	<i>Mindful suggestion</i>	<i>Organizational practice</i>	<i>Organizational processes/frameworks</i>
New perspectives	Ask	Stakeholder inquiry	Appreciative inquiry, multiple stakeholders
New categories	“Could be”	Situation/context	Scenario planning, double-loop learning
New information	Directly observable, discernible	Refutation	Scorecards, storybusting

Notes

1. For more on the nation's first statewide energy-efficiency utility, Efficiency Vermont, see efficiencyvermont.com
2. For more on the Vermont case, see ecosonomics.com
3. For an example of energy systems modeling done in Vermont, using mediated modeling, see Participatory Energy Planning in Vermont, Department of Public Service in Vermont (<http://www.publicservice.vermont.gov/planning/mediatedmodeling.html>).
4. An example of the relatedness school is the two-year statewide process of the Council on the Future of Vermont (futureofvermont.org).
5. An example of the vision school is the Vermont Governor's Commission on Climate Change (<http://www.anr.state.vt.us/anr/climatechange/GovernorsCCCWebsite/index.html>).
6. We presented an earlier version of this chapter in Langer and Ritchie-Dunham (2013).
7. For applications of Langer's mindfulness research to strategic processes with leaders in Europe, Latin America, and the USA, see Ritchie-Dunham and Puente (2008) and Ritchie-Dunham (in press).
8. You can see the experiment and its impact on “The Young Ones” at (<http://www.bbc.co.uk/programmes/b00tq4d3>). This program was also nominated for a BAFTA award (<http://www.bafta.org/television/awards/winners-2011,2394,BA.html>).
9. To see Vermont's new Comprehensive Energy Plan, which was heavily influenced by this process, visit http://publicservicedept.vermont.gov/publications/energy_plan or contact the Energy Action Network.

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25

Mindfulness at Work

Michael Pirson

Introduction

Mindlessness at work has become a global touchstone of mockery, and entertainers have enchanted audiences worldwide with comedies featuring mindless managers (including *The Office* or *Office Space*). Steve Carell, playing the role of Michael Scott as Regional Manager of a Dunder-Mifflin branch in Scranton, PA, epitomizes mindless behavior, which is characterized by a reliance on old, often outdated categories and a reduced awareness of one's social and physical world. While some argue that mindlessness is a necessity in the work environment, a closer examination reveals that mindlessness is rarely, if ever, beneficial, because it closes us off to possibility, freezes our responses, and prevents needed change (Langer, 1989; Langer & Moldoveanu, 2000). In this chapter, I will outline how mindfulness can be beneficial in the work environment and in the organizational context. To do so, I will (1) give a brief overview of the mindfulness notions and their convergence; (2) provide perspectives on mindful management; and (3) highlight organizationally relevant impacts of mindfulness with regard to (a) organizational culture, (b) learning and innovation, and (c) decision-making.

Mindfulness Conceptions

Western-scientific tradition versus Eastern-Buddhist tradition

Mindfulness from a Western-scientific perspective is a construct pioneered by Ellen Langer (1989). Langer's conceptualization of mindfulness grew out of her work examining mindlessness, described as follows: "When in a mindless state, an individual operates much like a robot; thoughts, emotions, and behaviors (hereafter just

behaviors) are determined by ‘programmed’ routines based on distinctions and associations learned in the past” (Bodner & Langer, 2001, p. 1). Langer theorizes that mindlessness is often a consequence of premature cognitive commitments or the tendency to apply previously formed mindsets to current situations, which lock individuals into a repetitive unelaborated approach to daily life. Langer argues that we develop mindlessness in two very different ways, through repetition or through a single exposure to a piece of information.

In contrast, Langer’s conceptualization of mindfulness, which was conceived entirely within a cognitive information-processing framework, is defined “[a]s a general style or mode of functioning through which the individual actively engages in reconstructing the environment through creating new categories or distinctions, thus directing attention to new contextual cues that may be consciously controlled or manipulated as appropriate (Langer, 1989, p. 4).

Mindfulness, alternatively, is often regarded as a secularized adaptation of Eastern Buddhist tradition. Accordingly, mindfulness is commonly defined as moment-to-moment awareness without judgment (Thera, 1962) or “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994, p. 4). Clinical psychology has made significant advances in conceptualizing and measuring mindfulness as a meditative concept focusing on attention, awareness and absence of judgment. Kabat-Zinn and colleagues have even developed mindfulness-based interventions that are designed to increase mindfulness in the span of several weeks through intensive meditative trainings.

The Western-scientific approach to mindfulness differs from the meditative, Eastern approach in that meditative approaches are usually aimed at the inner experience of the participant and involve nonjudgmental observation (Yeganeh, 2006). Traditional spiritual orientations of mindfulness maintain that clearing the mind and living in the moment enable an individual to access objective truth in the world, a concept called veridical perception, or seeing the world as it is (Yeganeh, 2006). Western-scientific interventions in contrast, usually include the treatment of material external to the individual participants (Baer, 2003; Langer, 1989). It pursues a learning agenda, can be very goal-oriented, and involves the use of mindfulness in enhancing problem solving and other cognitive exercises (Baer, 2003; Langer, 1989). Yeganeh (2006) suggested that meditative mindfulness assumes that without momentary experience, we become overengaged in subjective thoughts of past and future, and hence stray from the reality of our present experience. Langer and colleagues place less of an emphasis on momentary experience and emphasize continually acquiring many perspectives that can reflect the complex world around us and then being flexible with them in various contexts. Accordingly, mindfulness can be more formally understood as an active state of mind characterized by novel distinction-drawing that results in being (1) situated in the present, (2) sensitive to context and perspective, and (3) guided (but not governed) by rules and routines (E. Langer, 2009; E. J. Langer, 1989, 1997). This social psychological conceptualization of mindfulness reflects three interrelated components (Pirson, Langer, Bodner, & Zilcha, 2012), including (1) novelty seeking, (2) novelty producing, and (3) engagement.

Yeganeh (2006) suggested ways to integrate Western and Eastern perspectives by adding a notion of awareness and attention to the above-mentioned three

components. Although similar, mindfulness in the Western tradition comes about in a different, more immediate, way. Mindfulness is thus easier to learn, which makes it appealing to those unwilling to sit still to meditate.

Individual and organizational perspectives

Mindfulness from both perspectives has been shown to affect a plethora of cognitive, affective, and behavioral outcomes on the individual level. Mindfulness has been shown to positively affect outcomes such as creativity, physical well-being, and psychological well-being. While originally developed as an individual concept, it was then transferred to the organizational level in the context of research into error-free, reliable performance in high-reliability organizations (Weick & Sutcliffe, 2006; Weick, Sutcliffe, & Obstfeld, 1999). Based on Langer's conceptualization of mindfulness organizational scholars have convincingly argued that it affects organizational outcomes, for example, organizational safety climates (Weick et al., 1999; Weick & Sutcliffe, 2007), organizational attention (Weick, & Sutcliffe, 2006), IT security (Butler & Gray, 2006), creativity (Langer, Pirson, & Delizonna, 2010), innovation and learning (Levinthal & Rerup, 2006), adaptation, and performance (Albert, 1990; Rerup, 2005; Senge, 2006; Sternberg, 2000). Albert (1990) argued that mindfulness is an organizationally relevant social psychological concept, which has yet to be fully explored. Mindfulness in the work context is still underresearched, but progress has been made.

Mindfulness as an individual level concept can be affected by social and organizational environments. Research related to mindfulness in organizational contexts most often refers to a decidedly Western-scientific notion of mindfulness, a sociocognitive approach. Weick and Sutcliffe (2006) suggested that in that literature, the "prevailing way to conceptualize mindfulness has been to borrow from Ellen Langer's (e.g., 1989) ideas" that center on cognitive aspects of mindfulness including novelty seeking, novelty producing, and engagement. Weick and Sutcliffe (2006; Weick, Sutcliffe, & Obstfeld, 1999) themselves were extensively drawing on Langer's conceptualizations and defined mindfulness as a rich awareness of discriminatory detail generated by organizational processes. In 2001, they refined Langer's perspective when describing mindfulness as "the combination of ongoing scrutiny of existing expectations, continuous refinement and differentiation of expectations based on newer experiences, willingness and capability to invent new expectations that make sense of unprecedented events."

Levinthal and Rerup (2006) similarly understood mindfulness in an organizational context as an extension of Langer's sociocognitive perspective of mindfulness when they described it as "high sensitivity of perception and high flexibility of behavior to respond to diverse, changing stimuli (p. 505)." They further suggested that mindfulness represents a conversion of experience into reconfiguration of assumptions, frameworks and actions (p. 507).

Integrating both perspectives on mindfulness Jordan, Messner, and Becker (2009, p. 468) defined it as a "state of mind or mode of practice that permits the questioning of expectations, knowledge and the adequacy of routines in complex and

not fully predictable social, technological, and physical settings.” Resolving how mindfulness in organizations can exist, they posited that it is important to understand that mindfulness does not exclude or oppose the idea of routines, but may in fact build upon routinized action (Levinthal & Rerup, 2006; Rerup, 2005). Therefore, they argued it can be regarded as an *organizational* phenomenon that, while grounded in individual mindful behavior (Weick & Roberts, 1993), also builds upon organizational mechanisms. Accordingly, such *collective* mindfulness is realized on (1) the level of direct interaction in dyads or small groups and (2) a more general level that comprises the rules and routines that help organize mindfulness (Jordan et al., 2009, p. 468).

Mindfulness measurement

Growing interest in mindfulness as a way to enhance psychological and physiological treatment has led to several attempts to operationalize and measure mindfulness based on an Eastern-Buddhistic perspective. Whereas such scales can be easily applied in the clinical setting, they are less conducive to action-oriented Western settings, for example, within organizational contexts. Langer’s Western-scientific approach allows for more consistent usage of mindfulness theory within social contexts. A new 14-item scale of Langer’s Mindfulness conception can help assess such organizationally relevant effects of mindfulness (Pirson et al., 2012).

Mindful Management

In contrast to Michael Scott of “The Office,” mindful managers are aware of the social, cultural, and historical contexts, and are able to free themselves of existing and outdated categories.

Diversity management

One area in which mindful management is increasingly relevant is the area of diversity management. In one episode of “The Office,” Michael Scott is assembling a basketball team from among his colleagues to play against the Warehouse crew. After naming himself to be on the team, he also asks his favorite office mate (Ryan) to join, who turns out to be really unmotivated. He then selects an African-American colleague, who he believes to be a great basketball player, simply because of his heritage. He turns down others who eagerly want to join the team but are either Hispanic (“I will use your skills come baseball season”), overweight, or female. Unsurprisingly, his team can barely keep up with the other team and can only come up with a tie using unfair means of play. A more mindful manager certainly would have been able to draw novel distinctions beyond the stereotype and be able to understand that skillsets can vary within and beyond categories of demographics. Even though this is a very stark example of a mindless manager, the current trends towards more diversity from a legal as well as performance-oriented perspective requires managers to be more mindful about the strengths and weakness of each individual member of the team.

and the organization. Especially in the hiring process, mindful distinction-making can be helpful to hire the right candidate rather than a cookie-cutter graduate. As Stuart Albert already suggested in 1990, an increasingly heterogeneous and multiethnic work force and the growing globalization of the economy make understanding prejudice and overcoming a central managerial task. In one experiment by Langer, Bashner, and Chanowitz (1985), a mindfulness training resulted in less indiscriminate discrimination. The participants were encouraged to create new categories by supplying multiple responses (vs. one response) to slides of handicapped and nonhandicapped individuals. After this training, subjects indicated who they wanted on their team for activities such as checkers, soccer, and so on, for which a given handicap might or might not be relevant. The results indicated that those given training in making mindful distinctions learned that handicaps are function-specific and not people-specific; in short, they learned that disability depends on context (Langer et al., 1985). Such training may help incoming managers as well not only to deal with diversity but generally to be more mindful about individual strengths and weaknesses of potential team members.

Motivation

Mindful management could also help overcome motivational problems of coworkers. Routine-induced boredom is most often cited as a reason for low levels of employee engagement (Csikszentmihalyi, 1996, 2003). Through mindful management such routines can become part of mindful engagement, specifically when they are viewed as general guides but not fix rules. Langer and Piper (1987) showed how one of the most “mindless” activities, watching television, was successfully transformed into a mindful and engaging exercise. The experiment highlights that it is not necessarily the routine itself that renders our work-life boring but our mindless perspective of it. If there are ways to engage in the work from different perspectives (such as finance, marketing, or logistics, or from the perspective of a supplier, customer, or investor), we can easily see how such routine work can become more engaging relevant and meaningful (see also Grant, 2008).

Negotiation and conflict resolution

Mindful management can also be helpful in social situations in which different interests may provide potential for conflict (Riskin, 2002, 2010). As much as the general managerial rhetoric has embraced win-win (or even triple-win) solutions as negotiated outcomes, the more surprising is how pervasive standard negotiation tactics have become. A negotiation seems to be, *a priori*, a very context-sensitive situation in which many participants may not even know what potential options exist for either them or other parties involved. As such, there is a lot of room for mindful distinction making of the various and potential interests, wishes, and emotional longings as well as a lot of potential room for the creative production of novel outcomes. However, negotiation is often taught as if negotiation participants have a clear utility function, which can be identified (Malhotra & Bazerman, 2007). Consequently, the negotiation process merely constitutes the detection of a balance of such interests. It is a very

outcome-oriented perspective, which leaves out the process of negotiating that very much seems to influence potential outcomes.

To highlight this problem, consider a negotiation exercise where parties are confronted with the information that one party wants 8 eggs and the other party 7 eggs, while there are only 10 eggs to go around. The usual negotiated outcome is a split of 5 and 5. With a bit of further probing, the parties could find out that one party is only interested in the egg white and the other in using the yolks, so that everyone could have easily been satisfied and granted their entire need. This shows in many ways that negotiation is an exercise in mindfulness. Mindful managers are aware of the context and question given information by being aware of the traps of unquestioned assumptions. Mindful managers view negotiation as a creative process that cannot be predicted based on prior notions of interest and outcomes. Negotiation is reflected in the various aspects of mindfulness including engagement, novelty seeking, and novelty producing.

Strategy

Mindful management is also characterized by a general process focus. In business, however, there is a strong tendency to focus on the outcomes such as the bottom line. Langer (1989) pointed out that such a focus on outcomes can prevent managers from understanding how such outcomes are achieved by blinding them to process aspects. That mindless approach can lead to suboptimal, and even unethical, practices. Studies find that 20% of quarterly reports are indeed manipulated at any given time (Radovskiy, 2012). There are other dysfunctional aspects of outcome focus that result in a disregard for experimentation, learning, and innovation that are often viewed only as costs. Using that output perspective arguably leads to bandwagon effects in which managers copy practices of the leading companies (determined by outcomes such as market size, profitability, etc.). Langer (1989, p. 46) stated that “when we envy other people’s assets, accomplishments, or characteristics, it is often because we are making a faulty comparison. We may be looking at the results of their efforts rather than the process they went through on the way.” A mindful manager is able to understand processes and their context sensitivity. Some processes might work better in one cultural setting than in another. Mindful managers try to develop context-specific processes instead of trying to force, for example, American employees to become more like the Japanese to manage quality (as often happened in the 1980s).

Langer’s research suggests that paradoxically, by focusing on process and not outcome, one may improve both. Mindful managers understand that and try to refrain from being forced to manage for outcomes such as shareholder value maximization. In fact, the main reason why Google set up a special structure for being listed publicly was to avoid the mindless pressure of analysts so that they could still focus on product development.

Mindfulness and Its Organizationally Relevant Impacts

Whereas the above description of mindful management is nonexhaustive, it simply highlights the relevance of mindfulness for management. In the following part,

I wish to outline several ways mindfulness can further be of organizational relevance. In general, mindfulness can be an aspect of a humanistic, high-performance organizational culture. It can impact and affect organizational learning, creativity and decision-making in organizational contexts. Mindful managers will be able to support all these aspects, but they exceed the realm of individual managerial influence and become part of the organizational setup and structure.

Organizational culture

Mindlessness can be part of the cultural makeup of an organization. Any bureaucracy is suspect to routine-oriented employees following the letter of the law, rule, and stipulation without reflecting on appropriateness for a given context. The character, Milton, in the movie “Office Space” exemplifies such a mindless bureaucrat, which can only function in a culture that values mindless behavior. The main character of this film, Peter, ultimately gets fed up by this mindless culture after three different bosses ask him whether he had read a memo that specified the use of a rather irrelevant TPS report. This story, although fictional, highlights how a culture of mindlessness can lead employees to unhappiness, or what Gallup calls active disengagement. Active disengagement occurs when employees start undermining the company by sabotaging its operations. In “Office Space,” Peter and his two coworkers take revenge and plot to tweak the payment system so that small sums of customer payments will be transferred to their account.

Office Space has become a cult classic, similar to Dilbert, as it highlights the mindless business culture many people experience as employees. In such a workplace, categories of thinking are rarely revisited, context rarely matters, individual differences and strengths are irrelevant to the job, while the focus remains on the execution of routines with an outcome rather than process orientation. It seems almost unsurprising that such workplace cultures take their toll on the physical and mental well-being of employees (Harter, Schmidt, & Keyes, 2003). Csikszentmihalyi (2003) and others have shown that mindful business cultures also increase the well-being of employees, which most often contributes to a better performance of the company. Psychological well-being is heightened via mindfulness not only because of higher awareness levels but also because it can buffer against depression. The ability to draw novel distinctions allows for reappraisal of situations of suffering better than mindless behavior can. Higher levels of mindfulness are also leading to higher probabilities of flow experiences (Csikszentmihalyi, 1997, 2003) and meaningful personal engagement. Pirson et al. (2012) also find that mindfulness is correlated with higher mental-health scores, higher levels of self-esteem, higher subjective well-being measures, and lower negative emotional states. Furthermore, mindful individuals are viewed as more humorous than mindless counterparts, and finally, mindfulness also leads to higher levels of job and life satisfaction (Pirson et al., 2012).

Mindful organizational cultures can most likely also affect physical well-being of employees (Crum & Langer, 2007; E. J. Langer, 2009). Organizations that foster mindful engagement with a task, such as chamber maids viewing their work as exercise, have been shown to have a positive effect on various measures of physical

well-being. These effects have been explained by the salience of the mind–body connection according to which the mind and the body are not separate entities but are indeed mutually reinforcing each others' reactions (Crum & Langer, 2007). Thus, a higher level of mindfulness influences the ability of people to lead a healthy life, enjoy physical activity more, and see themselves as physically capable until old age (Pirson et al., 2012). Pirson et al. (2012) also found that higher mindfulness individuals need less rest and relaxation, because they can see their work generating positive energy.

Furthermore, they found that organizational cultures that help increase mindfulness similarly benefit employee well-being. Such effects can occur because mindfulness can influence the quality of social relationships via the ability to draw novel distinctions. This ability allows individuals to constantly reassess and mindfully interpret social actions. Low-mindfulness individuals will stick to routine judgments and stereotyping of others often missing potential alternative explanations of behavior. High-mindfulness individuals will allow for alternative explanations and possibly give the benefit of the doubt to coworkers, as such increasing the likelihood for positive relations overall. Mindfulness is found to impact the individual level of job satisfaction not only because of the higher quality of social relationships but also because a mindful reinterpretation of job tasks can counteract boredom that may ensue from routine. Similarly, employee engagement is influenced by mindfulness because the creation of novel distinctions can lead to higher levels of joy at work, higher levels of dedication to the tasks, and higher perceived ability to have an impact.

Creativity and learning

As many scholars have suggested (Levinthal & Rerup, 2006), improvisation or innovation is a result of the recombination of existing knowledge. According to Jordan et al. (2009) and Levinthal and Rerup (2006), improvisation takes at least two things: experience and creativity. Miner et al. (2001) suggested that experiential learning prior to action provides the necessary experience as building blocks, whereas mindfulness in action brings together experience and creativity. The creative recombination of these sets of action repertoires is a mindful activity.

Pirson et al. (2012) found that higher mindfulness individuals also perform better on creativity tasks, such as identifying alternative uses for a brick or a pencil. Mindfulness interventions have been shown to support product development (Langer, 1989). 3M's experience with Post-It Notes is a case in point: A glue that did not stick became a huge success through mindful reinvention (Albert, 1990). Mindfulness interventions have also been shown to overcome perceived incompetence at the beginning of a novel task (Grant, Langer, Falk, & Capodilupo, 2004) thus supporting creative engagement of participants. Other mindfulness interventions have helped reduce the negative effects of social comparisons on creativity, by focusing on process perspectives rather than outcome perspectives (Langer et al., 2010).

Various studies have also shown that learning can be improved by mindfulness interventions. For example, Langer and Piper (1987) demonstrated that by presenting information in a conditional versus an unconditional mode ("could be" versus "is") can be used to increase the chances of creative innovation. Similarly, Anglin, Pirson,

and Langer (2008) found that simple changes in conditionality of instructions when presenting a set of math problems can help increase the math performance of females over males.

Langer (1997) presented a wholly new approach on education based on mindful pedagogy. She suggested that education should mindfully establish routines and practices as guides but not as absolute governing rules. Such perspectives could easily help increase learning and creativity in the workplace. In work environments, the interplay between routines and innovation becomes critical. Following Levinthal and Rerup (2006), mindful organizations, especially high-reliability organizations (Weick et al., 1999), recognize the impossibility of anticipating all problems and events in advance. For example, during the Apollo 13 mission, NASA needed to innovate and learn very quickly because the spaceship was stalled in space due to an explosion on board. According to Lovell and Kluger (1994), the mission was accomplished without loss of life because NASA was able to improvise based on rehearsed simulations. Mindful learning embraces the fact that any action is local and situated, and involves spontaneous recombination of wisdom accumulated from prior experimental learning (Levinthal & Rerup, 2006). Mindfulness in organizations is often manifested by the recombination of well-rehearsed routines (Weick et al., 1999). This argument is further developed in Bigley and Roberts's (2001) study of highly formalized and bureaucratic systems such as the Incident Command System (ICS). They found that despite popular perception, bureaucracies can also be very flexible, as an ICS can rapidly recombine people, resources, and structures to deal with unexpected situations (Levinthal & Rerup, 2006). For example, the ICS is designed to "oscillate effectively between various preplanned solutions to the more predictable aspects of a disaster circumstance and improvised approaches for the unforeseen and novel complications that often arise in such situations" (Bigley & Roberts, 2001, p. 1282).

Such interrelation of routine and innovation is well expressed through the metaphor of grammars (Levinthal & Rerup, 2006; Miner et al., 2001; Pentland & Rueter, 1994). Just as fixed grammatical rules allow people to create a larger number of sentences, organizational routines similarly allow actors to produce a variety of outcomes (Pentland & Rueter, 1994, p. 490). However, all of the above examples require what Langer (1997) calls a mindful understanding of routines as guides but not as ultimate fixated rules.

To create such an understanding and achieve collective mindfulness at an organizational level, communication is central (Jordan et al., 2009). Weick and Roberts (1993) called it "heedful interrelation" and which may take place spontaneously, for example in reaction to an unexpected event. Often, however, it is supported by interactive routines, which agents carry out quite habitually. Following Levinthal and Rerup (2006), the mutual enactment of these habitual routines comprises, on the one hand, questioning one's own knowledge and actions, and, on the other hand, questioning the knowledge and action of others (Jordan et al., 2009; Weick & Roberts, 1993). Mindfulness cultures are therefore based on activities and routines that explicitly aim at providing opportunities to question expectations and behavioral routines, and to evoke awareness of context in interaction. For example, flight attendants, pilots, and mechanics vary their checklist order to keep the process surprising and engaging (E. Langer, 2009; E. J. Langer, 1989). Similarly, Schulman (1993) observed that

operators at nuclear power plants deliberately change the structure of the required paper work to be filled out to guard against mindless processing of safety-related information (Levinthal & Rerup, 2006). Similar interactive routines occur during the mutual checking and questioning practices between nurses and doctors in anesthesiology departments (Hindmarsh & Pilnick, 2007; Jordan et al., 2009) or during bungee-jump preparations (buddy-systems).

Decision-making

A central field of management research has been decision-making. As an individual-level concept, it allows an understanding of the variance and conformity of organizational strategies, reactions, and behaviors. Mindfulness research has only begun to permeate the field, but interesting findings can already be highlighted.

In recent studies, Chow (2012) found that higher mindfulness individuals are less susceptible to priming, draw on several sources of information, and end up making more balanced, more profitable, and more socially responsible investment decisions. In a test of mindfulness intervention, Shenoy (2008) found that participants make more virtuous decisions the more they articulate different perspectives on a variety of choices. They also predict their own well-being more accurately and value moral choices more highly not only retrospectively but also prospectively. This aspect is interesting, as it bridges the puzzle of bridging System 1 and System 2 decision-making (Kahneman, 2011) and provides ways for how to forego hedonistically and impulse-driven decision-making pushed for by advertisers.

On a more managerial level, Fiol and O'Connor (2003) suggested that mindful managers are able to avoid the bandwagon effects that dominate in the business world. That means they are less likely to accept general perceptions and remedies without checking for context and applicability in a specific situation. They are therefore more likely to question trends of "how to manage" as propagated by managerial magazines, books, and consultants in the field. They rely on their own judgment of the situation and draw distinctions of their own to see whether a new tool (such as the Internet), a new management approach (such as Total Quality Management) or a new innovation strategy is relevant to their own organization. Being vigilant and remaining aware of the changing environment, mindful decision makers are able to adapt more swiftly and appropriately to situational shifts.

Fiol and O'Connor (2003) argued that mindful decision makers go beyond a superficial search for information based on current trends and past behaviors (such as that which occurred in the housing crisis) and generate novel distinctions and context-dependent interpretations. Such an information search entails the scanning of current data that may or may not support existing beliefs. In addition, mindful engagement with such data means that own interpretations are regularly checked and updated to ensure perspectives most relevant to the organization. Finally, mindful decision making involves discernment as to what choices best fit a firm's unique circumstances, rather than simply following so-called "best practices."

Traditionally, such mindful engagement with the decision-making process has been neglected in decision research (Fiol & O'Connor, 2003). So far, cognition research

has mostly focused on underlying decision structures as a means to enhance perceptual accuracy. Fiol and O'Connor (2003) compared such efforts to replacing an old telescope lens with a new and more powerful one, which would be in vain if nobody were actually using it. As an example of mindful decision making, they highlighted leadership choices at Griffin Hospital, during the 1980s and 1990s. Facing competitive pressures, the leaders could have followed the common wisdom of the time, either finding an alliance partner or reducing costs by cutting back on services, staff, and space. Instead, they chose a very different path and developed a strategy that fit the specific situation of the hospital. Leaders were able to identify a new customer segment, understand their needs, and develop the organizational capabilities to meet those needs (Fiol & O'Connor, 2003). These decisions have helped to turn around the organization. Not only have economic results improved but employees have become galvanized, and the hospital has become an employer of choice, as evidenced by consistent recognition as one of the 100 best places to work in the United States (Fiol & O'Connor, 2003). Similarly, Google and SAS Institute are considered leaders in their industry not because management followed existing trends of management but because their leaders decidedly chose to create a culture that fit its founders and employees' needs. As such, they were able to create a distinctive culture that now most mindless business leaders try to emulate.

Conclusion

In this chapter, I outlined the relevance of mindfulness to the work context. After outlining the various notions of mindfulness, I extended findings from mindfulness research into the managerial context, by describing mindful management in some examples. Furthermore, I specified several findings in the literature on how individual-level insights of mindfulness can be applied and strengthened within an organizational context. In summarizing, organizations can try to hire mindful people and help keep people mindful through their structures and culture. However, it seems much harder to induce mindfulness throughout mindless organizations. That may mean that we will have to laugh at many more humorous descriptions of mindlessness in the workplace in the time to come. Yet, there is sufficient hope for those not wanting to be cynical that work environments can support individual mindfulness and derive the various well-being-related benefits from it.

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Two (or More) Concepts of Mindfulness in Law and Conflict Resolution

Leonard L. Riskin

Introduction

In 1989, I began learning—and becoming confused—about two technical concepts of mindfulness. Ellen Langer’s then-new book, *Mindfulness* (Langer, 1989), which came as a gift from a wise friend, captured my attention and imagination. So did mindfulness and mindfulness meditation in the Eastern tradition, which I had recently started to study and practice. I realized, gradually, that the two ideas—for the purposes of this chapter, Eastern-derived mindfulness (EDM) and Langerian mindfulness (LM)—were not exactly the same yet had more than a little in common, including some overlapping goals, strategies, and outcomes. Even 10 years later, however, when I began introducing EDM into my teaching and training in law and dispute resolution, I was unable to grasp or explain the commonalities and differences, though I made one (inadequate) attempt to do so (Riskin, 2010), and I found almost no help in the literature, until recently (Siegel, 2007).

The explicit use of “mindfulness” in law and dispute-resolution education, training, and practice began in the late 1990s and has grown quite rapidly (Mindfulness Symposium, 2012). The vast bulk of this work is grounded on EDM. But teachers and writers have incorporated—knowingly or unknowingly—some elements of LM. Many scholars, teachers, and trainers in the mindfulness in law and dispute resolution world have only a vague comprehension of LM, and frequently fail to mention or distinguish it from EDM. The reverse also may be true: Writings on Langer’s mindfulness do not typically compare and contrast it with EDM. At least until publication of this Handbook, the relationship between the two concepts has been opaque, or at best translucent. This opacity has had unfortunate consequences. In addition to fostering conflation and confusion, it has prevented efforts to use the two approaches jointly, in order to reinforce one another.

The first section of this chapter briefly explains the two technical concepts of mindfulness. The second section explores the roles of each form of mindfulness in law and dispute-resolution education, training, and practice. Finally, the third section suggests ways in which the two forms of mindfulness can reinforce and complement one another.

More Than Two Concepts of Mindfulness

The idea that there are just two concepts of mindfulness is a bit misleading. First, in addition to the two technical concepts, there is a more common meaning: to be “conscious or aware of something” (Oxford Dictionaries, Soanes, & Stevenson, 2010). When I was a child, my mother told me to “mind your manners when you visit Aunt Minnie.” Likewise, if you are driving from Toronto to Toledo for the first time, you should be very mindful of the road signs—even, or especially, if you have a GPS. Restaurateurs should be aware of what belongs in their food; in this spirit, “A More Mindful Burger” graces the awnings of the Epic Burger restaurants in Chicago. The two technical ideas of mindfulness on which this Handbook focuses have something in common with this general meaning.

A second reason that it seems inaccurate to speak of two forms of mindfulness is that the literature about EDM contains countless definitions (Williams & Kabat-Zinn, 2012), some of which appear quite inconsistent with others (Riskin, 2010; Williams & Kabat-Zinn, 2012).

Given the plethora of meanings, and in view of space limitations for this chapter, I will not try to present both technical forms of mindfulness comprehensively. Instead, I will feature important parts of each that I think have potential for usefully interacting with aspects of the other; I leave for other writers, in this book and elsewhere, the task of more fully unpacking these two constructs and how they relate to one another.

EDM

EDM encompasses a variety of ideas and practices that derive, directly or indirectly, from teachings and practices of the Buddha, who lived some 2,500 years ago and who built upon even more ancient Hindu and other teachings and practices that were well known in the areas where he taught, in what is present-day India (see Chapter 4). As it is usually introduced in the West, EDM *emphasizes* nonjudgmental awareness, in contrast to—or at least ahead of—thinking or evaluation. However, the most ancient and basic teachings and practices involve a good deal of both evaluation and thinking (Anālayo, 2003; Austin, 2012), and in connection with law and dispute resolution, mindful awareness in practice seems almost inevitably *connected with* thinking.

Modern commentators who emphasize the awareness aspect of EDM have defined mindfulness in a variety of ways. Jon Kabat-Zinn, the creator of Mindfulness-Based Stress Reduction, tells us that “Mindfulness can be thought of as moment-to-moment, nonjudgmental awareness, cultivated by paying attention in a specific way, that is, in the present moment, and as nonreactively, as nonjudgmentally, and as openheartedly as possible.” (Kabat-Zinn, 2005). Bhante Gunaratana explains that mindfulness goes

hand in hand with concentration and that concentration requires forcing the mind to focus on something, but mindfulness decides upon what to focus (Günaratana, 1991).

Some researchers have operationalized the Eastern idea of mindfulness, that is, turned it into a construct that they could use for research (Siegel, 2007). Bishop and colleagues, for instance, define mindfulness to include:

the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment ... [and] a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance. (Bishop et al., 2004, p. 232)

Building upon that definition, UCLA psychiatrist Daniel Siegel describes mindfulness as including an “awareness of awareness” and an attitude toward moment-to-moment experience based upon “curiosity, openness, acceptance, and love (COAL)” (Siegel, 2007, pp. 1–13).

It is important to distinguish between EDM and mindfulness meditation. A person cultivates the ability to be mindful primarily through silent meditation and then deploys it in everyday life or in performing certain tasks. The meditation practices themselves have demonstrated benefits, including: a lowered pulse rate; enhanced ability to concentrate; mental clarity; increased activity in the portion of the brain associated with happiness; and decreased activity in portions of the brain associated with unhappiness (Riskin, 2010). Mindfulness meditation grew from—and, in many presentations, remains intricately interconnected with—ancient Buddhist philosophy, psychology, ethics, and related meditative practices (Kuttner, 2010). The Buddha’s principal goal in teaching was to reduce suffering, by leading a person to overcome the causes of suffering—craving, aversion, and the delusion of a continuous, separate self, from which craving and aversion spring (Olendzki, 2010). In other words, mindfulness can help a person see things as they actually are. In both ancient and modern times, some scholars and teachers emphasize certain kinds of outcomes, such as enhanced satisfaction, peace of mind, concern for others, ethical behavior, health, and performance.

A large number of studies have focused upon the impact of mindfulness on students (Shapiro, Brown, & Astin, 2011). A recent study found that two weeks of mindfulness training significantly improved the subjects’ Graduate Record Examination scores (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013). A current study, conducted by psychology professor, Kennon Sheldon, and law professor, Richard Reuben, will measure the impact of mindfulness meditation on first-year law students at the University of Missouri. And neuroscientist Emiliana Simon-Thomas has done preliminary research to measure the effects of mindfulness training on first-year and advanced law students at the University of California-Berkeley School of Law.

LM

Professor Ellen Langer’s notion of mindfulness (see Chapter 1), which she has been developing at least since 1972, is

an active state of mind characterized by novel distinction-drawing that results in being (1) situated in the present; (2) sensitive to context and perspective; and (3)

guided (but not governed) by rules and routines. The phenomenological experience of mindfulness is the felt experience of engagement. Noticing/creating novelty reveals inherent uncertainty. When we recognize that we don't know the person, object, or situation as well as we thought we did, our attention naturally goes to the target. (Langer, Chapter 1)

"When we are mindful," Langer tells us:

we implicitly or explicitly (1) view a situation from several perspectives, (2) see information presented in the situation as novel, (3) attend to the context in which we are perceiving the information, and eventually (4) create new categories through which this information may be understood. (Langer, 1997, p. 111; see also Langer, 1989, pp. 62–74).

This concept of mindfulness is the opposite of mindlessness, which is (again, from Chapter 1):

an inactive state of mind characterized by reliance on distinctions/categories drawn in the past. Here (1) the past overdetermines the present; (2) we are trapped in a single perspective but oblivious to that entrapment; (3) we're insensitive to context; and (4) rules and routines govern rather than guide our behavior. Moreover, mindlessness typically comes about by default not by design. When we accept information as if unconditionally true, we become trapped by the substantive implications of the information. Even if it is to our advantage in the future to question the information, if we mindlessly processed it, it will not occur to us to do so (Chanowitz & Langer, 1981). The same rigid relationship results from mindless repetition. (Langer & Imber, 1980)

The Two Concepts of Mindfulness in Law and Dispute Resolution

My understanding of mindfulness developments in law and dispute resolution is almost certainly molded by my own background and experience. So, I feel compelled to reveal something about those matters.

I have been practicing mindfulness meditation since about 1989 and, since about 1999, have been and teaching mindfulness to law students, lawyers, judges, and mediators. In 2002, I began writing about mindfulness in law and conflict resolution (Riskin, 2002). In all these activities, I have greatly emphasized EDM, as have most of the mindfulness writings and programs in law and dispute-resolution education, training, and practice. I have been heavily influenced by, and trained to teach, Mindfulness-Based Stress Reduction and the meditative practices associated with the Theravadan Buddhist tradition, and known as mindfulness, insight, or vipassana meditation. Many other lawyers who have been active in teaching mindfulness draw on these traditions, as well. Some rely more heavily on Zen or Tibetan Buddhist practices or other teachings.

Mindfulness programs for lawyers and dispute resolvers began in the US in the late 1980s, when Jon Kabat-Zinn offered mindfulness training for Massachusetts Judges

(Riskin, 2002). In 1998, he and Ferris Urbanowski taught Mindfulness-Based Stress Reduction to lawyers in the Boston law firm then known as Hale and Dorr (*Id.*). In 1999, attention to mindfulness made its premier in the first of several retreats for Yale Law School students (with mindfulness instruction by Joseph Goldstein and Sharon Salzberg; Riskin, 2002). Shortly thereafter, in 2002, a Symposium on Mindfulness in Law and Alternative Dispute Resolution (ADR) took place at Harvard Law School (Mindfulness in Law and ADR Symposium, 2002). In 2010, the Mindful Lawyer Conference (n.d.) drew some 165 participants from around the world to the University of California-Berkeley School of Law, which cosponsored the program with five other law schools (Mindful Lawyer Conference Website, n.d.; Mindfulness Symposium, 2012). In June 2013, a Workshop on Mindfulness in Legal Education, sponsored by the Berkeley Initiative for Mindfulness in Law, gathered 54 professors, most of whom had been teaching mindfulness in law schools for some time, from 31 law schools (Berkeley Initiative for Mindfulness in Law, n.d.).

About 30 U.S. law schools offer or recently have offered opportunities for mindfulness instruction and practice. These efforts range from noncredit courses, such as full-blown Mindfulness-Based Stress Reduction courses at the University of Missouri to specially created for-credit courses, including some with “Emotional Intelligence” in their titles, at the University of Miami and the University of Missouri; “Effective and Sustainable Law Practice: The Meditative Perspective,” at the University of California-Berkeley; “Tools of Awareness for Lawyering” at the University of Florida and “Conflict Management in the Legal Profession” at Northwestern; the Inns of Court Program at George Washington University; and the Lawyer in Balance Program at Georgetown. Some faculty integrate mindfulness into more traditional courses, including Trial Practice (Zlotnick, 2012), Professional Responsibility (Rogers & Jacobowitz, 2012), Negotiation and Mediation at the University of Florida and Northwestern (Riskin, 2012); and an Intimate Partner Domestic Violence Clinic at the University of Florida. Major programs have developed at several law schools, including the University of California at Berkeley (Berkeley Initiative for Mindfulness in Law, n.d.), CUNY (CUNY Contemplative Law Program, n.d.), and the University of Miami (Miami Mindfulness in Law Program, n.d.; Rogers, 2012). At Northwestern, a full-time psychologist in the law school’s student services office offers mindfulness meditation workshops, in class presentations on mindfulness and lawyering, and weekly sitting opportunities—as well as mindfulness-based psychotherapy. Vanderbilt includes mindfulness meditation in its orientation.

Mindfulness appears routinely at bar association and dispute-resolution conferences and training programs. Major symposia on mindfulness in law or dispute resolution have appeared in three academic journals—the *Harvard Negotiation Law Review* (Mindfulness in Law and ADR Symposium, 2002); the *Nevada Law Journal* (Mindfulness, Emotions, and Ethics in Law and Dispute Resolution Symposium, 2008); and the *Journal of Legal Education* (Mindfulness Symposium, 2012)—contributing to a total about 30 articles in academic law journals and many more in bar journals and popular publications. Several recent books have connected mindfulness and lawyering (Calloway, 2012; Halpern, 2008; Rogers, 2009a, 2009b; Rogers & Jacobowitz, 2012). Thousands of lawyers, law professors, judges, mediators, and law students have attended specially designed mindfulness retreats, training programs, or

conferences, mostly in the US. Lawyers meet weekly for meditation sessions in places such as Denver, Portland, OR, and Seattle.

These efforts explicitly embrace or address a variety of potentially related goals, which range, at the extremes, from spiritual enlightenment to just lightening up, and include present-moment awareness; managing stress; enhancing concentration, satisfaction, and performance at work or school or in life; and improving one's ability to deal with emotions and with conflict.

Most of these programs emphasize roots in Eastern mindfulness, employ ideas and practices derived from that tradition, and generally offer little or no explanation or even acknowledgment of Langer's mindfulness. There certainly are many exceptions to this general statement. Law-school professors who teach mindfulness do so in a wide variety of ways; no widespread pattern has emerged. When I teach mindfulness, I rely very heavily on EDM. However, I generally explain LM. I also introduce Langer's definitions and examples of mindlessness, which help students notice their own mindlessness and spark a good deal of enthusiasm. Langer's wonderful explanation that, when someone is mindless, it is as if "the light's on, and nobody is at home" (Langer, 1989) helps students understand and develop insight, as do her compelling examples of mindless behavior. And I have long told my students that these stories illustrate mindlessness under both concepts, and that EDM can help foster LM. Still, along with most of my mindfulness-in-law colleagues, I emphasize EDM.

Ironically, however, since long before Langer's time, traditional legal reasoning and practice (at high levels) have required or sought many of the skills and behaviors that both characterize and produce Langer's mindfulness. In addition, new developments in legal and dispute-resolution education, theory, and practice both foster and require the qualities associated with Langer's mindfulness.

In what follows, I intend to show how the two forms of mindfulness can or do connect with education in law and dispute resolution, through two examples: legal reasoning, especially as it is taught in law schools; and working with broader perspectives, especially through alternative (or appropriate) dispute resolution.

The Lawyer's Standard Philosophical Map

A particular frame of mind or mindset has long dominated legal education and much of professional practice. I call it the Lawyer's Standard Philosophical Map:

What appears on the map is determined largely by the power of two assumptions about matters that lawyers handle: (1) that disputants are adversaries—i.e., if one wins, the other must lose—and (2) that disputes may be resolved through application ... of some general rule of law....

On the lawyer's standard philosophical map ... the client's situation is seen atomistically; many links are not printed. The duty to represent the client zealously within the bounds of the law discourages concern with both the opponent's situation and the overall social effect of a given result.

Moreover, on the lawyer's standard philosophical map, quantities are bright and large while qualities appear dimly or not at all. When one party wins, in this vision, usually the other party loses, and, most often, the victory is reduced to a money judgment. This "reduction" of nonmaterial values—such as honor, respect, dignity, security and

love—to amounts of money, can have one of two effects. In some cases, these values are excluded from the decision maker's considerations, and thus from the consciousness of the lawyers, as irrelevant. In others, they are present but transmuted into something else—a justification for money damages....

...The lawyer's standard world view is based upon a cognitive and rational outlook. (Riskin, 1982)

The Lawyer's Standard Philosophical Map, and the kind of reasoning described above, dominates most law-school courses and much of law practice in certain substantive (and geographic) areas. Often, that is appropriate and necessary; for instance, in taking a traditional law-school essay examination, the students' goal is to display their ability to skillfully perform this kind of reasoning. The same is true during Socratic dialogue in the law-school classroom and, often, in practice—for instance, in understanding the legal position of a client or writing a brief to a court or a memorandum of law for your superior in a law firm. I explain legal reasoning in the next section.

Another stream also runs through parts of the curriculum at virtually all U.S. law schools. It complements the narrow focus of the Lawyer's Standard Philosophical Map by adding broader or deeper perspectives, but its influence is far weaker and less pervasive. I describe this stream in the section "Working with additional and broader perspectives on lawyering and dispute resolution."

Legal reasoning: Exemplar of the Lawyer's Standard Philosophical Map

Legal reasoning and analysis are the most distinctive and fundamental skills of a lawyer or judge. They constitute what is commonly known as "thinking like a lawyer" and have been widely accepted in common law, and perhaps Roman law, for centuries. As taught in U.S. law schools, and conducted by the most skillful lawyers, legal reasoning and legal analysis require (perhaps without mentioning them) most elements that Ellen Langer has identified with mindfulness—but principally within a bounded perspective.

The foundational tasks of legal analysis and reasoning involve identifying and working with rules of law and their application to the facts. One aspect of this work concerns identifying or distinguishing potential precedent—rules previously articulated by courts that might apply in a particular situation. If we put some of the most important ideas from Langer's mindfulness into the form of instructions or guidelines, they would read something like this:

- Be aware of context.
- Gather details, about whatever might be relevant (including other people and their situations).
- Draw distinctions (analyze).
- Look for similarities (synthesize).¹
- Be aware of uncertainty—that facts, perceptions, and context can change and may have changed; that they might be ambiguous; that your own views may be biased; that your information may be incomplete.
- Be aware of your own mindset or the perspective(s) through which you are viewing the situation.

- Consider the mindsets or perspectives of other concerned people, and try viewing the situation through such perspectives.
- Consider that perhaps rules need not govern the outcome but could, instead, provide guidance.

These guidelines closely resemble the basic requirements for doing competent legal analysis and reasoning, as U.S. law schools teach these skills, and not only in legal writing courses, but also in most basic courses. This method of legal reasoning has been part of the common law (and probably Roman law) for centuries (Bezemer, 1997; Kadens, 2009). When I figured this out, I realized that I (and my colleagues and predecessors) had, in a sense, been practicing Langer's mindfulness for a long time. I was as surprised as Molière's character M. Jordain, when he discovered that he had "been speaking prose without knowing anything about it" (Molière, 1670). Lawyers had been using these elements of Langer's mindfulness centuries before Langer proposed them; her great insight was that these very skills could be important in many other arenas of activity.

A traditional law school essay examination question presents a fact pattern and asks students to identify or propose, through analysis and synthesis, potentially applicable rules and how they might apply to the facts. When answering most traditional law-school essay-examination questions, the student must be fully aware of the contours of the appropriate perspective (e.g., the Lawyer's Standard Philosophical Map); draw distinctions; analogize; synthesize; and recognize ambiguities (or "issues") about the law, the facts, and their potential interactions (Llewellyn, 1930, chapter 3; Neumann, 2005; Shapo, Walter, & Fajans, 2003). The idea that "rules *guide*, but they do not *control* decision"—expressed by Llewellyn (1930, p. 180),² a leader of the American Legal Realism School of jurisprudence—resonates with similar language in Ellen Langer's explanation of mindfulness (see Chapter 1). The most creative work in legal reasoning involves constructing novel theories about what the law is or should be, and how it might apply to the facts, and persuading someone else—a judge or opposing lawyer, for instance—to agree with, or at least consider, that angle. The student also must grasp arguments that favor both sides.

Law students and lawyers display a very wide range of abilities in performing legal analysis and reasoning. Those who do it well are exhibiting high levels of Langer's mindfulness—or at least many of its important characteristics. And poor performance on these tasks generally results either from a failure to carry out processes associated with LM or from inadequate familiarity with potentially relevant rules of law. When Langer suggests that one can do anything mindfully or mindlessly (Chapter 1) she seems to imply that that LM has an either/or nature. If so, that would be one way in which it would differ from EDM. In the Eastern perspective, mindfulness arises and disappears moment to moment, and can function with various objects, levels, and ranges of attention.

For many years, I taught basic law-school courses, such as Business Organizations and Torts, in which students take essay examinations of the sort I described above. Looking back, I think that the students who did not do well on these exams generally were less mindful (in Langer's sense) than other students. They did not adequately make distinctions and recognize commonalities; they did not sufficiently acknowledge

and address uncertainties. Simply put, for students who are familiar with the potentially relevant rules of law, the major cause of poor grades is a failure to identify and address “issues”—which, in this context, are synonymous with uncertainties in the potentially relevant law, the facts, and their interaction.

Working with additional and broader perspectives on lawyering and dispute resolution

The Lawyer’s Standard Philosophical Map—and the pinched perspective that characterizes the legal analysis and reasoning that operate in within its borders—offer great value and strength, in certain contexts and for certain purposes. The problem is that they also exercise control—sometimes too much of it—outside those contexts. Too often, this perspective crowds out other ways of viewing, understanding, and addressing situations—an example of Langer’s “entrainment in old categories.” This can interfere with common sense and otherwise impede good service to clients. Consider Professor Kenney Hegland’s (1982) account of an incident in his class at the University of Arizona:

In my first year Contracts class, I wished to review various doctrines we had recently studied. I put the following:

In a long-term installment contract, Seller promises Buyer to deliver widgets at the rate of 1000 a month. The first two deliveries are perfect. However, in the third month Seller delivers only 999 widgets. Buyer becomes so incensed with this that he rejects the delivery, cancels the remaining deliveries and refuses to pay for the widgets already delivered. After stating the problem, I asked “If you were Seller, what would you say?” What I was looking for was a discussion of the various common law theories which would force the buyer to pay for the widgets delivered and those which would throw buyer into breach for cancelling the remaining deliveries. In short, I wanted the class to come up with the legal doctrines which would allow Seller to crush Buyer.

After asking the question, I looked around the room for a volunteer. As is so often the case with the first year students, I found that they were all either writing in their notebooks or inspecting their shoes. There was, however, one eager face, that of an eight year old son of one of my students. It seems that he was suffering through Contracts due to his mother’s sin of failing to find a sitter. Suddenly he raised his hand. Such behavior, even from an eight year old, must be rewarded.

“OK,” I said, “What would you say if you were the seller?”

“I’d say ‘I’m sorry.’”

This comment precipitated outbursts of laughter, because it was wholly outside the frame through which the class was operating—even though, in a real situation, it might have proven quite helpful.

Beginning in the 1980s, law-school and conflict-resolution education and practice have seen a huge growth in efforts to supplement this perspective with new, broader ideas. These include: selecting or building the most “appropriate” form of dispute resolution (Riskin et al., 2009); interest-based negotiation (Fisher, Ury, & Patton, 1991); the core concerns construct for working with emotions in negotiation (Fisher &

Shapiro, 2005); certain forms of mediation, such as Understanding-Based Mediation (Friedman & Himmelstein, 2008); dispute-resolution systems design (Rogers et al., 2013); and new forms of lawyering, such as collaborative law (Tesler & Thompson, 2007).

The most important member of this family of concepts is the distinction between positions and interests—the foundation of interest-based negotiation, popularized by Roger Fisher, William Ury, and Bruce Patton in *Getting to Yes* (Fisher et al., 1991). A position is what someone says they want or are entitled to. An interest is the underlying goal, motive, or need that they seek to serve by asserting that position. To take a simple example, Howard Aibel, when he was General Counsel of ITT, described a dispute between an ITT subsidiary and a West Coast corporation. The two firms had a contract under which ITT was to supply control devices to the other company, which would install them in certain appliances, which it would then sell. The West Coast firm asserted that defects in the control devices caused it to suffer a large loss in market share. It claimed quite a few million dollars in damages—its position. ITT's defense, its position, was that the control devices were not defective, and in the alternative, that even if they contained defects, the defects did not cause any legally cognizable damage. The West Coast firm filed suit, and after years of pretrial discovery, which required extensive legal fees for both sides, the general counsels conducted what was then called a minitrial but, for our purposes, was essentially a negotiation. Through that process, ITT agreed to pay the full amount demanded, but it did so through discounts on future deliveries of the control devices, in which the defects had been corrected (Aibel, 1985). This agreement, which some would characterize as “win-win,” satisfied important interests of both companies. Both firms had major interests in making profits. ITT had an interest in selling the corrected version of its control device and a related interest in reputation. The West Coast firm had an interest in a reliable supply of a well-functioning control device. The lawyer-negotiators had converted a dispute that was based on positions into a transaction that was based on interests.

The principal popularizers of interest-based negotiation developed these simple guidelines for conducting it:

- Separate the people from the problem (and be soft on the people and hard on the problem)
- Focus on interests, not positions
- Invent options for mutual gain
- Insist on using objective criteria. (Fisher et al., 1991)

By focusing on interests more than positions (which can happen in client counseling, negotiation, and mediation), we often can develop more creative and better solutions than if we are limited to the narrow, positional perspective discussed above.

This simple rubric for interest-based negotiation provides very useful advice. The other new, broader or deeper ideas that I mentioned above offer similar (but not quite so simple) templates. Although such models are very powerful, and students gain a level of command over them, many lawyers, mediators, and others who have learned these ideas and associated techniques and decide to use them in particular situations

sometimes fail to do so, and looking back, regret this because they think these models would have produced a better process and outcome.

The elements of Langer's mindfulness that I listed above in the form of guidelines or instructions (see section “Legal Reasoning: Exemplar of the Lawyer’s Standard Philosophical Map” earlier in this chapter) would seem to be minimum requirements for working skillfully with concepts and tools related to conflict and conflict resolution. The “Appropriate Dispute Resolution” approach seeks to identify or construct the most suitable method for managing a conflict, considering all of the circumstances, including the parties’ interests. This requires a good deal of analysis. Operating skillfully within each of these alternative frames also requires extensive attention to detail; legal analysis and synthesis and application of law to facts (sometimes); and deliberate employment of different perspectives, including the perspectives of others and various ways of looking at conflict. Using, or appropriately considering, interest-based processes also requires a refined understanding of context, as well as how interest and position-based approaches can interfere with each other, giving rise to the “negotiator’s dilemma” (Lax & Sebenius, 1985) and the potential risks inherent in each approach.

Relationships and Interactions Between the Two Forms of Mindfulness in Law and Dispute Resolution

I have suggested above that Langer’s Mindfulness would be almost essential for high-level performance in legal reasoning (in the traditional narrow frame) and in working skillfully with concepts about conflict resolution, including broader perspectives, such as those often associated with the quest for the most appropriate method of dispute resolution, management, or handling (Menkel-Meadow, 2013). In this section, I set forth some obstacles to the actual use of LM in the law and dispute-resolution areas and show how EDM can foster and reinforce LM, in part by helping overcome such obstacles. I also will suggest how LM can foster and reinforce elements of EDM.

How EDM can foster the use of LM

In both contexts that I have discussed—engaging in legal reasoning and working toward appropriate dispute resolution—students or professional who wish to use LM (for simplicity, let’s say they wanted to observe details, draw distinctions, and stay anchored to the present moment) could face a number of interrelated obstacles to actually doing so, such as the following:

- An excessively self-centered orientation, which might contribute to strong negative emotions that could interfere with one’s ability or willingness to look outside themselves and, for example, to draw distinctions, see things as novel, and be engaged.
- Strong negative emotions, which tend to interfere with one’s ability, and willingness, to think clearly or to understand or care about other people’s perspectives or interests.

- Habitual ways of thinking, feeling, and behaving. Negative emotions tend to foster “reactive” behavior, based upon habit. They also promote a self-centered focus, a lack of concern about others, and a narrow perspective.
- Inadequate skills. I refer to social skills in the context of conflict resolution and to writing skills in the context of legal reasoning.
- Insensitivity to emotions, especially those of others. In writing a legal brief or negotiating, insensitivity to the emotions of others could lead to a conduct that offended others, thus impairing one’s ability to engage with them.
- Inability to focus or think clearly. A wandering mind can make it difficult to perform almost any task well (Riskin, 2010).

I realize that LM is designed to overcome some of these very problems. For instance, it suggests that a person can develop LM by drawing distinctions and observing details. At times, however, a person may not have the ability or present-moment awareness to actually do these things. They might lack a sufficient amount of a certain kind of strength. This is analogous to the situation I faced when I briefly considered trying out for my high-school football team. I believed that could I could learn all about how and when to execute a block or a tackle, but, unless I had sufficient strength and flexibility—which I might develop through training (though I probably lacked the necessary foundation)—I could not have actually performed well. EDM practice helps develop something like an emotional and cognitive muscle. And it offers specific suggestions for evoking EDM in the moment—such as the 3-Minute Breathing Space (Segal, Williams, & Teasdale, 2002, pp. 209–211) and the STOP exercise developed by the Stress Reduction Clinic at the University of Massachusetts Medical School.

More generally, EDM (through meditation and mindfulness in daily life or specific activities) can help an individual overcome these obstacles to developing and sustaining LM, in the context of law and dispute resolution, by

- diminishing attention to self-centered concerns and thereby enhancing attention and concern for others;
- reducing the strength of negative emotions and enhancing positive emotions, including compassion toward other and self;
- developing awareness of, and distance and freedom from thoughts, emotions, and habitual perceptions and behaviors;
- fostering sensitivity to the emotions of others;
- enhancing social skills; and
- strengthening concentration. (Riskin, 2010).

How LM can foster EDM

Langer’s mindfulness, especially as expressed in the guidelines that I have suggested above, can help sustain EDM by providing anchors to the present moment and tools—specific suggestions for engaging with the (primarily outer) world. EDM is vulnerable to the very challenges that it is intended to address, in the same sense that the Star Wars Missile Defense System was vulnerable to a missile attack. LM can help a person surpass these challenges and to engage in the present moment.

Conclusion

Each form of mindfulness is both a path and a destination, and each includes tools that could reinforce the other. I hope that adherents and proponents of each form will try to draw on aspects of the other, rather than allowing these visions to reside primarily in separate academic and practice silos.

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Notes

1. I am not certain that Langer specifically mentions synthesis, but I include it here because it seems to run in tandem with analysis.
2. There is much debate about this assertion within the legal profession.

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Mindfulness in Law

Scott L. Rogers

Introduction

In the past 25 years, a remarkable change has taken place within the legal profession as mindfulness has moved from esoteric concept to hot topic. In an environment known for moving with “all deliberate speed,” (Woodward & Armstrong, 1979), where legal doctrine and precedent are slow to evolve, and its practitioners are paid for being cautious and certain, mindfulness is permeating the landscape and blossoming in ways and at rates that surprise even those who planted and nurtured its seeds. So barren was the field that its flourishing is causing a great many to take notice, and a surprising number to take part.

Because the law is an integral part of society, the constitutional makeup (i.e., cognitive capacity, emotional competence, and general health and well-being) of lawyers and judges affects a great many people and institutions. Accordingly, the alarming rates of depression, anxiety, and substance abuse found across the legal profession and legal education have prompted the American Bar Association and the Association of American Law Schools to spearhead efforts to better understand the causes for these concerns and to find solutions (Magee, 2011; Sullivan, Colby, Wegner, Bond, & Shulman, 2007). Mindfulness has emerged as one solution, and extensive press and media attention has helped it gain entry into a profession whose natural tendency might otherwise have been to “object, irrelevant!”

But in a profession as emotionally guarded as the law, where battles are waged daily, colleagues are adversaries, clients are bitter, jobs are scarce, hours are long, time is money, and the pressure is always on, the fact that the contemplative practice of mindfulness might not only be taken seriously but also take root is cause for its own contemplative moment. And indeed, the embrace of mindfulness within the law

has benefitted from the wide-ranging efforts of a number of people from across the country who have persevered, over the course of many years, to develop meaningful and effective ways of sharing mindfulness practices with lawyers, law professors, law students, mediators, paralegals, and judges (Bush, 2011; Magee, 2011; Riskin, 2002; Rogers & Jacobowitz, 2012). Though the journey is still in its early stages, much can be learned from the patient and creative efforts of the many who are paving the path.

This chapter explores the inroads that have been made bringing mindfulness into the legal profession and the approaches that have helped bring it about. It looks to ways that mindfulness will benefit a profession that many see as broken, but too consequential to fail, in terms of both the personal lives of lawyers and the approaches to practicing law and resolving conflict. Attention is also given to aspects of legal culture that are at odds with a contemplative practice, while also exploring deeper elements of the law with which a contemplative practice resonates.

The first section, “Watering the Seeds of Mindfulness in Law,” traces the evolution of mindfulness in the legal profession beginning in 1984, where it received brief mention in an obscure law-review article, to its formal entry in 2002 into the legal community at Harvard Law School, and to the flurry of activity that followed in the years leading up to the convening of The Mindful Lawyer Conference in Berkeley in 2010. The second section, “The Blossoming of Mindfulness in Law,” looks at the impact of the 2010 Berkeley Law conference and explores the landscape of mindfulness in the law today, as law schools are institutionalizing mindfulness programs, state and local bar associations are forming mindfulness groups, law faculty and psychologists are researching the efficacy of mindfulness training on law student well-being and resilience, and lawyer conferences are flush with mindfulness programming. These observations suggest that much has taken place in the past 25 years, and indeed the legal profession has opened its eyes to the important role mindfulness can play in helping to stabilize, clarify, and transform. Still, given the vast number of attorneys licensed to practice in this country (more than one million) coupled with the extraordinary role of law in society, there is much more ground to cover, including consideration given to the skillful means by which this ground is to be traveled. The third section, “The Growth of Mindfulness in Law,” focuses on some of the different approaches and methods that law faculty and lawyers are using to introduce mindfulness to legal professionals, and to facilitate the integration of mindfulness into legal education and law practice. Attention is given to Jurisight®, a program I developed specifically for introducing mindfulness to legal professionals and which forms the basis of a collection of lawyers workshops and law school classes.

As you read these words, it is likely that you have noticed a large elephant standing nearby. And indeed, a conversation that brings together mindfulness and the legal profession is prone to surprise some and baffle others. Yet leaders of the mindfulness in law movement have long regarded the integration of the two as not only fitting but necessary to the well-being of the legal profession, its members, and even society. The final section of this chapter concludes by noting this paradox—that “mindfulness” in the context of the law elicits such interesting reactions while at the same time expressing its fundamental nature. Because flora that thrive amid harsh environments can be especially hardy, instances where mindfulness is taking root in the law may offer

helpful guidance to those interested in integrating mindfulness across many aspects of society.

A preliminary matter

At the outset, it is helpful to note that there are a variety of approaches to mindfulness that have been shared with members of the legal profession. As will be explored, these include those derived from various wisdom traditions, modern adaptations of these traditional approaches, and contemporary practices developed through the lens of psychological insight and experimental research. One might observe that they all involve “paying attention.” But exactly what “paying attention” means, how it is to be accomplished, and whether there might not be something more than “paying attention” that is of crucial concern to the practice and its teaching are questions with overlapping, and sometimes conflicting, answers. This diversity of approaches, while at times a source of debate among those deeply committed to their particular practice, in the context of the law, serves well the challenge of making mindfulness available to large numbers of people with very different personalities, backgrounds, and interests. For example, attorneys with a strong interest in reducing their stress levels, or with insight into how a sitting practice may awaken a deeper understanding of who they are, or benefit their effectiveness as a lawyer, are often inclined toward a more meditative approach. Others, however, with less of a felt need to manage stress or for greater self-awareness, or who are not interested in developing a meditative practice, or feel unable to do so, are more likely to be interested in cognitive-oriented practices—which carry with them their own capacity to awaken self-wonder, sharpen focus, reduce stress, and enhance well-being.

One area of great importance to legal professionals for which different approaches to mindfulness offer insight and relief is working with uncertainty. Indeed, much of the distress experienced by lawyers can be traced to the uncertainty inherent in the objectives they pursue coupled with their desire for greater certainty. This is a theme that runs through this chapter, as it offers a subject matter that illuminates the larger conversation, and a few minutes’ attention to the ways meditative and nonmeditative approaches address this issue may be instructive.

A traditional meditative mindfulness approach to working with uncertainty—and the stress, anxiety, and worry that it can engender—involves learning to sit and notice the thoughts, feelings, and body sensations that arise in relationship to the uncertainty (Chodron, 2003; Hanh, 1999). Doing so, and it is challenging to say the least, offers one the potential to recognize the cues that trigger the discomfort, sense the ways that they may be perceiving more of a threat than there actually is, and come to appreciate their capacity to bear the discomfort and move forward with optimism and courage (Kabat-Zinn, 1990, 2006; Salzberg, 2002). Through this process, one may well find oneself less reactive and better equipped to respond in ways that can be productive and helpful to oneself and those around. This practice, in its most classic form, invites one to sit in quiet space, pay attention to the breath, and, when, one notice one’s mind moving off into distraction (i.e., away from the breath), to return attention to the breath. Because it is an experiential practice, a connection to its “benefits” is somewhat murky, and it is through the sitting itself that a direct connection to

these objectives might be realized. Hence, if one is uninterested in the practice or finds oneself unable or unwilling to sit, this connection may be too elusive to inspire sustained interest.

An alternate approach to cultivating mindful awareness that does not involve meditation, *per se*, is found in the work of Ellen Langer and others, who looked to more cognitive oriented approaches of attending to present-moment experience (Langer, 1989, 1997, 2009; Langer & Piper, 1987). Having well researched the tendency to default to “mindlessness” (Langer & Abelson, 1972; Langer, Blank, & Chanowitz, 1978), Langer encourages lawyers to, for example, take a few moments and notice things in their present surroundings that they had not noticed before—the quirky grain of the wood on their desk, the shape of eye glasses being worn by a colleague, the leaves on trees swaying outside their window. While a meditative practice may lead one to appreciate these nuances more naturally and spontaneously, Langer approaches it as if from reverse and encourages a direct cognitive engagement. She invites lawyers to expand their judgments of self and others by looking to complementary interpretations that take into account that they are not stable and independent of context. “Obsessed” might be regarded as “Concerned,” “Bull-Dog” can be seen as “Committed,” and “Mean” is understood as “Afraid.” Doing so allows one to free oneself from fixed conceptions, see the larger perspective found in each moment and interpersonal interaction, and create new categories for enriching arguments, writings, and collaboration. With regard to working with “uncertainty,” Langer invites us to shift deliberately from a personal attribution of uncertainty to a universal attribution. In doing so, one appreciates that “uncertainty is the rule for all of us and not just for the individual” (Langer, 2005; Langer & Moldoveanu, 2000). Lawyers who don’t have an answer to the question “will we win this motion?” but think it is “knowable” may, out of insecurity and fear, overreact to the inquiry by unnecessarily retreating or recklessly charging forward. In retreating, they miss opportunities, and charging forward, they can mislead, offer unsound advice, and feel undue stress as the future plays itself out, and the answers come to be known. In contrast, lawyers who adopt a universal attribution of uncertainty are more likely not to take personal those times when they do not know the answer, more comfortably acknowledge that such is the case, be freed to engage in more productive problem solving, and sleep better at night.

While these two approaches appear to be distinct, they share many overlapping qualities. It might be said that they offer different paths along the same journey. Out of a more contemplative approach, the world begins to be viewed much as Langer advocates. And through Langer’s approach, one may gain an interest, and perhaps capacity, to engage in a more contemplative manner of paying attention. For example, Langer’s discussion of a universal attribution of uncertainty connects to traditional mindfulness teachings of impermanence, and the invitation to “pay attention” whether to one’s breath or to something new surely share a great deal in common. The biggest difference may be the question of whether mindfulness practice is intended as an end in itself or a means to a more “concrete” end. And ultimately, this distinction too may collapse on itself. With this backdrop in mind, let us turn back the clock 25 years to a time when mindfulness was very new to the law and many of its practitioners, and the stirrings of something important and powerful were being felt.

Watering the Seeds of Mindfulness in Law

The lush ivy gripping the towers that adorn Yale and Harvard law schools in the late 1990s welcomed the spouting of an ancient strain that would signal the arrival of a contemplative practice that shares its patient and hardy resilience. At Yale, it was a series of student retreats led by one of America's great mindfulness teachers; at Harvard, it was a law-review symposium revolving around an article that would come to define a movement, events that together mark the formal introduction of mindfulness in legal education and the legal profession (Halpern, 2008; Magee, 2011; Riskin, 2002).

While these events loom large, the seeds of mindfulness in law had begun sprouting at least 15 years earlier, breaking through the soil and appearing in law-review articles—the erudite academic treatments of new, unresolved, and important legal issues (Anderson, 1996; Burns, 1990; Elkins, 1984; McHugh, 1994). Though it is unclear what effect these writings had on the profession, we can infer that their authors are representative of a larger number of law faculty and lawyers then grappling with the role mindfulness might play in their personal and professional lives, and across the profession—considerations very much at play today. The landscape of these earlier writings emerges more as an open field, assorted flowers in various stages of bloom. Whether some of these flowers flourished or, absent progeny, dropped back into the field, leaving it slightly more fertile than it had been, is difficult to know. Their presence, however, is noteworthy for the telltale signs they offer of the ways in which mindfulness was influencing lawyers and the manner by which they sought to share it.

Early scholarly writings

The following discussion draws from the handful of law-review articles that appeared between 1984 and 1996, the various ways mindfulness was being considered and introduced to the legal profession. Not surprisingly, these early treatments—which draw upon the writings and works of Zen masters (Thich Nhat Hanh, Bernie Glassman, and Sunru Suzuki), modern-day teachers (Jon Kabat-Zinn), and social psychology researchers (Ellen Langer)—are generally restrained and in some cases limited to short passages contained within a much larger conversation on a separate topic. Because of limitations in the database technologies of the 1980s and 1990s, these articles do not reference one another and have received very little attention, even within the mindfulness-in-law community.

The manner by which the term “mindfulness” was perhaps first introduced into legal academia arose out of a law professor’s desire to offer his students a richer relationship to their work as lawyers. In his 1984 article, “Ethics: Professionalism, Craft, and Failure” (Elkins, 1984), Professor James Elkins looks to mindfulness as a means to connecting more deeply to one’s work with clients and to one’s relationship to the practice of law. Reflecting on his piece 28 years after its publication, Elkins notes that his focus was not on mindfulness as the term is now in use (J. Elkins, personal communication, August 2012). Inspired by Robert Pirsig’s classic *Zen and the Art*

of *Motorcycle Maintenance* and Carla Needleman's *A Work of Craft*, Elkins sought to weave concepts from these writings into a deeper conversation on the topics he was teaching his students.

Elkins does not dive into a discussion of mindfulness (which appears 18 pages into his article); rather, he first aligns with legal giant, Karl Llewellyn, and his commentary on the inherent richness of law practice and its connection to the liberal arts: "The truth, the truth which cries out, is that the good work, the most effective work, of the lawyer in practice roots in and depends on vision, range, depth, balance, and rich humanity" (Elkins, 1984, quoting K. Llewellyn, 1962). Having tethered his argument to one of the law's most solid figures, Elkins makes the case for mindfulness as a means to achieve a higher quality work product, writing that "mindfulness is reflected in the craft as the skill of getting something done right and doing it well, opposed to the mere act of completion or just getting it done" (Elkins, 1984). Notwithstanding the influence of Pirsig's classic work, Elkins does not mention any contemplative practice or tradition. Nonetheless, he defines mindfulness in a way that conveys a sense of the term that bridges a contemplative Eastern perspective with more modern Western treatments:

Mindfulness means care, awareness and thoughtfulness but it is not the same thing as purpose or competence. Purpose and competence suggest a linear dimension of work and life, purpose helps us get from one place to another, from one case and one client to another. Mindfulness gives feeling and depth to the client and case at hand. The state of mindfulness gives us presence in the very moment at which we engage the client, in the moment of our choice to employ our skill and our knowledge in one way rather than another.

While Elkins' contribution may have carved out a patch of land and planted the seeds of mindfulness into a new terrain, the next watering of these seeds would not take place until 6 years later when law professor, Michael Burns, shared the insights of Zen master, Thich Nhat Hanh, and the eloquent voice of contemplative elder, Ram Dass, to inform the debate on affirmative action in education (Burns, 1990). This integrated approach is one that will emerge more fully in legal scholarship and the practice of lawyers in the decades to follow.

Burns devotes a considerable portion of the piece to explaining how mindfulness practices may play a meaningful role in more fully assessing the value of controversial policies aimed at restoring social justice. In doing so, he offers readers a thoughtful discussion of the Buddhist teachings of dependent coarising and craving, and how such insights relate to challenges faced in the United States to the acceptance and implementation of affirmative action policies. The writings of Thich Nhat Hanh, Ram Dass, and Joanna Macy are offered to address how a spiritual practice can, on the one hand, enhance a sense of despair through a deeper felt sense of suffering in the world and our interconnectedness, but also serve as an antidote to the ways our "intellect can be used to protect our heart" (Burns, 1990, p. 454). Drawing on his experience in Sri Lanka where he was exposed to a Buddhist society that embraced affirmative action policies, Burns introduces readers to the practices of mindful walking and mindful sitting as a means for beginning this inquiry and practice.

Whereas Elkins found strength in the company he chose to keep, and Burns found it by centering the conversation around affirmative action, in *Zen and the Art of Lawyering* James McHugh found it in the invitation to speak at a law-school memorial lecture (McHugh, 1994). This approach will become a familiar refrain in the years to come, as lawyers and judges invited to participate in a law-review event or speak at a bar function will use the opportunity to introduce mindfulness. McHugh, who was then general counsel to the American Bar Association, elaborated on the American Bar Association's 1992 call for the development of fundamental lawyering skills and professional values in law school. Perhaps taking a cue from Burns, McHugh looks to the wisdom of Zen masters, Bernie Glassman ("Honor your work"), Peter Matthiessen ("Your life is whatever you are doing right now"), and Shunryu Suzuki ("With beginner's mind there are many possibilities"). It didn't hurt that Glassman had recently been quoted in the Wall Street Journal (Gupta, 1992).

Sensitive to the means by which such insights are introduced to the legal community and perhaps seeking a sense of balance, McHugh looks to the writings of Ellen Langer (1989), suggesting that Langer's social psychological orientation may communicate the subject matter "in terms that are perhaps more accessible by our western minds" (McHugh, 1994, p. 1301). In doing so, he offers a practical application of her writing in the context of legal practice:

Langer describes mindfulness as being open to new information—willing to hear even the information we do not like. Another essence of mindfulness is being able to look at issues from different points of view—seeing the perspectives of opposing attorney, the judge, the jury, the layman, the public. Another is being able to create new categories and contexts—for example what we see as a problem will look entirely different if we can view it as an opportunity.

McHugh's reference to Langer marks an important moment in the evolution of mindfulness in law, as it looks to an approach that does not draw on traditional meditation practice to cultivate mindful awareness. In essence, he is saying that lawyers can become more mindful without having to meditate. In addition, it is noteworthy that McHugh does not focus on stress reduction but instead attends to the way mindfulness may enrich one's effectiveness as a lawyer, a message that will emerge more fully in the years to follow.

In a piece that further brings together East and West, attorney Warren Anderson claims mindfulness practice is "critical" in the practice of law (Anderson, 1996). Exploring a pragmatic role for mindfulness in legal practice, Anderson writes "when I meet with my client I want her to have my complete attention." For support, he quotes Shunryu Suzuki and Thich Nhat Hanh. Anderson bemoans "not doing an adequate job" helping his clients find long-term help dealing with physical and emotion pain and points to the work of Jon Kabat-Zinn and Mindfulness-Based Stress Reduction (MBSR) as a resource to share with them. MBSR, which Kabat-Zinn developed in 1979 to help hospital patients deal with pain, had received a lot of attention for helping people relate more effectively to a host of emotional and physical challenges. In 1993, a few years prior to the publication of Anderson's article, the Stress Reduction Clinic that Kabat-Zinn established at UMass Medical

School was featured in the Bill Moyer's 1993 public television series, "Healing and the Mind."

MBSR and the legal profession

Anderson's reference to MBSR is a harbinger to an event that would take place two years later, in 1998, when MBSR was introduced at the highest echelons of the law, and it harkens back to 1987, when MBSR was first introduced to a group of judges, an event that, while remarkable, has received little attention (Kabat-Zinn, 1990, 2006; Magee, 2011; Riskin, 2002). The passage of a decade between these two events and the dearth of other mindfulness offerings during this period offer strong circumstantial evidence of the approach-avoidant relationship between mindfulness and the legal profession and to the challenge of introducing mindfulness to the profession in a way that has traction. As will be discussed, this traction—which began to take hold in the early years of the 21st century—likely required the direct involvement of lawyers in the sharing of mindfulness, and to the skillful deployment of traditional mindfulness teachings and practices so as to facilitate its accessibility.

As the new century approached, the emergence of mindfulness in the context of law took a variety of forms, most notably as a means of stress reduction. The practice of law was becoming especially focused on the bottom line, leaving attorneys feeling increasingly stressed and burned out. Moreover, the anxiety provoked by the uncertainty inherent in so many aspects of law practice was only compounded by a culture that not only admired but demanded a continual attitude of certainty and showing of confidence. With a cadre of lawyers trained in MBSR, mindfulness began to be talked about and promoted as a stress-management tool for lawyers (Weiss, 1997). Though feeling "less stressed" is often regarded in mindfulness circles as a state that can emerge along with the cultivation of mindful awareness, and not as a primary "objective," the West has been quick to look to mindfulness as a means of stress reduction that was becoming a much needed salve to the increasingly stressful practice of law. The stressful aspects of legal education also were being addressed with greater vigor by legal educators and commentators concerned with the disturbing rates of anxiety, depression, and substance abuse among law students (Benjamin, Kasznak, Sales, & Shanfield, 1986; Krieger, 2002; Schiltz, 1999; Sheldon & Krieger, 2004).

In 1998, Jon Kabat-Zinn and Ferris Urbanowski, a senior teacher at the Stress Reduction Clinic, took on the challenge of sharing mindfulness with lawyers in one of Boston's most prestigious law firms, the 450-attorney, Hale & Dorr. Sensitive to finding the skillful means with which to introduce mindfulness to lawyers, Urbanowski modified aspects of the MBSR curriculum to be responsive to the kinds of challenges attorneys faced in their daily lives. On two occasions between 1998 and 1999, Urbanowski worked for 8 weeks with more than 70 Hale & Dorr attorneys, meeting with them for 2 hr, once a week, and asking them to practice each day for 30 min. Self-report inventories administered before and after the 8-week program revealed positive findings in the areas of improved focus and well-being. To help facilitate conversation among the participants who were initially reserved (the groups of approximately 40 included senior partners on "down" to first-year associates), Urbanowski had them meet in smaller groups, which greatly facilitated dialogue

and led to participants feeling a strong sense of connection (F. Urbanowski, personal communication, October 2012). The program, though, was discontinued when the law firm's managing partner retired from his position (J. Kabat-Zinn, personal communication, 2012).

As word began to spread about the mindfulness program at Hale & Dorr, lawyers, concerned about the growing epidemic of lawyer stress and the lack of civility in the profession, began contributing articles on mindfulness to lawyer journals, which are often distributed to large numbers of attorneys through their bar memberships. The Hale & Dorr experiment served as fertile ground for discussion. To buttress lawyer receptivity, authors were quick to point out the mindfulness work being done with the Chicago Bulls, the L.A. Lakers, and the U.S. Rowing Team to manage stress and build concentration (Friedman, 2001; Porter, 2001).

The journal articles went one step further than most of the earlier law-review articles by traipsing into the territory of describing mindfulness practices and offering tips for bringing mindfulness into the workday. Though a departure from the more rigorous MBSR regimen of practice for up to 45 min a day (which itself was a departure from the more rigid and time-consuming traditional practices upon which it was founded), these authors sought to ease entry into the practice by suggesting, for example, paying attention to the breath during the day "for five minutes or even five seconds" (Friedman, 2001), and finding mindfulness reminders to breathe upon hearing the ringing of a telephone or pressing the "start" button on a copier (Weiss, 1997). As will be explored later in this chapter, the tailoring of the mindfulness discussion, along with the variety and length of prescribed practices, is very much at play within the legal profession today. Accompanying this inquiry, the question of what constitutes mindfulness practice and what might dilute the practice, an issue that has been explored in traditional mindfulness circles, is also being addressed in the legal community, especially among those who view mindfulness as a spiritual practice (Magee, 2011; Porier, 2010). Also later in this chapter, examples are provided of contemporary mindfulness practices that are aimed at easing the suffering associated with the lawyer's chronic need to know the answers to questions that can only become known through the passage of time.

The MBSR training at Hale & Dorr, coinciding as it did with the publication of Steven Keeva's *Transforming Practices: Finding Joy and Satisfaction in the Legal Life* (Keeva, 1999), signaled a turning point in receptivity to mindfulness by members of the legal profession. That shift is marked by events taking place at two of America's finest law schools. But before we leave MBSR and turn our attention to New Haven in 1998 and Cambridge in 2002, it is worth traveling back in time to 1987 and to a rare instance in which mindfulness moved from contemplative practice to law practice—from cushion to bench.

Sitting on the bench

Much like the morning glory blooms beautifully and fades fast, mindfulness blossomed in Western Massachusetts, when Jon Kabat-Zinn introduced MBSR to a group of judges in 1987, and then faded quickly, as a similar event would not take place again for many years; yet it was significant enough to inspire a judge to share

mindfulness with his courtroom and perhaps influence the turning of the wheels of justice (Kabat-Zinn, 2006). That the criminal trial involved the prosecution of Amy Carter and Abbe Hoffman, along with a cast of supporting characters that include Daniel Ellsberg, and ironically Kabat-Zinn's father-in-law, and namesake, Howard Zinn, begins a discussion best left for another day. But the high-profile nature of the matter and powerful integration of mindfulness into the law, through the weaving of a mindfulness instruction into a jury instruction, are part of the story worth telling now.

In 1987, Jon Kabat-Zinn taught an 8-week MBSR course to a group of trial judges from Western Massachusetts. One of the judges who attended the workshop was Richard Connon, who, later that same year, would preside over the criminal trial of Carter and Hoffman (Kabat-Zinn, 2006). Knowing that the trial would involve a great deal of testimony and evidence that would be difficult for the jury to keep straight, Connon thought it would be helpful to provide the jury with a mindfulness instruction (Richard Connon, personal communication, October, 2012). In the charge to the jury before the evidence was presented, Connon instructed:

It is important that you understand the elements of the case. It is also important that you pay attention with the terminology that I became aware of some time ago of mindful meditation. Mindful meditation is a process by which you pay attention from moment to moment. It is also important that you maintain an open mind, that you make no determination on this case until all the evidence has been submitted for your consideration. (Kabat-Zinn, 2006; Trial Transcript, retrieved from www.themindfuljudge.com/charge.html)

Judge Connon went on to integrate elements of this mindfulness instruction in other trials, especially when he felt the volume of evidence and testimony might overwhelm the jury, and for which a reminder to slow down and take in the material "moment by moment by moment" would be important (Connon, personal communication, October, 2012). Connon and a group of his colleagues emerged from the MBSR training and another stress-reduction program, inspired to write a book on stress-reduction for judges (Scannell et al., 1994).

As fate would have it, one of the defense attorneys at the trial, Tom Lesser, was a longtime mindfulness practitioner who, as one might imagine, was pleasantly stunned when he heard the judge deliver the mindfulness-oriented jury instruction. It was Lesser who subsequently recounted the story to Kabat-Zinn, and a telling of the history of mindfulness in law would not be complete without acknowledging the quiet role played by the numerous and largely unnamed Tom Lessers of the legal community. As a young man during the late 1960s, Lesser had taken a year off from law school to travel abroad and spent time in India where he was first introduced to mindfulness. Tom returned to America, having become friends with Sharon Salzberg, Joseph Goldstein, and Jack Kornfield, and to law school, which would prepare him for a successful legal practice and the ability to do a great deal of good for many. His mindfulness practice is now going on 45 years, and he serves the mindfulness community at large by organizing an annual retreat at Garrison Institute (T. Lesser, personal communication, 2012). While this chapter largely focuses on the attorneys who are working

directly with members of the legal profession, the indirect role of attorneys like Tom Lesser has an impact that cannot be underestimated and perhaps forms the bedrock for much that is happening today.

Vipassanā at Yale

In 1998, just as Hale & Dorr's attorneys were being introduced to MBSR, Yale Law Professor, Robert Burt, opened the doorway to a profoundly rich series of mindfulness experiences for Yale law students. Burt was not a mindfulness practitioner (though in my conversations with him, I am taken by his natural embodiment of many mindfulness traits), and when asked by his Yale Law School classmate from 25 years earlier, Charlie Halpern, to serve as academic sponsor to a mindfulness program, Burt agreed. Financially supported by the Cummings Foundation, a philanthropic organization that Halpern then ran, the program involved a once-a-year weeklong mindfulness retreat at a beautiful and peaceful center located not far from New Haven.

There are few today who would not be challenged to muster sympathetic joy at the knowledge that these small group gatherings were led by Joseph Goldstein (Boyce, 2010; Halpern, 2008). In addition to being one of the foremost mindfulness teachers in the west, Goldstein was an ideal choice, given his penetrating intellect and lucid and accessible communication of Buddhist teachings. The Vipassanā retreat included instruction in mindfulness meditation, group sittings, and discussions that applied Buddhist insights to the life of the law student and lawyer (Goldstein, video interview, 2012; G. Burnett, personal communication, October 2012; S. Salzberg, personal communication, 2012). Sensitive to context, Goldstein and Halpern sought to find a balance between a traditional Buddhist program and one that more explicitly raised the practical applications of mindfulness practice to the challenges of being a lawyer (J. Goldstein, personal communication, January 2013). With many in attendance finding the program to be a meaningful and resonant experience (White, 1999), the event marks an important moment in the history of secular Buddhism and serves as an instructive roadmap for those interested in offering mindfulness training to the legal profession.

At the conclusion of the retreat, Burt invited students to gather in his office one evening each week and practice the sitting meditation they learned at the retreat. As Burt recollects, one of the most powerful aspects of the sittings was listening to a guided meditation recorded by Goldstein, as it recalled for many the transformative power of the retreat (R. Burt, personal communication, 2012). These annual retreats and the weekly sittings continued for three years—with mindfulness luminaries like Sharon Salzberg leading portions—until 2001 when Yale declined to take on the funding of the program. The retreats, however, continued as the Center for Contemplative Mind in Society, which Charlie Halpern had cofounded in 1997, expanded the offering, inviting law students, law professors, and lawyers from across the country to gather for an annual event at Spirit Rock Meditation Center, known as the “Meditation Retreat for Law Professionals” (Magee, 2011; Rogers & Jacobowitz, 2012).

While the Yale program, which had centered on law students, had come to an end, the methodology employed—mindfulness training for students accompanied by an ongoing opportunity to practice mindfulness at the law school—serves as a model being implemented in law schools across the country today. As Yale's contribution to the garden flowered during these three fertile years, a nearby section of the garden was being tended to by a group of academics, writers, and practicing lawyers at Harvard Yard.

Mindfulness at Harvard

Charlie Halpern not only played a role in bringing about the Yale Law School program, and the lawyer's retreat at Spirit Rock, but, in his capacity as Chair of the Center for Contemplative Mind in Society, also set in motion the events that would result in a Harvard Law School symposium that focused on mindfulness and the law. The Center for Contemplative Mind in Society, through the American Council of Learned Societies, awarded a fellowship to University of Missouri-Columbia law professor, Leonard Riskin, who used the funds to integrate mindfulness into a course called "Understanding Conflict." Riskin drew upon his experience and growing concentration on mindfulness to produce an article that introduced readers to mindfulness and set forth the state of mindfulness in the law (Riskin, 2002).

Fortuitously, Riskin did not receive an offer to publish the piece at a primary law review before he was offered publication by the Harvard Negotiation Law Review. The article received extensive attention, partly because the law review also convened a live symposium and published a print symposium on mindfulness in law and alternative dispute resolution (ADR). Riskin's article served as the centerpiece with five contributing authors commenting on Riskin's thesis (that mindfulness practice would not only reduce stress of members of the legal profession but also offer a skillset that would improve one's effectiveness as a law student and attorney) and offering further discussion on the role of mindfulness in law practice (Harvard Negotiation Law Review Symposium Issue, 2002).

Riskin, who, as an experienced mediator and negotiator, is adept at choosing his words carefully, begins his introduction by asserting that lawyers and law students across the country "are meditating." So as to hone this observation around the particular kind of meditation Riskin practices and shares with others—mindfulness meditation—Riskin elaborates: "They observe their breath, their body sensations, their emotions, and their thoughts" (Riskin, 2002). With these opening remarks, Riskin unabashedly established mindfulness meditation, a method he notes was developed thousands of years earlier by the Buddha, as a worthwhile consideration within law study and practice. In the years to come, he would develop "Tools of Awareness for Lawyers," a class for introducing mindfulness to lawyers and law students (Riskin, 2010), and, along with his collaborator, Rachel Wohl, would conduct workshops and integrate creative approaches for teaching mindfulness to lawyers, judges, law students, mediators, and other legal professionals.

As any good lawyer making their case, Riskin followed this concise statement of fact by preemptively acknowledging the seeming incongruity of an inwardly oriented practice being embraced by an outwardly oriented group (Riskin, 2002, p. 3, fn. 1). He

then offered compelling support for his argument by looking to other groups that have benefitted from mindfulness training, including the Chicago Bulls, the L.A. Lakers, Monsanto Corporation, and a unit of the Green Berets. Riskin articulated two primary problems lawyers and law students can expect to lessen through mindfulness practice: (1) high levels of unhappiness, stress, and depression; and (2) missed opportunities to excel in their work as lawyers. He asserted that these challenges are, in part, due to “narrow, adversarial mind-sets that tend to dominate the way lawyers think and most legal education is structured” (Riskin, 2002, p. 8). Riskin aimed to persuade readers that mindfulness meditation can reduce distress and loosen the mind-states that lead to missed opportunities. Interestingly, his insight that mindfulness practice can soften a lawyer’s narrow “mind-set” found support in Ellen Langer’s writings on mindfulness, which offered pragmatic and accessible ways of cultivating mindful awareness (Langer, 1989, 1997, 2009). Riskin was aware of Langer’s work, acknowledging the substantial overlap between Eastern conceptions of mindfulness and her approach, along with significant differences (Riskin, 2002, n. 108).

Riskin included a general discussion of what mindfulness practice entails, drawing on Kabat-Zinn’s definition of mindfulness as “paying attention in a particular way: on purpose and in the present moment, and nonjudgmentally.” Rather than focusing on mindfulness instruction, as he will do in later years, Riskin traipsed into the experiential with personalized accounts of lawyers and law students of the benefits they received through their exposure to mindfulness. His scope was broad enough to allow for meaningful commentary across a range of subjects, and indeed, the five articles offered in reply to Riskin anticipated a great many of the issues that would be explored in the coming decade. William Blatt of Miami Law suggested that mindfulness could not be practiced separate and apart from spirituality (Blatt, 2002). Clark Freshman, also of the University of Miami School of Law (“Miami Law”), and colleagues, wrote on the scientific underpinnings of mindfulness practice (Freshman, Hayes, & Feldman, 2002). Douglas Codiga, from the University of Hawaii, commented on the future of mindfulness in the legal profession (Codiga, 2002). Steve Keeva, with the ABA, contributed a piece on lawyer well-being (Keeva, 2002). And Scott Peppet, of the University of Colorado Law School (Colorado Law), invited the provocative question “Can saints negotiate?” suggesting that the mindful lawyer might be at a disadvantage given the wide berth lawyers enjoy in the negotiation realm and the liberal rules governing it.

During this time frame, lawyers with a mindfulness practice began to participate in facilitating law-related events. Though mindfulness teachers, primarily of the Buddhist tradition, would continue to lead lawyer workshops and retreats organized by attorneys, the involvement of lawyers in teaching at these events marks an important change that, in time, would promote interest across the broader legal profession. For example, Mary Mocine, a lawyer turned Zen priest, taught mindfulness workshops for lawyers at bar associations, law firms, and even the San Francisco Zen Center. Attorney, Dennis Warren, collaborated with mindfulness teacher, James Baraz, and conducted a lawyer workshop at Spirit Rock. Professor Riskin collaborated with Ferris Urbanowski in teaching a series of workshops on mindfulness and negotiation. These courses taught mindfulness not only as a way of dealing with stress but also to develop insight and compassion, and to improve conflict-related practices and satisfaction (Riskin, 2002). Mindfulness was popping up at more law schools too, as law

professors, either by themselves or working with mindfulness teachers, began conducting mindfulness workshops and offering mindfulness classes to students. Schools such as University of Missouri-Columbia Law School (Missouri Law), UNC School of Law, Harvard Law School (Harvard Law), Cardozo School of Law, Marquette University Law School, Touro Law School (Touro Law), Miami Law, Stanford Law School, Suffolk University Law School, University of Denver Sturm College of Law, UC Hastings, University of San Francisco Law School, and CUNY School of Law (CUNY Law) either had programs for students or were the venue for lawyer programs. Importantly, while the number of lawyers with mindfulness practices was growing, the heart of many of these programs made explicit the connection to Buddhist teachings, and participation was often a self-selected group that represented a minority of students and attorneys.

In the years to follow, insightful and focused academic treatments, legal symposia, lawyer workshops, law school classes, and conferences would emerge not as isolated events conducted by a small collection of committed individuals, but as repeated offerings facilitated and organized by a growing number of lawyer-practitioners.

Nourishing the field of mindfulness in law

The number of law-review and journal articles published before 2002 and the number of lawyer and law-student workshops to have taken place by that time, though modest, supported the decision to hold the Harvard Law symposium. Some likely envisioned that the symposium and its national exposure would contribute to a rapid acceleration of articles and mindfulness programs while others likely anticipated the event would amount to little more than a flash in the pan. Yet less than a decade later, on the other side of the country at UC Berkeley School of Law (Berkeley Law), hundreds of lawyers, judges, law students, and law faculty would congregate on a beautiful fall weekend to learn and practice mindfulness, and to discuss the ways it had been and can be infused more fully into the landscape of the legal profession. This event was coordinated by Douglas Chermak, then Law Program Director of the Center for Contemplative Mind in Society, in collaboration with faculty from law schools across the country, including Berkeley Law, University of Florida College of Law (Florida Law), University of San Francisco School of Law (USF), University of Buffalo School of Law, and CUNY Law. The following summarizes the events taking place during these intervening years so that we might glimpse the evolving methods and approaches that coincided with an accelerating pace of activity. This discussion is by no means exhaustive and serves to highlight but a representative sample of such events.

Law-school symposia

Between 2002 and 2012, at least five law-school symposia directly addressed mindfulness or were oriented around a theme to which mindfulness is a natural compliment. In 2004, Professor Marjorie Silver and colleagues and students organized the symposia: “Lawyering and its Discontents: Reclaiming Meaning in the Practice of Law” at Touro Law School, during which mindfulness was discussed. Arising out of the

symposia, the Touro Law Review published articles on stress and burnout (Silver, 2004), the comprehensive law movement (Daicoff, 2004), and ways of finding meaning in the practice of law (Silver, 2004).

Following the formation in 2007 of the “Balance in Legal Education” section of the American Association of Law Schools amid growing concern for law-student and lawyer well-being, especially in the areas of anxiety and depression, Washburn University School of Law convened a 2007 “Humanizing Legal Education Symposium” that packed in an extraordinary collection of plenary and concurrent presentations addressing lawyer and law-student stress, happiness, and well-being (Schwartz, 2008). While mindfulness was not its primary focus, Professor Rhonda Magee, a leader in the area of mindfulness and law, spoke on “The Mindful Law Professor” and the value of law faculty teaching and modeling mindfulness (Magee, 2007, 2009, 2013b).

In 2010, with a growing number of mindfulness articles circulating in mainstream academia, University of Nevada-Las Vegas Law School held a “Mindfulness, Emotions and Ethics” symposium. As in 2002, Professor Leonard Riskin contributed a centerpiece article on mindfulness, emotion, and negotiation (Riskin, 2010), to which eight law faculty, psychologists, and lawyers fashioned replies containing fresh insights and more finely detailed applications of mindfulness in law (Calloway, 2010; Freshman, 2010; Kruse, 2010; Kuttner, 2010a; Reilly, 2010; Shapiro, 2010; Stempel, 2010; Waldman, 2010).

Law-review articles

Since 2002, numerous writers haven taken on the challenge of integrating mindfulness into one or more areas of the law and the relevance of mindfulness to the lives of lawyers. In addition to those pieces, discussed above, written as part of a law-school symposium, many other have emerged on their own, as law reviews began to recognize the importance of mindfulness and its applicability to numerous subject areas. These include: ethics in dispute resolution (Riskin, 2009); community lawyering (Alfieri, 2012; Harris, Lin, & Selbin, 2007); compassionate practices and lawyering (Cantrell, 2010a, 2010b); negotiation (Bader, 2010; Bowling, 2010; Izumi, 2010; Freshman, 2006, 2010; Pounds, 2004), mediation (Riskin, 2003, 2004; Rock, 2006); and judicial decision-making (Maroney, 2011; Ramirez, 2009; Seamone, 2002). While most of these articles do not focus on Buddhism, a handful explicitly discuss the role of Buddhist teachings in areas ranging from working with anger to the adversarial process and deception (Ellinghausen, 2006; Kuttner, 2010b; Sturgeon, 2011).

Law-magazine articles

As more and more lawyers are being introduced to mindfulness and becoming excited about its prospects for the profession, lawyers and judges increasingly are penning articles on mindfulness for lawyer journals and magazines. These articles grapple with issues of mindfulness and professional responsibility (McIntire, 2009); stress (Adcock, 2008; Cohen, 2012; Cormack, 2009; Starzynski, 2009, 2010); civility (Gold, 2012); trial practice (Jacobowitz, 2013; Tropin, 2012); communication (Bronstad, 2008);

mediation (Fisher, 2003); law practice (Hyman, 2007; Rhoads & Williams, 2011; Zeglovitch, 2006); productivity (West Allen, 2009); finding meaning in the practice of law (Williams, 2010); and the formation of mindfulness groups for lawyers (Masich, 2010; Rogers, 2011, 2012b). At the same time, reporters for national lawyer magazines are being asked to write articles on mindfulness in legal education and law practice (Gillespie, 2013; Sloan, 2012).

With the legal community taking note of the beneficial role mindfulness can play across many facets of a lawyer's professional life, this connection is being recognized in magazines directed toward a nonlawyer audience. For example, the May 2010 issue of the Buddhist publication, *Shambhala Sun*, included an article in its *Mindful Society* column titled, "The Law of Mindfulness," which looked to the work being done nationally by attorneys sharing mindfulness with members of the legal profession (Boyce, 2010). More recently, one of the first issues of the newly minted *Mindful* magazine included in its "In the Workplace" column Professor Rhonda Magee's observations on the role of mindfulness, and other forms of meditation, in working with bias (Magee, 2013a).

Scientific research

In 2005, neuroscientist, Sara Lazar, and colleagues reported that mindfulness practice was associated with a thickening of regions of the middle prefrontal cortex and inversely related to age-related thinning of the cortex (Lazar et al., 2005). These findings and the explosion of neuroscience research to follow examining the impact of mindfulness practice on changes to the brain's structure and function began to be discussed in mindfulness circles and included in many mindfulness presentations. Prior to this time, compelling research had found that mindfulness practices could be helpful to people working with a variety of health and emotional difficulties. But there was something about the tangible and viewable changes to the brain itself that many lawyers and judges found exceedingly compelling. Not surprisingly, to the long-term lawyer practitioner, these effects were neither surprising nor much of a cause for approaching the practice differently. But among those looking to mindfulness for the first time, or who had not yet developed a serious practice, these findings were especially noteworthy and inspiring. Earlier research by Lazar includes work she conducted with Herbert Benson, finding brain regions associated with attention and control of the autonomic nervous system activated during meditation (Lazar et al., 2000). And indeed, the groundbreaking work of Herbert Benson, who made popular the "relaxation response," set the stage for the public's receptiveness to meditation and to the widespread awareness of the health benefits of a simple and straightforward meditation practice (Benson & Klipper, 1975).

I had wanted to devote myself more fully in developing and offering mindfulness programs for lawyers as early as 2003. It wasn't until the neuroscience research began to appear in the popular press, however, that I felt the time was right. In 2007, I conducted the workshop "Mindfulness, Balance & The Lawyer's Brain," a Florida continuing legal education (CLE) approved program and among the first to integrate not only mindfulness and law, but also neuroscience (Rogers, 2007). While neuroscience research and its relationship to mindfulness and law practice comprised a

modest portion of the 2-day, 10-hr program, the subject matter was of great interest to many, and several found it to be a compelling reason to practice. Today, many mindfulness programs for lawyers mention and elaborate on neuroscience research, both to educate and to inspire, and, at times, to appease the skeptic. In 2009, I, along with Judge Alan Gold and Professors Leonard Riskin and George Knox, conducted the CLE program “Mindfulness & Neuroscience: Enhancing Lawyer Effectiveness and Stress-Reduction—From the Inside Out” at the Florida Bar’s Annual Convention (www.themindfullawyer.com). Neuroscience findings are also being incorporated into programs addressing conflict resolution and other areas for which insight into the brain and body might inform a better understanding the underlying processes at play in, for example, the courtroom or a negotiation. Though a limiting factor has been the speaker’s comfort with the science, the burgeoning industry of science books written for the lay audience and news articles reporting on the scientific findings of leading researchers like Richard Davidson, Britta K. Hölzel, Amishi Jha, Matthew Lieberman, and Eileen Luders offers helpful secondary source material for lawyers with a penchant for science to more comfortably introduce it into their presentations. At the same time, just as lawyers began collaborating with contemplatives to develop and facilitate mindfulness programs, so too they have begun working with psychologists and physicians to offer this element with a greater credibility, which, in turn, is leading to exciting collaboration and research. For example, I have the great fortune to work with cognitive neuroscientist, Amishi Jha, both on projects that involve members of the legal profession and on research projects outside the law but that look at issues relevant to lawyers (Jha, Rogers & Morrison, forthcoming). Attorney, Stephanie West Allen, who collaborates with Jeffrey Schwartz bringing together neuroscience and conflict resolution, publishes the popular blog, “Brains on Purpose,” found at www.brainsonpurpose.com. And Richard Reuben, a law professor at Missouri Law, has collaborated with psychologist, Kennon Sheldon, and been awarded a grant to look at the effects of an MBSR program tailored for legal professionals and delivered to law students (R. Reubene, personal communication, January 2013; Missouri Grant, 2012).

The Blossoming of Mindfulness in Law

The 2010 Mindful Lawyer Conference

With momentum building in the years following the 2002 conference, a group of lawyers, judges, and law professors, many of whom had been working together to introduce lawyers to mindfulness, decided the time had come for a national gathering. The 2010 “Mindful Lawyer Conference,” took place at Berkeley Law, bringing together as many as 200 members of the legal profession and 35 speakers. A waitlist of equal proportion emerged due to space limitations. The program schedule and audio and video recordings can be found at the conference website: mindfullawyerconference.com (Halpern, 2012, n. 1). With neuroscience research into mindfulness coming into vogue, the conference kicked off with two science-focused plenaries conducted by Philippe Goldin, a neuroscientist at Stanford University, who discussed research on mindfulness and the brain, and Shauna Shapiro, a psychologist at Santa Clara

University, who addressed the role of mindfulness practices on a lawyer's well-being. The mainstay of the conference involved plenary, panel, and breakout sessions led by law faculty, lawyers, and judges addressing mindfulness in the context of the law as well as offering experiential group mindfulness exercises. In 2012, the *Journal of Legal Education* published a series of articles contributed by speakers from the conference, including an overview of the conference and collected pieces (Riskin, 2012); mindfulness in legal education (Halpern, 2012); mindfulness and teaching law (Reuben, 2012); mindfulness and trial practice (Zlotnick, 2012); and a student's perspective on a law school's mindfulness class (Larkin-Wong, 2012).

The conference created, perhaps for the first time, a sense of community among many lawyers who did not previously know each other or, for that matter realized that there were so many others who shared their interest in mindfulness. Participants left the conference inspired to play a more active role in bringing mindfulness to the legal profession and, as the now too-numerous-to-mention list of mindfulness programs across the country attests, many have done just that, thereby furthering the noble aspirations of those who first began to water these seeds all those years ago. The rapidly growing number of mindfulness in law offerings today can be found in lawyer workshops and on law-school campuses across the country. Since the 2010 conference, at least three law schools have held mindfulness conferences of their own, including Seattle School of Law, which held a day-long "Mindfulness and the Law Conference," Phoenix Law, which convened a weekend event titled "Law as Peacemakers and Healers: New Directions in the Practice of Law," and Miami Law, which held a mindfulness workshop for members of the Dade County Bar Association and Federal Bar Association's Mindfulness in Law Joint Task Force, and a teacher training for members interested in sharing mindfulness with members of the South Florida community. Also at Miami Law, students convened at The Mindful Law Student Conference, a 2-day event where students in the seminar "Mindfulness in Law" presented on an area integrating mindfulness and law, including animal rights, negotiation, family law, ethics, music law, jury selection, e-discovery, mediation, and judicial decision-making.

The success of the 2010 Berkeley Law conference led to the 2013 "Mindfulness in Legal Education" workshop at Berkeley Law where approximately 50 law faculty from over 30 law schools across the country convened for 3 days to discuss the role of mindfulness in legal education, share innovative ideas for introducing law students and faculty to mindfulness practices, and together experience mindfulness and related practices.

Lawyer and judge workshops and organizations

With more lawyers familiar with mindfulness and developing their own mindfulness practices, the call for lawyer workshops and the number of lawyers who can play a role in them have resulted in a growing number of mindfulness programs taking place at bar conferences and legal organization events across the country. A cumulative listing of lawyer workshops can be found in Riskin's (2002) article and Professor Rhonda Magee's (2011) comprehensive law-review article, "Educating Lawyers to Meditate?," which is a must read for anyone interested in a deep understanding of the evolution

of mindfulness in law and its transformative potential for legal education, law practice, and society. Magee is the present Chair of Contemplative Mind in Society.

In 2012 alone, dozens of mindfulness presentations and workshops have taken place across the country. A listing of some of these organizations along with program titles suggests just how diverse the application of mindfulness in law has become. No longer is discussion limited to mindfulness in mediation or to ways mindfulness can help reduce stress. Programs include: the Akron Bar Association's ("Mindful Mediation: Applying Mindfulness Mediation in Your Law Practice"); the Florida Association of Family and Conciliation Courts (Opening Plenary: "Mindfulness in Law," "Deepening Cooperation: Mindfulness in Collaborative Divorce," and "Mindfulness in Parenting Coordination,"); Externships 6's Field Placement Conference ("Collaboration with Colleagues across the Curriculum: Integrating Mindfulness, Ethics and Legal Writing into the Externship Seminar"), Florida Children's Legal Services Conference ("Mindfulness, Balance and the Lawyer's Brain: The Motion for Relief from Everyday Stress"); Washington Woman Lawyer's Conference ("Mindful Meditation for Legal Professionals: The Practice within the Practice"); the 19th Annual New Mexico Children's Law Institute Annual Conference ("Mindfulness, Stress-Reduction, and the Unintentional Infliction of Emotional Distress"); Florida Supreme Court Dispute Resolution Conference ("Mindfulness and Dispute Resolution: Moving Mountains with the Breath"); SE/SW People of Color Legal Scholarship Conference ("Teaching Mindful Ethics"); Federal Bar Association's Southern District's Biennial Bench and Bar Conference ("Mindful Lawyering and Judging: Effectiveness, Wellness & Civility"); Pensacola's American Inn of Court ("Mindfulness and Stress-Reduction: Learning to Bring Order to the Cortex"); South Carolina's James L. Petigru Inn of Court ("Mindfulness and Mindful Living"); and the Dade County Bar Association's Bench & Bar Conference ("Mindfulness in the Law").

As a testament to the interest in mindfulness across the profession, it is not uncommon for judges, lawyers, law professors, and law students to serve together on panels. For example, the 2012 Arizona State Bar Annual Convention conducted the mindfulness-focused program, "Beyond Burnout: The Search for Happiness and Satisfaction in the Practice of Law," which was chaired by Arizona state appellate, Judge Donn Kessler, with panelists, Professors Judi Cohen, Mary Delores Guerra, Nancy Levit, and Rhonda Magee, and former Utah Supreme Court Chief Justice and Zen priest, Michael Zimmerman. A similar program, titled "Mindfulness, Meditation and the Practice of Law" was held at its 2011 convention.

While state and federal court judges, such as Alan Gold, Ronald Greenberg, Donn Kessler, Chris McAliley, and Michael Zimmerman, have participated in mindfulness presentations and programs directed to a lawyer audience, there have thus far been very few mindfulness programs organized for judges. That trend is beginning to change as mindfulness makes its way further into the legal system, as the legal system becomes an increasingly uncomfortable work environment for everyone, and as practicing attorneys exposed to mindfulness become judges. The 2012 National Association of Women Judges annual conference in Miami Beach, Florida, included a mindfulness workshop led by two judges, an attorney, a physician, and a cognitive neuroscientist, all of whom have a personal interest in mindfulness. Also, in 2012, the Federal Judicial Center's Workshop for Judges of the Eleventh Circuit included

a mindfulness program led by a law professor and physician, both of whom have a personal mindfulness practice.

As lawyers are becoming more familiar with mindfulness and interested in bringing it into their personal and professional lives, many are looking to do so in an organized setting among their colleagues. Presently, lawyers in Arizona, California, Colorado, Florida, Ohio, Massachusetts, New York, Vermont, Washington, DC, and Washington, have established mindfulness groups as part of their local bar organizations for the purpose of offering information on mindfulness, developing and organizing mindfulness programs, and sitting together in meditation.

Law-school offerings

Law schools across the country are offering classes that integrate mindfulness, as an introduction to the sitting practice, as a means to further one or more teaching objectives, and/or as a vehicle to enrich the legal conversation and perhaps even transform legal doctrine. Following this progression, many schools have faculty familiar with mindfulness who share the practice with their students (and sometimes colleagues). A growing number have wellness programs for which mindfulness plays an important role, and two law schools have institutionalized mindfulness programs (Sloan, 2012). So as to provide a sense of the variety of law-school offerings that have sprouted up and been influential across this developing landscape, a selection of these courses, workshops, and groups is identified below.

Miami Law offers three mindfulness courses as part of its law-school curriculum with “Mindful Ethics,” a class that integrates mindfulness and professional responsibility; “Mindfulness in Law,” a class that introduces mindfulness to students across specific areas of practice and concerns such as mediation, negotiation, trial practice, ethics, client services, and judicial decision-making, and “Mindful Leadership,” which integrates mindfulness into a discussion of leadership, explicitly drawing on traditional mindfulness practice and the work of Ellen Langer and of William George, of the Harvard Business School. Mindful Ethics and Mindful Leadership were developed and taught in collaboration with my colleagues, Jan Jacobowitz and Raquel Matas, respectively, thus allowing for a more robust course content, and to facilitate the training of faculty in mindfulness and the teaching of mindfulness. Many other schools also offer mindfulness classes as part of the curriculum, including Berkeley Law, Colorado Law, Connecticut Law School, CUNY Law, Empire State, Florida International University School of Law, Florida Law, Golden Gate Law School (Golden Gate Law), Hastings Law, Missouri Law, Northwestern Law, Phoenix School of Law (“Phoenix Law”), Roger Williams School of Law, and USF Law. A cumulative and frequently updated listing can be found at www.themindfullawschool.com. Among those law schools that have the most robust collection of mindfulness offerings are found administrators who appreciate and support these endeavors. As examples, Miami Law’s Dean, Patricia White, and its Dean of Students, Janet Stearns, have played pivotal roles in the formation and ongoing success of Miami Law’s Mindfulness in Law Program, and Berkeley Law’s Dean, Christopher Edley, played a key role in the formation of the Berkeley Initiative on Mindfulness in Law and of

Berkeley Law hosting “The Mindful Lawyer” and the “Mindfulness in Legal Education” conferences.

Law schools also offer a variety of workshops and classes that introduce students to mindfulness as part of a series of skills for managing stress and performing well academically. In 2011, Vanderbilt University Law School’s Assistant Dean for Student Affairs, Julie Sandine, complemented a popular student program that had been in place for several years with a lecture series entitled “Building a Sustainable Law Practice—and Life.” This series includes “Two Aspects of Mindful Lawyering: Personal Authenticity and Judgment v. Compassionate Insight,” “Mindful Movement: The Benefits of the Age-Old Practice of Qi Gong,” and “Mindful Lawyering: Balancing Passion and Perspective” (Silver, 2012). Other law schools that have offered programs oriented around student well-being include Georgetown Law School’s Lawyer’s in Balance Program, CUNY Law’s Contemplative Urban Lawyering Program, Miami Law’s Mindfulness in Law Program, Berkeley Law’s Initiative on Mindfulness in Law, and George Washington University Law School’s “Breaths for Success” program (Rogers & Jacobowitz, 2012; Rosen et al., 2013; Silver, 2012). Northwestern Law has a full-time psychologist working for the Office of Student Services who offers drop-in mindfulness sittings and mindfulness-based psychotherapy.

Faculty exposed to mindfulness through traditional practices are especially inclined to offer mindfulness sitting opportunities to students, and a growing number of faculty and students exposed to mindful sitting groups are interested in developing and participating in them. Perhaps the first formal group was the “Law and Mindfulness Practice Group” at Berkeley Law. Begun in 2003, this group continues to this day, and a room has been set aside for Berkeley Law students to practice on their own anytime during the day. Other schools with student sitting groups include: USF Law, Missouri Law, Miami Law, Seton Hall School of Law, Florida State University School of Law, Phoenix Law, Harvard Law, Golden Gate Law, and Georgetown Law. Students at a few schools, including Missouri Law and Miami Law, have formed organizations to explore and practice mindfulness, and relate it to the study and practice of law (Rogers, 2012a). Law schools are also beginning to offer mindfulness trainings and workshops to faculty interested in learning more about mindfulness and better understanding the programs being developed and offered at their schools and others around the country. At Miami Law, for example, “The Faculty of Attention,” is a 4-week training offered to faculty members.

The Growth of Mindfulness in Law

When the profession is ready: Modern treatment of an ancient tradition

The maxim “When the student is ready, the teacher will appear,” speaks to one of the sensitivities and challenges inherent in introducing a contemplative practice to the legal profession. Given the depth of suffering taking place, and explicit calls from bar leaders, law schools, and national and state law organizations, it seems clear to many that any effort to introduce to the profession a means to reduce stress, relieve anxiety and depression, attenuate substance abuse, and facilitate a less unkind adversarial

landscape would be most welcome. At the same time, the contemplative aspect to a mindfulness practice coupled with its strong Buddhist roots harkens to the maxim's ancient insight to be responsive to another's request for help but not to presume it. This is all the more so when introducing a form that is associated with a religious or spiritual practice (Blatt, 2002; Cantrell, 2010a).

Nonetheless, the scientific findings and health benefits of mindfulness seem to have lifted it out of its contemplative pigeon hole and are facilitating a more active willingness of bar leaders, law faculty, judges, and others to look to mindfulness as an effective means to help accomplish a hugely important objective. Hence, the coming together of East and West is making for an interesting opportunity and conversation. The following discussion identifies different forms that mindfulness practices often take when shared with lawyers and examines an approach I developed to share mindfulness with lawyers, law students, and judges.

At the outset, it will be helpful to consider three primary methods that have evolved for introducing mindfulness to members of the legal profession.

- 1 The initial foray of mindfulness in law often involved short mindfulness discussion and/or exercises at the beginning or ending of programs and classes to help bring about calm, sharpen focus, or enhance a deeper engagement with the material.
- 2 In time, these conversations and exercises were woven more comprehensively into the context of legal practice with direct ties made to the ways a mindfulness practice might benefit one's law studies and practice. One such benefit, as noted earlier, is how mindfulness might be helpful in dealing with stress and working with clients. As the conversation evolved, creative means were developed to establish greater relevance to the practice of law.
- 3 As lawyers with mindfulness practices became more involved in the teaching of mindfulness, the infusion of mindfulness into the legal landscape took on a more integrated structure, as evidenced in articles and workshops directed to specific groups (e.g., judges, mediators, litigators), specific practice areas (e.g., family law, negotiation, litigation) and law-school classes that endeavor to weave mindfulness insights and practices into the very substance of the material (e.g., criminal law, race relations, ethics).

These three approaches, termed (1) "mindfulness moments," (2) "mindfulness infusions," and (3) "mindfulness integrations," are treated for the purpose of discussion as if they were conceptually distinct. In fact, however, they very much flow in and around each other, and their expression is not necessarily linear. A fourth approach, which we might term, "mindfulness transformation," speaks to the ways that legal analysis and doctrine may become increasingly influenced and molded by the application of mindful awareness and insight.

An interesting evolution in the area of mindfulness in law that dovetails with the development of these approaches is the role lawyers play in the process. Not surprisingly, many of the early programs and events introducing lawyers, law students, and judges to mindfulness involve instruction by teachers with long-term mindfulness practices, mainly from within the Buddhist tradition, who are not attorneys. The 1987 introduction to judges was by Jon Kabat-Zinn, and the 1998 introduction to lawyers

at Hale & Dorr was by Kabat-Zinn and Ferris Urbanowski. The 1998–2001 Yale Law School mindfulness retreats, which were conducted primarily by Joseph Goldstein (with involvement by Sharon Salzberg and Mirabai Bush), are noteworthy because of the collaborative involvement of attorneys and law professors, including Charlie Halpern, Grove Burnett, and Steven Schwartz, in the development of their structure. As lawyers and law professors introduced to mindfulness became serious practitioners, they have begun leading mindfulness programs on their own, or in collaboration with other attorneys. Not surprisingly, this has led to greater lawyer participation and interest along with the approval of more programs for a larger number of CLE credits.

Still, the breadth of mindfulness offerings remains robust. Attorneys like Grove Burnett, a respected teacher at Spirit Rock, lead lawyer retreats oriented around more tradition forms of practice and conversation. Others like Robert Zeglovitch, trained in the Zen tradition as well as in MBSR, lead MBSR workshops for attorneys. While I am a student in the Zen tradition also trained in MBSR, as I discuss in more detail below, much of the work I do involves sharing mindfulness in more modern forms. Other attorneys, like Judi Cohen, formed “Warrior One,” and developed “Essential Mindfulness for Lawyers,” where she coaches lawyers in mindfulness training and leads mindfulness programs, often employing more modern approaches that are crafted specifically for legal professionals.

Jurisight: A mindfulness offering crafted for members of the legal profession

In 1999, I introduced a group of lawyers to the mindful practice of law. Filling in for a presenter who had been slated to speak on professionalism, I focused on mindfulness, an area of increasing relevance for me and my legal practice. By that time, I had been discussing mindfulness with colleagues who, it struck me, were quite interested in the topic but less so in practicing it. As discussed more fully elsewhere (Rogers, 2012a), this presentation and those that followed led to the development of Jurisight, an approach that grew out of a similar method I had developed for sharing mindfulness with parents (Rogers, 2005), using the language and culture of the law to share fundamental mindfulness insights and exercises with law students, lawyers, and judges (Rogers, 2007, 2009a, 2009c; www.jurisight.com). Jurisight has been the foundation for many CLE programs across the country, is being used to help teach mindfulness to law students at several law schools, and is an integral part of the Mindfulness in Law Program at Miami Law, where I have the good fortune to teach. Below, I describe a collection of Jurisight demonstrations and exercises to provide a glimpse of methods that have been found to be successful for sharing mindfulness with members of the legal profession.

Along with Jurisight, there are a growing number of other approaches, developed and taught by creative and inspiring lawyers, judges, and law faculty (Cohen, 2012; Magee, 2009, 2011; Zlotnick, 2012). Because these more modern approaches share features, discussion of Jurisight may offer an insight into the ways that the larger collection of approaches resonates and has gained traction in the law. The following discussion refers to all members of the legal profession as “students,” both for the sake

of brevity and as a reminder of the shared experience mindfulness offers law students, lawyers, and judges.

Whereas much mindfulness training centers around formal practices, and in particular a sitting practice, out of which flows insight and a deeper appreciation of one's true nature, Jurisight works, in large part, the other way around. Based on the premise that most judges, attorneys, and law students are not actively in search of a contemplative practice to integrate into their lives (even though they may be quite stressed, anxious, or depressed), and many who are so inclined do not believe they have the time, patience, or ability to cultivate a sitting practice, Jurisight begins by introducing legal professionals to mindfulness insights and short mindfulness practices. A key element to Jurisight is that the insights and exercises resonate with lawyers and law students because they are integrated into the language and culture in which the lawyers and law students are already immersed. Moreover, by sharing insights and exercises in a contextually contoured manner, everyday events are likely to generate mindful awareness, and the generation of mindful awareness will motivate and inspire practice (Rogers, 2008, 2009c). That is to say, Jurisight seeks to meet students where they are and invites them to integrate mindfulness into their lives, law-school experience, and careers in ways that make sense to them and feel right.

Jurisight entails a grafting together of Eastern and Western approaches to mindfulness as a means of offering mindfulness instruction that is responsive to the interests and needs of the legal profession. The manner in which these mindfulness insights and exercises are presented in a legal context offers a sense of the ways in which traditional Eastern practice is melded together with Western approaches to teaching and learning. Each class or program segment orients around a fundamental mindfulness concept dressed in legal garb that is then connected to the context in which students find themselves. Discussion of the concept in relation to their circumstance—coupled with experiential practice—facilitates absorption of the insight and its applicability to everyday moments. The end result is a conceptual understanding of mindfulness as well as the capacity to engage mindful awareness moment by moment, both as a spontaneous arising and out of deliberate intent. In this regard, mindfulness is *the noticing and experiencing of the richness of the moment, cultivated by intentionally paying attention to present-moment phenomena as well as through a spontaneous shift of consciousness, occasioned by something in particular or by nothing at all.*

So that this approach may be more clearly presented, the following discussion looks at three methodologies used to capture attention, effect a more profound absorption of mindfulness insights, and inspire practice. These include (1) surprise, (2) humor, and (3) prompts.

Surprise

Surprise can be a powerful vehicle for engaging present-moment awareness. The study and practice of law is a largely conceptual enterprise, driven by language and precision. Legal doctrine is oriented, in large measure, by the need for certainty, and legal principles are often fit into rigid categories. As Ellen Langer notes, in her early treatments of mindfulness, the rigid reliance on a category can lead to suffering, as it limits our potential to see the present moment as it is, and we cling to preconceived beliefs that

have little relevance to the moment at hand (Langer, 1989). This is akin to Riskin's reference to lawyers being trapped by narrow "mind-sets" (Riskin, 2002). Mindful practice can help free us to make new categories, dissolve old categories that no longer pertain, and perhaps even come to relate to life (and legal practice) without being bound by categories (Hanh, 1999). Similarly, as we create new categories, we naturally attend more directly to situation and context, which brings about a greater awareness of present-moment experience (Langer, 1989, 1997). Surprise is one method Jurisight draws upon, as illuminated in the following discussion of the legal phrase "pain and suffering" and the term, "justice."

Pain and suffering In a legal action arising out of personal injuries, money damages are often sought for "pain and suffering." Students are asked to consider the relationship between pain and suffering, and it is generally agreed that the more pain there is, the more suffering there will be, and hence the greater the award for damages. Once this intuitive, mathematical relationship is established, a *mindfulness* discussion of pain and suffering introduces the possibility that the more one embraces their pain, the less they will suffer (Joko Beck, 1989; Smalley & Winston, 2010; Zeidan et al., 2011). This counterintuitive proposition is one that registers as a keen insight into the human condition. As a result, in juxtaposition to the way the topic is introduced, the mindfulness piece often provokes an "ah-ha" moment that naturally interests the student to further explore the concept and its practical implications. As such, the conversation introduces an insight regarding relief from suffering that proposes a means of experiencing this relief, that is, a mindfulness practice, which becomes of interest, both as a practical matter and as a means of satisfying the curious mind that wonders, "Can this be true? And, if so, how do I do it?"

Through the element of "surprise," Jurisight facilitates the absorption of mindfulness insights by creating new categories. The conditional aspect of this teaching simultaneously arouses in students a freedom from fixed conceptions (in this case, "suffering"), offers them a memorable insight—owing in part to its having been associated with a familiar legal concept—and engages their interest in learning more (Langer, 1989, 1997, 2000; Rogers, 2009a).

Justice Another example of the way Jurisight uses the language of the law to help dissolve categories and, at the same time, offer insight is through the use of the word "Justice." When presented to students, the term is first discussed in its legal sense and then split into the two-word phrase, "Just Is," noting the mindfulness insight that if we are interested in bringing about justice, and in participating in processes that lead to just outcomes and wise and compassionate decisions, it is crucial that we see that world as it "Just Is." A fuller conversation explores what it means to notice the moment as it "Just Is *Changing*." The work of Ellen Langer on mindlessness and how states of mindful awareness can be established by noticing "what is new" dovetail with this approach. The discussion concludes with a "bare attention" exercise that invites students to notice what "just is" arising and changing, facilitating a state of mind that "notices new things, and is sensitive to context" (Langer, 2000, 2005).

It may well be that much lawyer dissatisfaction stems in part from the belief that "justice" is seldom realized. A profound realization for students presented with this

perspective is that *resisting* a past injustice, rather than noticing it as an event that “just is,” depletes their energy and passion, and gets in the way of their contributing to a more just tomorrow. Students appreciate that what they are resisting is … *reality*. This awareness frees them from preconception and allows for a greater receptivity to new information (Langer, 1997) or changed circumstances—and to making a difference in moments to come.

Humor

Related to the above discussion, one’s mindset, especially when contemplating serious subject matter, can elicit suffering, limit creativity, and foreclose possibilities. Humor serves as a catalyst for learning new information and enhances well-being. Lawyers, charged with a larger responsibility to society and to the service of justice, can become less effective and experience emotional distress when they feel ineffective or become convinced that the system is unfair. Through clever wordplay, often eliciting a smile and laughter, Jurisight allows students to break free of limiting mindsets surrounding their own narrow views as well as the legal system at large.

Just Is Holmes Several mindfulness exercises incorporate the phrase “Just Is” in conjunction with the name of a famous legal figure. For example, Supreme Court Justice Oliver Wendell Holmes, Jr. coined the famous phrase “stop, look, and listen” in a decision prescribing appropriate conduct when approaching train tracks. In the Jurisight exercise known as the “Just Is Holmes,” students are instructed to “stop, look, and listen” as an informal practice when approaching a stop sign, when sitting at a traffic light, or anytime for that matter, and as a formal 3-min practice (Rogers, 2011), which dovetails with the “Three-Minute Breathing Space” developed as part of the MBCT program (Segal, Williams, & Teasdale, 2002). One application that bridges Eastern conceptions with Western approaches to mindfulness invites students to close or lower their eyes and “stop, look, and listen” as a bare awareness practice and, upon opening their eyes, to identify something “new” in the field of their awareness (Langer, 1989, 1997; Rogers & Jacobowitz, 2012). Other exercises include the “Just Is Story,” named after Justice Joseph Story. Students learn of Marcus Aurelius’s “Our life is what our thoughts make it” and are invited, when agitated, to listen to the “story” they are telling themselves, cultivating the ability to notice the thought as an event that “just is” (Rogers, 2009a; Tolle, 2004). At Miami Law, two weekly sittings are known as the “Just Is Holmes” sitting (10 min) and the “Just Is Story” sitting (30 min; www.miamimindfulness.com)

Motion for relief from judgment Many lawyers spend a great deal of time drafting and responding to motions, and all law students learn the craft of developing motions to help advance a client’s cause. A popular pleading is the “Motion for Relief from Judgment” in which an attorney asks the court to relieve their client from being bound by an adverse judgment, F.R.Civ.P. 60(b)(5). The “Motion for Relief from Judgment” mindfulness exercise is one that defies the adage that lawyers who represent themselves have fools for clients. Attorneys who have been introduced to the mindfulness notion that judgments, of self and others, can be a source of suffering elicit a knowing smile as

they read the motion (see Figure 27.1). This “intellectual” exercise stimulates a greater attentiveness to the arising of judgments (and hence awareness of their arising) and may encourage students who have been introduced to mindfulness as a sitting practice to do so. This additional perspective on what constitutes a “judgment” is expanded upon and reinforced in the “Judge-Mint” mindfulness cue discussed below.

Prompts

It is rare to participate in a mindfulness program that does not make some reference to how we “spend so much time in our heads.” This is especially the case in discussions with lawyers. The title of Kabat-Zinn’s “Coming to Our Senses,” along with the body of this work, makes explicit how sensory experience naturally aids us in emerging from automatic pilot (Moffitt, 2007). Sensory experience can also be helpful when grappling with abstract concepts. The insight of “impermanence” flows out of mindfulness practice and alleviates the suffering that can arise when undesirable circumstances are regarded as static and permanent. In the life of a lawyer and law student, agitated emotional states often arise out of, for example, resistance to an uncertain outcome, the belief that there is “not enough time,” or the momentary arising of judgments. As elaborated on below, Jurisight uses “prompts” to make more tangible abstract concepts such as “uncertainty,” “time,” and “judgments”—as well as the distracted mind. It does so drawing on different sense modalities. These prompts, in turn, can be used as mindfulness cues, both eliciting a recollection of various mindfulness insights and inspiring experiential practice.

The motion to embrace life’s uncertain-tees The mind’s tendency to move into future and anticipate worse-case scenarios is often discussed in mindfulness programs and readily acknowledged by many through direct experience. For lawyers, it is a double-edged sword, as anticipating and guarding against undesirable scenarios are part of the job description. This Jurisight demonstration, which falls also within the “surprise” category, transforms worrisome future events into a small piece of wood, thereby reminding students that it is not so much the troubling event but its “uncertainty” that is causing them to suffer.

The exercise begins as a demonstration with students handed a box of raisins. The students are surprised to find that the box does not contain raisins and, upon further investigation, learn that though it feels and they assume it to be empty, it contains a snugly fitted golf tee with “One of Life’s Uncertain-Tees” embossed on it. Along with the laughter this exercise elicits, a discussion of the series of erroneous assumptions they made (“the box contains raisins,” to “he’s giving us a snack to eat”) and the various fleeting feelings they experienced (“excitement,” “disappointment,” or “relief”) allows for a rich conversation across a variety of mindfulness areas. This exercise is completed when students read a 6×8 card with an illustration on one side that helps reinforce these insights, and a legal motion on the other that, along with the tee, serves as a mindfulness cue for working with uncertainty (see Figure 27.2). The “Motion to Embrace Life’s Uncertain-Tees” is filed in the “Neural Circuit Court” and concludes with a mindfulness insight that we can bear (literally) the uncertain-tee.

IN THE NEURAL CIRCUIT COURT IN AND FOR THE GREAT AND HEALTHY STATE OF MIND

YOU, aka "ME"	vs.	Petitioner,	YOU, aka "ME"	Petitioner,
REALITY		Respondent.	REALITY	Respondent.

MOTION FOR RELIEF FROM JUDGMENT

Pursuant to the laws of the great and healthy State of Mind, Petitioner respectfully moves for relief from the unnecessary pain and suffering caused by the never-ending judgments that arise in the mind.

1. Petitioner has been blessed with an intellect and capacity to reason, analyze, judge, and make decisions.
 2. Much of Petitioner's prior experience has positively reinforced these skills, especially the ability to make judgments about facts, events, other persons, and Petitioner.
 3. Petitioner has survived all prior obstacles and challenges and unconsciously attributes this survival to a panoply of skills, especially the making of judgments. This attribution is in and of itself a judgment.
 4. Due to the enormous volume of judgments generated by Petitioner's mind, coupled with there having been positive reinforcement by virtue of Petitioner's survival, it has become impossible to efficiently discern judgments based on law and fact and admitted as credible evidence from those not based on law and fact, or that constitute hearsay.
 5. As a result, the incessant flow of judgments has led to circumstances where Petitioner overreacts to circumstances; prejudices; misjudges; criticizes people and events; and interacts with people and treats oneself in a manner that is biased and based on erroneous assumptions - all of which causes undue pain and suffering.

WHEREFORE, Petitioner seeks relief from the unnecessary pain and suffering occasioned by this always-judging nature.

Respectfully submitted,

YOU, Esq.
Counsel for Petitioner

ORDER GRANTING RELIEF FROM JUDGMENT

Before this Neural Circuit Court is Petitioner's Motion for Relief from Judgment. For the reasons set forth below, Petitioner's Motion is GRANTED.

1. This Court finds that Petitioner is continually making judgments about everything that arises in Petitioner's mind.
 2. This Court also finds that the enormous quantity of thoughts continuously arising in Petitioner's mind, along with Petitioner's prior conditioning, makes it exceptionally challenging to efficiently discern judgments based on facts admitted into evidence from those not in evidence.
 3. This Court also finds that as a result, Petitioner will, from time to time and often without awareness, overreact to circumstances; prejudge people and outcomes; and interact with people and treat oneself in a manner that is biased and based on erroneous assumptions—all of which is likely to cause undue pain and suffering.

ACCORDINGLY, Petitioner's Motion for Relief from Judgment is GRANTED. This Order will be SELF-enforcing. Although this Court, being a Neural Circuit Court, is mindful of the challenges (and paradox) inherent in looking to the self to enforce its order, it believes that such collaboration in necessary in order to ensure the long-term order, ^{and} health of its circuit.

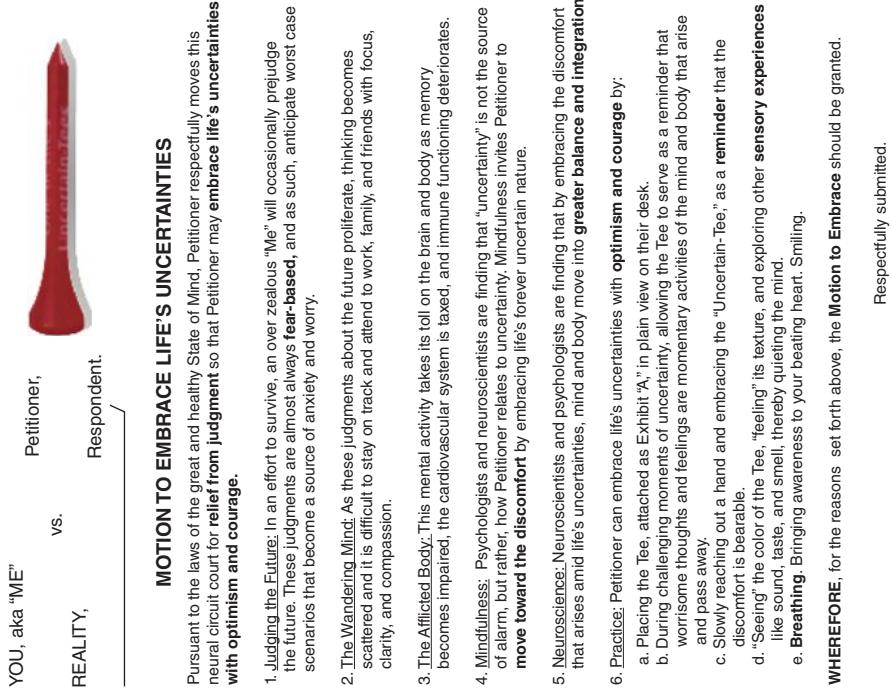
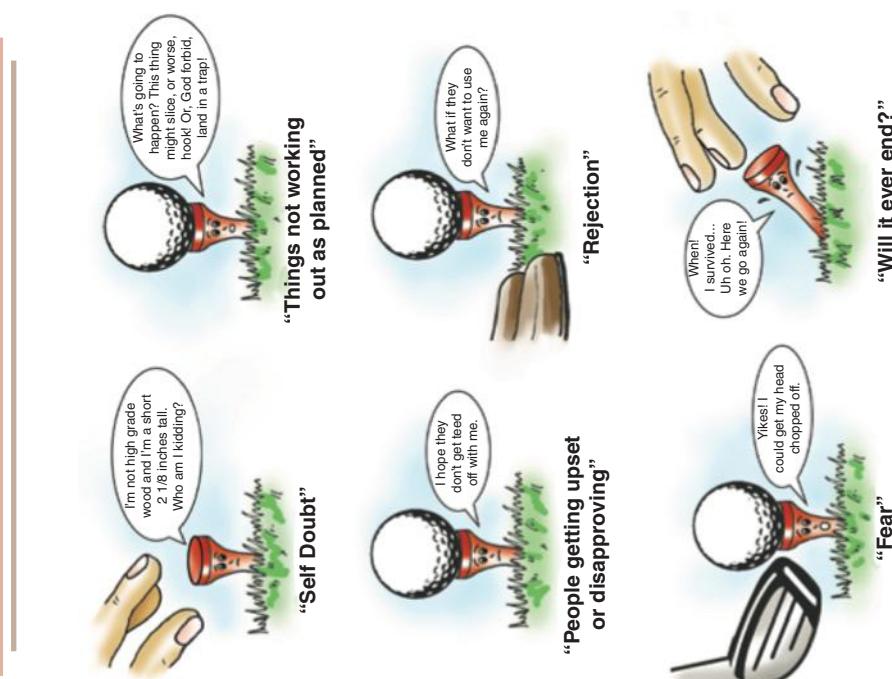
Done and ordered in Chambers this day of

The Honorable You
Neural Circuit Court Judge

Figure 27.1 Motion for relief from judgment. Copyright 2008, Institute for Mindfulness Studies. All Rights Reserved.

Some of Life's Uncertain-Tees™

IN THE NEURAL CIRCUIT COURT IN AND FOR
THE GREAT AND HEALTHY STATE OF MIND



Respectfully submitted,

Me _____

Figure 27.2 Motion to embrace life's uncertain-tees. Copyright 2008. Institute for Mindfulness Studies. All Rights Reserved.

When this exercise is included in a multiweek class or workshop, I'll often conduct the MBSR "raisin" exercise (Kabat-Zinn, 1990; Segal et al., 2002) a few weeks earlier to facilitate greater surprise and humor. Interestingly, the instructions of Kabat-Zinn's now-classic exercise are very much aligned with Langer's approach of learning to pay attention and notice new things. As such, it highlights the interrelated and overlapping aspects of the various approaches to teaching mindfulness and cultivating mindful awareness.

Motion for extension of thyme Feelings of not having enough time are common, given the law's highly stressful and adversarial climate. As these feelings take hold, they can result in greater emotional reactivity and impair decision-making. Sometimes, these feelings of urgency and thoughts of "not enough time" can be overreactions, and it can be challenging to discern the difference when one is overwhelmed. In legal practice, time concerns can be assuaged through the often-used and frequently abused "Motion for an Extension of Time." A mindfulness demonstration involves having students fill in the blanks of a "Motion for an Extension of Time" (see Figure 27.3) that asks them to identify the areas in which they find themselves short on time and their accompanying thoughts, feelings, and body sensations. The motion is granted as an "Order Granting Extension of *Thyme*" where students are handed a sprig (or "extension") of thyme and guided in a mindfulness exercises that incorporates aroma and a "coming to our senses." Students are reminded that they can keep some thyme handy and practice the simple exercise when they find themselves feeling a sense of urgency or stressed for time (Rogers & Jacobowitz, 2012).

Judge-mints A mindfulness prompt that, along with the "uncertain-tee" and "extension of thyme," helps make elusive mindfulness insights more memorable and accessible is the "Judge-Mint" (see Figure 27.4). This edible mint provides on the wrapper, "Look Inside to Find Refreshing Judgments," helping to make tangible the concept of a "judgment" along with the insight that we can experience relief when the judgment is "noticed" and "observed" as opposed to identified with and believed to be the truth.

Landscape of the distracted mind The final Jurisight exercise that we'll consider typifies Jurisight's contextually contoured approach. It is one thing to note the distractibility of our minds and the ways it leads to suffering, and another to connect visually with that insight.

The legal doctrine of the "Attractive Nuisance," one that most lawyers and law students long remember, allows for this insight to be made tangible, and perhaps facilitate greater awareness of mental reactivity. The doctrine arises from a series of 19th-century cases in which someone died in a seemingly safe environment that, despite appearances, proved deadly. In the classic "poison pool" cases, young boys, playing in an open field on a hot day, came across an inviting pool of cool water and took a swim. Sadly, the water was toxic, and the boys succumbed shortly after jumping in. The legal issue explores the question of liability—the owner of the land who did not have adequate warnings in place or the young trespassers. After recollecting the facts of this legal case, a mindfulness discussion explores the sometimes-toxic places

**IN THE NEURAL CIRCUIT COURT IN AND FOR
THE GREAT AND HEALTHY STATE OF MIND**

YOU, aka "ME"
vs.
REALITY

Petitioner,
Petitioner,
REALITY
vs.
Respondent.

MOTION FOR EXTENSION OF TIME

Pursuant to the laws of the great and healthy State of Mind, Petitioner respectfully moves for an order extending the amount of time available to focus on law school studies and related tasks and projects.

1. Petitioner is enrolled in law school, known far and wide as a grueling experience where time is short and the workload is heavy.
2. From time to time, Petitioner finds that there is not enough time to get everything done. Such times include:

3. During such times, Petitioner begins to think that:

4. Petitioner feels:

5. Petitioner also experiences sensations in the body that include:

6. As a result, Petitioner occasionally feels a sense of urgency that increases stress, undermines Petitioner's ability to perform optimally, and adversely affects Petitioner's relationship with:

WHEREFORE, Petitioner respectfully requests that this Court enter an order extending the amount of time Petitioner has to study for class, prepare for exams, finish projects, exercise, eat, relax, sleep, and spend time with friends and family.

Respectfully submitted,

YOU, Esq.

**IN THE NEURAL CIRCUIT COURT IN AND FOR
THE GREAT AND HEALTHY STATE OF MIND**



ORDER GRANTING EXTENSION OF THYME

Before this Neural Circuit Court is Petitioner's Motion for Extension of Time. For the reasons set forth below, Petitioner's Motion is GRANTED.

1. This Court finds that Petitioner is enrolled in law school, which can be a grueling experience in which there is limited time to accomplish a great deal. This Court also finds that there are moments when Petitioner believes that there is not enough time to get everything done. During moments such as these, Petitioner can experience worrisome thoughts, distressing feelings, and uncomfortable sensations in the body. Petitioner tends to impulsively react with conduct that can be unproductive and waste time.
2. This Court finds that owing to these uncomfortable thoughts, feelings, and sensations, Petitioner tends to impulsively react with conduct that can be unproductive and waste time.
3. This Court finds that the growing sense of urgency and procrastination can increase stress undermine Petitioner's ability to perform optimally, and adversely affect Petitioner's relationship with others.
4. This Court is inclined to deny Petitioner's motion on the basis that additional time will, after a short period of relief, likely result in a similar pattern of conduct, leading once again to distress and procrastination.
5. However, this Court, being a Neural Circuit Court in and of the Great and Healthy State of Mind, has decided to grant Petitioner an Extension of Thyme with which to come to their senses.

ACCORDINGLY, Petitioner's Motion for Extension of Thyme is GRANTED. Petitioner is instructed to, close their eyes, place the extension of thyme underneath their nose, gently notice its aroma, and pay attention to the rise and fall of the breath.

Done and ordered in Chambers this _____ day of _____

The Honorable "You"
Neural Circuit Court Judge

Figure 27.3 Motion for extension of thyme. Copyright 2008. Institute for Mindfulness Studies. All Rights Reserved.



Figure 27.4 Refreshing judge-mints. Copyright 2008. Institute for Mindfulness Studies. All Rights Reserved.

our attention wanders. The “Landscape of the Mind” illustration (see Figure 27.5) sets in motion a lively, entertaining, and serious conversation as students give voice to familiar places and ponder why their thoughts wander there, again and again. Jack Kornfield’s metaphor of attention as a puppy dog we place by our feet and instruct to “stay” is apropos. This illustration has been found to be useful in a variety of contexts extending beyond the law.

Closing Thoughts

The introduction of mindfulness into the legal profession generally regards mindfulness as a means of bringing stability, clarity, and compassion to a challenging profession whose members are suffering. This understanding is one that applies to a great many contexts across our culture in which mindfulness is being introduced. The law, however, stands in a fairly unique position as a societal structure that emerged, in the first instance, to bring stability, clarity, and compassion to a “state of nature” in which a great many were subjected to unnecessary pain and a great deal of suffering (Hobbes, 2010). Most law students learn early in their law school careers that legal systems evolved to bring order out of chaos. Humans lived in a “state of nature” that was, in the words of Thomas Hobbes, “nasty, brutish, and short,” and presumably one filled with an inordinate amount of pain. The rule of law evolved as a “social compact” whereby one forfeited a slice of personal autonomy to the sovereign in exchange for rules and an enforcement mechanism that would stabilize the chaotic and allow for the further evolution of society. And so the emergence of the law of property rights, criminal law, contracts, and torts offered a structure to understand and predict outcomes, to limit physical and emotional distress, and to enable individuals and groups to create and accomplish.

Today, however, the very system that emerged to establish predictability and order is becoming increasingly unstable. And indeed, many lawyers and judges regard the

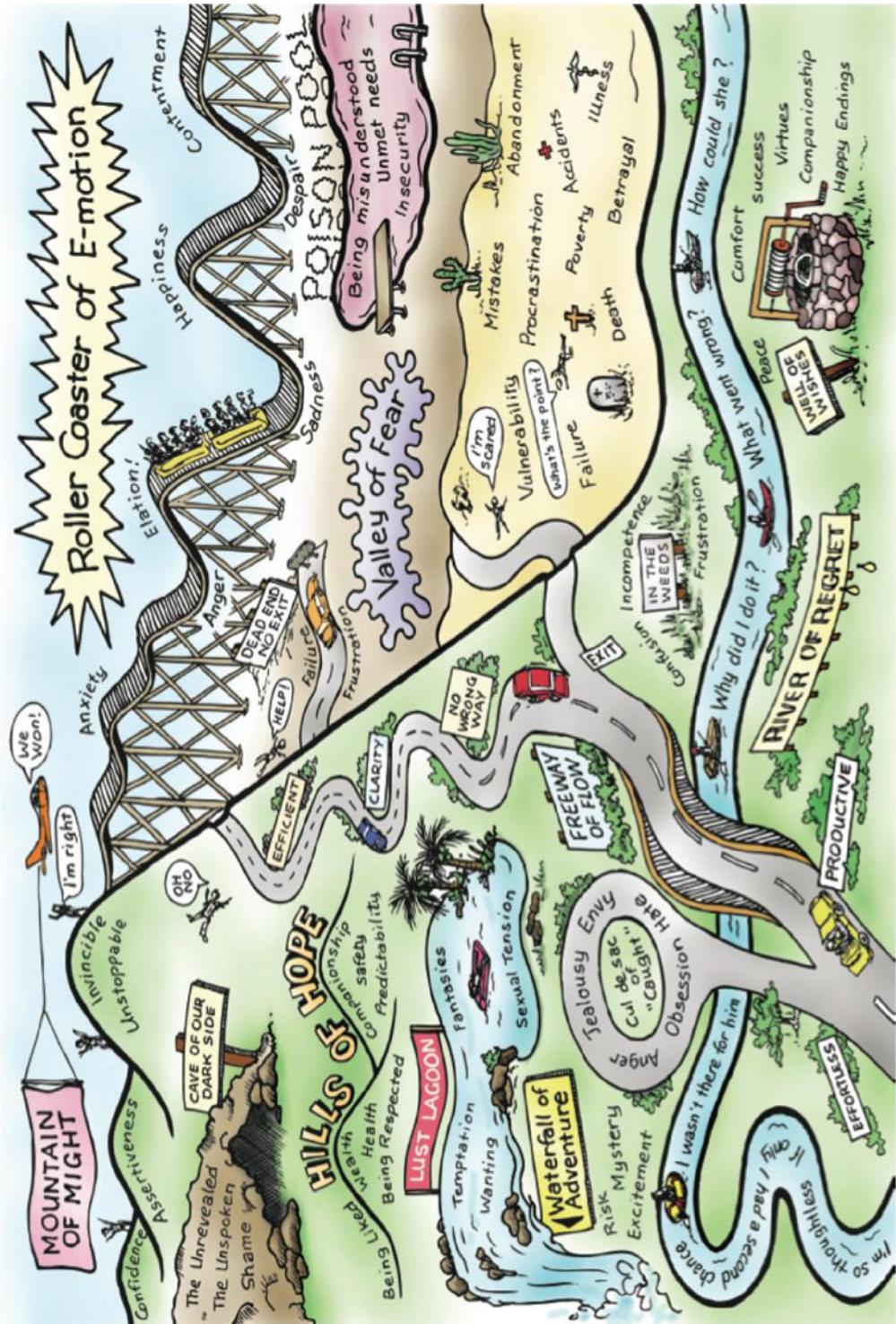


Figure 27.5 Landscape of the mind. Copyright 2008 Institute for Mindfulness Studies. All Rights Reserved.

environment in which they work as “nasty and brutish,” and sadly, a disturbing number are having shorter-than-expected lives and careers. So hostile and uncomfortable to many lawyers is the practice of law that the very idea that a lawyer may be receptive to mindfulness is regarded by some—inside and outside the law—as an oxymoron. At the same time, as mindfulness insights and practices continue to nurture the legal landscape, its practitioners are sensing that law practice itself offers a profoundly rich opportunity to cultivate mindful awareness—a form of “reciprocal practice.” Perhaps the receptivity of mindfulness in such a seemingly inhospitable environment may serve as a fertile ground for better understanding effective ways to introduce and teach mindfulness more generally.

Many law students, lawyers, and judges find mindfulness to improve their health and well-being, decrease their levels of stress, improve focus and concentration, and transform the way they practice law and relate to their colleagues and adversaries. As a new generation of law students and future lawyers are exposed to mindfulness as an integral part of their legal education, and practicing lawyers and judges are introduced to mindfulness and offered a variety of authentic and meaningful ways of practicing, both at work and at home, its benefits will ripple across the profession and society.

And perhaps most importantly, as lawyers appreciate that mindfulness insights and practices are compatible with helping bring about legal objectives, but even more so that mindfulness principles are inherent in the rule of law itself, this evolution may contribute to the current restructuring of the legal profession and ongoing evolution of our laws and system of justice.

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Handbook of Mindfulness

The Wiley Blackwell Handbook of Mindfulness

Volume II

Edited by

**Amanda Ie
Christelle T. Ngnoumen
Ellen J. Langer**

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Wray Herbert is writer-in-residence at the Association for Psychological Science, where he writes the "We're Only Human" and "Full Frontal Psychology" blogs. He is a regular contributor to The Huffington Post and other national publications, and author of the book *On Second Thought*. He was a Washington, DC-based journalist for three decades, specializing in psychological science and mental health. He was behavioral science editor for *Science News*, editor-in-chief of *Psychology Today*, assistant managing editor at *US News & World Report*, and also a regular columnist for *Newsweek* and *Scientific American Mind*, and a mental-health journalism fellow at The Carter Center. He lives with his wife on Cornfield Creek, in Maryland.

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Yoona Kang is a postdoctoral researcher at Annenberg School for Communication in University of Pennsylvania. In her research, she utilizes contemplative practices to identify and characterize neurocognitive mechanisms of attitude change and well-being. Yoona's current research focuses on the role of contemplative practices on systematic shifts in self-referential processes and their subsequent effects on attitude and behavior change. She investigates convergent evidence from behavioral and neural outcomes to test these questions using various methods including response-latency techniques and fMRI. Yoona received her B.A. in Psychology from University of California, Los Angeles, and Ph.D. in Cognitive Psychology from Yale University. While in graduate school, she was also a visiting researcher at Brown University and coordinated an NIH-funded clinical trial that examined the effect of mindfulness-based interventions on depression and anxiety.

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Jean L. Kristeller is Professor Emeritus of Psychology at Indiana State University and Founding Director and current President of The Center for Mindful Eating. She received her doctorate in clinical and health psychology from Yale University in 1983, with previous faculty appointments at Harvard Medical School and the University of Massachusetts Medical School. She has conducted research on the psychology of food-intake regulation and on meditation for over 25 years, with NIH-funding investigating the value of Mindfulness-Based Eating Awareness Training (MB-EAT) on binge-eating disorder, obesity, and diabetes in collaboration with Duke University, UC-San Francisco, and Ohio State University.

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Gabriele Oettingen explores how conscious and nonconscious processes interact in controlling thought, emotion, and behavior. She distinguishes future thought involving fantasies versus expectations and their impact on information processing, effort, and performance. Her model of mental contrasting specifies how future thought can create and dissolve goal pursuit, and how it can lead to successful plans and goal attainment.

Andrew Olendzki is the senior scholar at the Barre Center for Buddhist Studies, an educational center dedicated to the integration of scholarly understanding with meditative insight, and a senior scholar at the Mind and Life Institute. He is a former director of the Insight Meditation Society in Barre, Massachusetts, and has taught at several New England colleges (including Harvard, Brandeis, Smith, Amherst, Hampshire and Lesley). He is the author of *Unlimiting Mind: The Radically Experiential Psychology of Buddhism* (Wisdom, 2010), and writes the column Thus Have I Heard for Tricycle: The Buddhist Review.

Francesco Pagnini is Assistant Professor at the Catholic University of Milan and collaborates as postdoctoral fellow with Harvard University. He has completed his Ph.D. in Clinical Psychology from the University of Bergamo. His primary interest is focused on the improvement of psychological well-being of people with chronic disease, in particular with interventions that improve mindfulness. He is currently carrying out research on mindfulness both in Milan, in collaboration with Niguarda Ca' Granda Hospital, and in Cambridge, MA, working with Professor Ellen Langer and Dr. Deborah Phillips. He is currently Associate Editor for the journals *Frontiers in Psychology for Clinical Settings* and *BMC Psychology*.

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Deborah Phillips is a postdoctoral fellow in psychology at Harvard University. After receiving her Ph.D. at MIT, she focused her career in human-resources strategy and planning, returning to academia in 2010. Her research in maximizing sociocognitive mindfulness developed by Ellen Langer follows from early doctoral work on employment for the disabled, and worker productivity in the private and foundation sectors. She currently focuses on improving productivity and well-being through mindfulness interventions in employment, aging, and chronic disease with Dr. Langer and colleague Dr. Francesco Pagnini.

Timothy R. Pineau is a 6th-year Ph.D. candidate in Clinical Psychology at The Catholic University of America. In addition to more than a decade of competitive rowing and coaching experience, Timothy's graduate research has focused on the role of mindfulness in sport performance. For his recently completed dissertation research, Timothy helped develop an updated and expanded version of Mindful Sport Performance Enhancement (MSPE) and studied this approach with long-distance runners. Timothy has coauthored one journal article and seven posters on his work with mindfulness in sports and is a member of the American Psychological Association and the Association for Applied Sport Psychology.

Michael Pirson is the director of the Center for Humanistic Management and Associate Professor for Global Sustainability and Social Entrepreneurship at Fordham University, New York. He is a research fellow at Harvard University and a Partner of the Humanistic Management Network. His work focuses on trust and well-being in organizational contexts, exploring mindfulness as a lever to enhance both.

Rolf Reber received his doctoral degree at the University of Bern, Switzerland, and is currently professor at the Department of Psychology at the University of Oslo and adjunct professor at the Department of Education at the University of Bergen, Norway. With his colleagues, he examined effects of metacognitive experiences on evaluative judgments that led to processing fluency accounts of aesthetic pleasure, mathematical intuition, the “Aha”-experience, and paradoxes in Confucian

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Diane K. Reibel is the Director of the Mindfulness Institute at Jefferson-Myrna Brind Center of Integrative Medicine and Clinical Associate Professor in the Department of Emergency Medicine at Jefferson Medical College. She is a certified mindfulness-based stress reduction (MBSR) teacher and has been teaching MBSR for over 18 years to patients, medical students, and healthcare professionals. In addition to her passion for teaching mindfulness she studies the physiologic effects and health outcomes of mindfulness training, and her research is published and widely cited in both scientific journals and the popular press. Dr. Reibel is coauthor of the book *Teaching Mindfulness: A Practical Guide for Clinicians and Educators*.

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James L. Ritchie-Dunham is the author of *Ecosynomics: The Science of Abundance* (ecosynomics.com). Jim is president of the Institute for Strategic Clarity, a researcher in Langer's Mindfulness Lab, adjunct professor of strategy at the EGADE Business School (Mexico), and founder of Vibrancy Ins., a publishing, consulting, and conferencing company. Previously, he was managing partner of a strategy consultancy, a visiting scholar at MIT's Sloan School, a professor at the ITAM (Mexico), and a petroleum engineer at ConocoPhillips. He has a Ph.D. in Decision Sciences from UT Austin, two masters in international management from Thunderbird and ESADE, and a BSPE from the University of Tulsa.

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Patricia P. Schultz is a doctoral clinical psychology student at the University of Rochester under the mentorship of Professor Richard M. Ryan (Ph.D.). She is interested in human motivation, mindfulness, and well-being (psychological and physical), particularly in educational, health care, and work contexts.

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Daniel J. Siegel is an author, educator, and founding editor of the *Norton Professional Series on Interpersonal Neurobiology*. He is Clinical Professor of Psychiatry at the School of Medicine of the University of California, Los Angeles, where he serves as Codirector of the Mindful Awareness Research Center. He is also the Executive Director of the Mindsight Institute, an educational center devoted to promoting insight, compassion, and empathy in individuals, families, organizations, and communities. Dr. Siegel's books include *Mindsight*, *Pocket Guide to Interpersonal Neurobiology*, *The Developing Mind*, *The Mindful Therapist*, *The Mindful Brain*, *Parenting from the Inside Out*, *The Whole-Brain Child*, and *Brainstorm*.

Madeleine W. Siegel is an undergraduate at the University of California, Berkeley. She has worked as a coinstructor in mindfulness training for children, a teaching assistant in human development courses, and a cotherapist for adolescents in group therapy. She is currently a student in the College of Natural Resources.

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Elizabeth A. Stanley is associate professor of security studies at Georgetown University and the founder of the nonprofit Mind Fitness Training Institute. She served as a U.S. Army military intelligence officer in Korea and Germany, and on deployments in the Balkans. She has spoken and published widely on topics related to mind fitness, resilience, military effectiveness and innovation, and national security. Creator of Mindfulness-based Mind Fitness Training (MMFT)®, she has taught MMFT to troops before combat and others in high-stress environments to build resilience and optimize performance, and has participated in four Department of Defense-funded studies to examine MMFT's effectiveness.

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Kathleen M. Sutcliffe is the Gilbert and Ruth Whitaker Professor of Business Administration and Professor of Management and Organizations at the Stephen M. Ross School of Business at the University of Michigan. Her research is aimed at understanding how organizations and their members cope with ambiguity and unexpected events, processes of mindful organizing, and how complex organizations can be designed to be more reliable and resilient. A recent book includes *Managing the Unexpected: Resilient Performance in an Age of Uncertainty*, 2nd ed. (coauthored with Karl E. Weick, Jossey-Bass, 2007).

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Helané Wahbeh is an Assistant Professor at Oregon Health & Science University in the Department of Neurology. She is a naturopathic physician and clinician researcher focused on mind–body medicine research. She is the principal investigator of VET MIND, a clinical research study funded by National Institute of Health National Center for Complementary and Alternative Medicine. VET MIND examines the mechanistic pathways of mindfulness meditation in combat veterans with PTSD. Dr. Wahbeh serves as Institutional Review Board cochair and mentor for Masters of Integrative Medicine students at the National College for Natural Medicine. She has completed the Mindfulness-Based Stress Reduction Teacher Training, a four-year Corelight Meditation Teacher Training, and has a 12-year daily meditation practice.

Katherine Wearé is known internationally for her work on children’s mental health and well-being, and social and emotional learning. She trained as a teacher of adult mindfulness at the University of Exeter in the UK and has expanded her work to include mindfulness for children and young people. Her publications include overviews and reviews of the evidence base. She is currently working closely with the UK’s Mindfulness in Schools project and the Wake Up Schools initiative founded by Zen Master Thich Nhat Hanh, and is a member of the core group of the Mind and Life school’s initiative.

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Christopher Willard is a psychologist, psychotherapist, and educational consultant in the Boston area specializing in mindfulness-based work with adolescents and young adults in private practice and at Tufts University. He has been practicing meditation for over 15 years, leading workshops locally and internationally on the topic of mindfulness with young people. He currently serves on the board of directors at the Institute for Meditation and Psychotherapy, where he teaches in the core faculty. His thoughts on mental health have been featured in *The New York Times*, cnn.com, and elsewhere. He is most recently the author of *Child’s Mind*, a book on teaching mindfulness practices to children and adolescents, which has now been translated into multiple languages. He is currently completing two more books about bringing mindfulness to youth.

Emily J. Winch is a Psy.D. student at La Salle University in Philadelphia, PA. She is currently completing an internship at the Philadelphia VA Medical Center. Her areas

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Timothy W. Wright is a Psy.D. Clinical Psychology graduate student at La Salle University, Philadelphia, and is currently completing a Psychology Internship at VA Maine Healthcare System. He also received his M.S. in Occupational Psychology from University of London. Clinically, he specializes in contextual cognitive behavioral therapies and health psychology. His research interests lie in treatment processes, the integration of Buddhist psychology and therapeutic mindfulness, and the promotion of health-behavior change.

Sigal Zilcha-Mano is a clinical psychologist who integrates clinical practice, teaching, and research. Her research focuses on the study of outcomes and process of various psychotherapies and interventions aimed at improving well-being. She is particularly interested in how mindfulness, a variety of meditative practices, psychodynamic psychotherapies, cognitive behavioral psychotherapies, and animal-assisted therapies affect mental health and quality of life. She received her Ph.D. from Bar-Ilan University in Israel, where she was awarded a President's Grant for Special Distinction. She has completed two postdoc research fellowships, one at Harvard University and one at Adelphi University through a Fulbright scholarship.

General Introduction

There currently exist two dominant mindfulness camps. The Western camp involves social psychological approaches to mindfulness, as exemplified by the work of Ellen Langer. Langer's approach is sometimes referred to as "mindfulness without meditation." The nature of its practices is highly psychological, and very little to no emphasis is placed on meditation. The Western camp contrasts with more Eastern approaches to mindfulness, which are rooted in Buddhist philosophy and are more contemplative and based on meditation. A dominant branch of the Eastern camp is approaches to mindfulness that incorporate both psychological and meditative elements. These Eastern-derived models borrow forms of meditation from the Eastern camp and empirically apply them in Western settings. The Western and Eastern models propose different and unique theoretical principles, but they also share significant similarities. Most important, both approaches aim to cultivate a present-oriented mind, thereby permitting individuals to increase health and well-being. This handbook compares and contrasts Western and Eastern mindfulness camps with the aim of transforming their seemingly oppositional relationship into a complementary one. The chapters included in this handbook have been specifically selected because they adequately represent the ways in which mindfulness has been applied in various fields and settings, including medicine, mental health, education, organizations, and sports. Mindfulness has also proved to have a powerful influence on cognition, attitudes, and interpersonal relationships.

Part IV

Health, Well-Being, and Performance

Mindfulness theory has had substantial implications for approaches to medical practice, and vast empirical research demonstrates an association between mindfulness training and improvements on a variety of indicators of physiological and psychological functioning. In many cases, mindfulness and acceptance-based trainings have also demonstrated benefits in promoting well-being and enhancing performance.

Langer's seminal experiments (Langer, Janis, & Wolfer, 1975; Langer & Rodin, 1976; Langer et al., 1988) suggested how mindfulness can help in reducing stress, improve well-being, and increase longevity. Further incorporation of mindfulness-based interventions into medicine by other researchers have found that it improves symptoms associated with irritable bowel syndrome (IBS), arthritis, chronic pain, eating disorders, diabetes, cancer, trauma, depression, anxiety, and other chronic disorders (Follette, Palm, & Pearson, 2006; Gaylord et al., 2011; Hoffman, Sawyer, Witt, & Oh, 2010; Kristeller, Baer, & Quillian-Wolever, 2006; Vallejo & Amaro, 2009).

As a result of such promising research, mindfulness techniques have increasingly been applied in clinical settings. The four most popular mindfulness-based treatment approaches, used in the West, include mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990), mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002), acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and dialectical behavioral therapy (DBT; Dimidjian & Linehan, 2003; Linehan, 1993). MBSR practices, such as body scans, yoga, sitting meditation, and walking meditation, have proven to be very effective interventions for medical conditions including chronic pain, cancer, and heart disease (Shigaki et al., 2006). MBCT integrates cognitive therapy, mindfulness, and MBSR, with the aim of helping people with histories of major depressive disorder avoid relapse. ACT blends acceptance- and mindfulness-based strategies, and encourages observing, accepting, and embracing one's private experiences, especially unwanted ones. The DBT program combines elements of mindfulness, CBT, and mentalization, and has been effective in

treating borderline personality disorder as well as comorbid disorders (e.g., substance abuse; binge-eating disorder; attention deficit hyperactivity disorder; major depressive disorder; suicidality; Feigenbaum, 2007).

This section of the handbook addresses the incorporation of mindfulness-based interventions in the treatment of physiological and psychological disorders, and also highlights relations among mindfulness, well-being, and performance.

Greeson, Garland, and Black present mindfulness as a therapeutic approach for transdiagnostic mental processes, including attentional bias, rumination, suppression, and avoidance. They integrate theory, empirical evidence, and case studies, and demonstrate how mindfulness can promote better mental, behavioral, and physical health.

Hogan discusses the philosophical, psychological, and practical implications of Langer's approach to mindfulness, as well as related approaches. His chapter also introduces recent evidence supporting the effectiveness of an online mindfulness intervention—based on MBSR (Kabat-Zinn, 1990) and MBCT (Segal et al., 2002)—in alleviating the symptoms of individuals suffering from chronic pain.

Epstein discusses the various factors that impede clinicians' abilities to provide patients with optimal care, including lack of self-awareness of their own thinking processes and biases to clinical situations, and poor self-regulation of their attention, intentions, and attitudes towards care. The "burnout" resulting from clinicians' lack of attending to their own psychological and physical needs further reduces the quality of care provided to patients. Epstein focuses on the applications of mindfulness for clinicians and health professionals to improve their effectiveness and resilience.

Stingl and Weiss review and critique practices and research aimed at fostering cooperation among individuals of differing expertise, and between expert and lay decision-makers in the medical context. They introduce their own work on semantic agency theory and disruptive enactments. They also discuss complementary perspectives, including Langer's mindfulness and early philosophical works.

Drawing from philosophy and mythology, as well as from experience teaching mindfulness in a variety of community settings and training healthcare professionals, Hassed argues that Western approaches to mindfulness (e.g., more psychological in nature) and "Eastern-based" approaches to mindfulness (e.g., more contemplative and meditation-based) are complementary perspectives and inform each other.

Alexander and Goldstein's chapter focuses on merging ancient wisdom teachings with contemporary Western psychotherapy. They discuss the facilitative role of increased awareness in learning and change during trauma-based psychotherapy.

Clower and Peng analyze the incorporation of Mindfulness-Based Stress Reduction (MBSR) and related therapies in treating a variety of disorders. They explore the gains and losses of Buddhist mindfulness meditation's various transformations from its Buddhist traditions to its effective clinical applications in the Western world.

McCracken's chapter compares mindfulness-based approaches and Acceptance and Commitment Therapy (ACT) as treatments for both mental and physical conditions. His chapter focuses on how the two approaches are distinct from each other in their breadth, focus, and strategies, and discusses the implications of those differences in the treatment of chronic pain.

Mindfulness interventions have shown promise in treating depression, anxiety, and anxiety-related disorders. Felder, Dimidjian, and Segal describe Mindfulness-Based Cognitive Therapy's (MBCT) success as a preventative strategy against depression relapse. They also discuss MBCT's connection to the Eastern-derived and the Western social psychological approach to mindfulness. Woodruff, Arnkoff, Glass, and Hindman's chapter reviews theoretical models, empirical research, and treatment outcome literature linking different conceptions of mindfulness, and their respective clinical applications, to the treatment of anxiety disorders. Along a similar vein, Cardaciotto, Wright, and Winch explore social anxiety disorder (SAD) and the "self" from a mindfulness framework. Their chapter reviews the applications of Awareness-focused, Compassion-focused, and Acceptance-focused interventions in the treatment of SAD. Wahbeh describes mindfulness meditation's use in the treatment of posttraumatic stress disorder (PTSD), and sheds light on possible future directions for PTSD treatment.

Garland and Froeliger offer a neurocognitive framework for understanding the documented effectiveness of mindfulness-based interventions such as Mindfulness-Based Relapse Prevention and Mindfulness-Oriented Recovery Enhancement in treating various forms of addition including alcohol dependence, nicotine dependence, and drug dependence. Treloar outlines a series of research that examine the effectiveness of mindfulness-based interventions in preventing hepatitis C among intravenous drug users.

Schubiner explores the effects of applying mindfulness interventions to the treatment of both chronic illness and of conditions deemed purely psychophysiologic in nature. He reviews the primary mechanisms responsible for the development of psychophysiological disorders. His review also provides alternative explanations that may explain the symptoms of functional or nonstructural disorders.

Phillips and Pagnini bring mindfulness into the treatment of chronic illness in order to understand how mindsets influence the experience of chronic illness. They borrow Langer's mindfulness–mindlessness framework, and observe its implication in the psychological and physical experiences of chronic illness. They also propose mindfulness practices specific to individual chronic disorders.

Brotto and Smith examine the clinical use of mindfulness skills as an intervention for female sexual dysfunction. Zilcha-Mano explores the advantages of both Western- and Eastern-based mindfulness interventions during pregnancy. She incorporates Langer's mindfulness intervention during pregnancy to observe its relationship to birth outcomes, and finds that mindfulness training during pregnancy mitigates the stress and negative affect that are linked to poor childbirth outcomes and postnatal depression.

Gross and Reibel's chapter explores the use of mindfulness training for diabetes management. They review the positive effects of mindfulness training (more specifically, of MBSR) on physiological and psychological symptoms in patients with diabetes as evidenced by the latest research.

Kristeller and Epel examine the implications of mindfulness and mindlessness for eating. They explore mindfulness interventions' facilitative roles in promoting self-regulation. They also provide an overview of the successes of mindful eating programs.

Albers presents an overview of mindful eating and introduces a method for teaching clients these techniques in individual and group counseling.

Crum and Lyddy's chapter presents a more "balanced" view of stress that incorporates both the Western (Langerian) and Eastern-derived perspectives of mindfulness. Their chapter includes a review of research and theory that demonstrates how mind-sets largely determine the beneficial or harmful effects of stress and, subsequently, performance.

Stanley describes the application of mindfulness training to troops and to individuals operating in high-stress contexts. She also explains how wisdom and bravery are cultivated in the course of mindfulness practice.

Moore and Gardner explore the application of Eastern-derived mindfulness practices in the sport domain. They describe the effectiveness of their Mindfulness-Acceptance-Commitment (MAC) Approach in enhancing sport performance. Pineau, Glass, and Kaufman discuss the applications of various mindfulness-based interventions to sports psychology. More specifically, they discuss how certain aspects of both Langerian and Eastern-derived mindfulness interventions, including present-moment awareness and acceptance, may bring athletes to optimal psychological states associated with peak-performance experiences, thereby improving overall sport performance.

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Mindfulness

A Transtherapeutic Approach for Transdiagnostic Mental Processes

Jeffrey Greeson, Eric L. Garland, and David Black

In the beginner's mind there are many possibilities, but in the expert's there are few.
—(Suzuki, 2010)

Historical Origins of Mindfulness and Implications for Mind–Body Health

Mindfulness as a current topic of academic inquiry derives from two main historical roots: (1) Eastern contemplative psychology embedded in meditation (Germer, 2005; Gunaratana, 2002; Kabat-Zinn, 2011); and (2) Western social psychology (E. J. Langer, 1989). From both a contemplative and a social-psychological perspective, mindfulness concerns freeing oneself from misperceptions, thinking patterns, and self-imposed limitations that impede creativity, clear seeing, and optimal mental and physical health. Moreover, from both the Eastern and Western view, every individual has the intrinsic capacity to be mindful, and with intention and practice, mindfulness can garner strength and stability. In this sense, the greatest potential of mindfulness may emerge when one consciously decides to pursue mindfulness not as just a “tool” in the proverbial toolbox, but as a way of seeing oneself and the world, or a conscious way of being and interacting (Kabat-Zinn, 2005).

In the contemplative tradition, the fundamental shift in perspective associated with mindfulness is called *Beginner's Mind* (Suzuki, 2010); this refers to the meditation practice of remaining open, curious, unattached, and mentally flexible. Hence, meditation practice offers a traditional method for cultivating the core qualities of mindfulness. In Western societies, mindfulness meditation is now taught—using the skills of Beginner's Mind—as a way to relieve suffering associated with stress, pain, and illness (Kabat-Zinn, 1982, 1990, 2011). Jon Kabat-Zinn described the fundamental shift in perspective that comes about through mindfulness meditation practice as an

“orthogonal rotation in consciousness,” since one begins to let go of attachments to ideas, expected outcomes, and desires for things to be different than they are in the moment (Kabat-Zinn, 2005). The flexible quality of mind defined by welcoming uncertainty, deliberately observing habitual patterns of thinking, feeling, and behaving, and focusing on being rather than doing are antithetical to many current Western norms, such as multitasking, productivity, and ubiquitous media connectivity (Kabat-Zinn, 2003). From the Western social-psychological perspective, to live more mindfully does not necessarily require meditation, but it does require a similar shift in consciousness—a new way of seeing—that emerges from direct, personal experience.

Whether the conscious shift toward greater mindfulness comes about through meditation practice or through other means for first-hand insight and realization (e.g., modeling a teacher, a friend, a therapist, or a spiritual guide), the benefits likely develop as a result of two unique steps. The first is to realize one’s attachments to things: ideas, concepts, assumptions, rules, and expectations. The second is to let those attachments go and see things from a new, more flexible and open perspective. From a contemplative and a social-psychological perspective, conceptual attachments, like rumination, narrow one’s thinking, restrict one’s behavior, and limit one’s possibilities, including possibilities for health and well-being (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). In contrast, mindfully acknowledging and letting go of automatic, habitual ways of thinking can allow new levels of possibility, creative problem-solving, and learning, which, in turn, can support self-care and mental and physical health (E. Langer, 1989, 1997; E. J. Langer, 2005, 2009). According to Vietnamese Buddhist monk and renowned mindfulness meditation teacher, Thich Nhat Hanh, “We have more possibilities available in each moment than we realize” (quoted in Miller, 2004). Can this newfound insight and energy harnessed from mindfulness translate to better mental health?

As we describe in this chapter, most psychological disorders involve a fundamental problem with inflexibility, lack of insight, or narrowed perspective—that is, *mindlessness*. Recent advances in psychological science, neuroscience, and mindfulness research suggest that mindfulness training can target a variety of mindless mental processes that cut across numerous psychological disorders. These common processes specifically include negative affectivity and emotional reactivity, repetitive negative thinking such as rumination, experiential avoidance, attentional bias, reappraisal, and suppression of thoughts and feelings. Because these repetitive, inflexible, distress-producing ways of thinking, perceiving, and behaving are implicated in many disorders (e.g., anxiety, depression, posttraumatic stress, substance use, sleep disturbance, eating disorders, and chronic pain conditions), such mental processes have been coined “transdiagnostic” (Harvey, Watkins, Mansell, & Shafran, 2004), literally meaning across illnesses. In a paradigmatic shift away from conventional, disorder-specific treatment, there is a new movement toward focusing on transdiagnostic treatment approaches that target a core set of psychopathological processes that seem to underlie many clinical disorders (Barlow et al., 2011; Craske, 2012; Mansell, Harvey, Watkins, & Shafran, 2008; Taylor & Clark, 2009). By reviewing the nature of transdiagnostic mental processes, describing their role in the etiology across psychological disorders, and demonstrating the ways in which mindfulness meditation can help through mindful learning, we propose that an integrated view of Eastern and Western mindfulness may offer a “transtherapeutic” approach to understanding optimal mind–body health.

A Paradigm Shift: Away From Conventional Categories and Toward Functional Processes

What if there were a single approach to mental health that was relatively simple to learn, widely available, applicable to anyone, and effective across a wide range of adverse life conditions? The implications for health, and society, could be profound. Whereas mental-health-care practice and research have evolved toward more and more refined levels of diagnostic specificity and distinction (Kendler, 2009), leaders at the National Institute of Mental Health (NIMH) have recently called for a shift away from classification based on presenting signs and symptoms, and toward more functional, objective assessments of brain function, genetics, and maladaptive behavior (Insel et al., 2010). In theory, the paradigm shift would overcome slowdowns in discovering new treatments and barriers to optimizing patient outcomes by identifying mind–brain–body–behavior processes that, when effectively targeted, could accelerate progress toward better health, for individuals and society. Some of the functional processes include fear/extinction, reward, executive function, and impulse control. According to Insel and colleagues (2010):

the practitioner of the future could supplement a clinical evaluation of what we now call an “anxiety disorder” with data from functional or structural imaging, genomic sequencing, and laboratory-based evaluations of fear conditioning and extinction to determine prognosis and appropriate treatment, analogous to what is done routinely today in many other areas of medicine.

The emergence of functional, transdiagnostic mental processes in the context of a paradigm shift in psychiatric nosology offers a timely opportunity to examine mindfulness as a transtherapeutic approach.

As we present in this chapter, increasing experimental and clinical evidence supports the overarching hypothesis that mindfulness can target core cognitive, emotional, neural, physiological, and behavioral processes implicated in the risk, severity, and relapse of mental disorders. If data continue to accrue, we may be on the threshold of an era in which “personalized mindfulness” could become part of personalized medicine. Previous reviews and meta-analyses have consistently documented the broad mental-health benefits of mindfulness training in both clinical and nonclinical populations (Baer, 2003; Black, Milam, & Sussman, 2009; Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; de Vibe et al., 2012; Eberth & Sedlmeier, 2012; Grossman, Niemann, Schmidt, & Walach, 2004; Hofmann, Grossman, & Hinton, 2011; Hofmann, Sawyer, Witt, & Oh, 2010; Piet & Hougaard, 2011; Vøllestad, Nielsen, & Nielsen, 2012). Other scholars have proposed some of the functional processes that may underlie the effectiveness of mindfulness-based clinical interventions, and that might explain individual differences in outcomes (Baer, 2007, 2009; Chambers, Gullone, & Allen, 2009; Chiesa, Serretti, & Jakobsen, 2013; Garland, Boettiger, & Howard, 2011; Greeson, 2009; Keng, Smoski, & Robins, 2011; Shapiro, Carlson, Astin, & Freedman, 2006; Teasdale et al., 2002).

In the following section, we define a number of transdiagnostic mental processes, describe their functional (pathophysiological) role in mental disorders, explain how mindfulness can target the dysfunction, and review empirical evidence for the

transtherapeutic effect of mindfulness practice. Throughout the examples, we develop a common theme that from the perspective of mindfulness, sometimes “awareness is enough.” We then follow with a separate section that highlights the instrumental role of mindful learning in facilitating healthy psychological change, which is intimately tied to biological, physical, and behavioral change.

Mindfulness as a Transtherapeutic Approach for Transdiagnostic Mental Processes

Negative affectivity and emotional reactivity

The tendency to experience negative emotions, such as anger, fear, sadness, and isolation, pervades most psychological disorders listed in the American Psychiatric Association’s Diagnostic and Statistical Manual (DSM) of Mental Disorders (American Psychiatric Association, 2013). It is normal and healthy to experience a full range of emotions, on a continuum from subtle and fleeting to intense and longer lasting. Psychological disorders, however, typically require “significant distress” (American Psychiatric Association, 2013). Hence, in the current classification system for mental health and mental-health care, subjective levels of emotional distress are critical to the diagnostic process, and to determining what is “disordered” versus what is “normal.”

There is tremendous variation in subjective emotional experience, including how aware individuals are of their emotions and how well they are able to regulate them (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Werner & Gross, 2010). For example, somebody who considers themselves “emotional” (i.e., easily feels sad, anxious, angry, lonely, or isolated) could be normal, dysthymic, or neurotic according to conventional clinical standards, depending on how pervasive, intense, long-lasting, impairing, and distressing the negative emotions are reported to be. In addition, negative emotions do not typically occur in isolation. For example, epidemiological surveys have found that over 50% of patients diagnosed with depression also have an anxiety disorder (Kessler, Chiu, Demler, & Walters, 2005). According to the DSM-V (American Psychiatric Association, 2013), comorbidity occurs regularly between mood, anxiety, substance use, pain, and sleep disorders. Moreover, because emotional distress has psychophysiological and biochemical consequences, stress-related physical symptoms frequently cooccur with chronic negative affect (Watson & Pennebaker, 1989). The high prevalence of comorbidity between emotional disorders suggests that negative affectivity is widely shared within, among, and across current diagnostic categories. Indeed, brain-imaging studies have begun to uncover shared functional correlates across mental disorders like depression and substance use, such as heightened amygdala reactivity to emotional stress and relatively weak frontal inhibition of emotional reactivity (Chiesa, Brambilla, & Serretti, 2010). Dysregulated frontal-limbic circuitry is now an accepted biomarker of emotion dysregulation and thus represents a functional target for transdiagnostic treatment approaches, including mindfulness training (Brewer, Bowen, Smith, Marlatt, & Potenza, 2010; Chiesa et al., 2010; Garland et al., 2011; Ochsner, Silvers, & Buhle, 2012).

The triple vulnerabilities theory postulates that a common set of biological, psychological, and context-specific vulnerabilities interact to develop and maintain a host of

emotional disorders, including anxiety, depression, posttraumatic stress, substance use, eating, somatoform (pain), and sleep disorders (Barlow et al., 2011). At the core of the triple vulnerabilities theory is the assumption that a predisposition—a psychobiological diathesis—lies dormant until activated by stress, which is always specific to one's current life context. Hence, the triple vulnerabilities theory is one way to explain how different diagnostic categories can share common dysfunctional *processes*, but the *content* of dysfunction differs from person to person. Clinically, individual differences in emotional experience, due to possible differences in cognitive, affective, neural, psychophysiological, behavioral, and/or genetic factors, make it difficult to reliably predict mental-health outcomes following conventional diagnosis and treatment (Insel et al., 2010). Therefore, identifying a viable approach to target negative affectivity and its associated biological, psychological, and contextual vulnerability factors would be clinically useful, widely applicable, and efficient.

Numerous systematic reviews and meta-analyses have documented consistent effects of mindfulness-based interventions on reducing negative affectivity. Specifically, reduced negative affect has been observed across clinical disorders, including depression and anxiety (Fjorback, Arendt, Ørnboel, Fink, & Walach, 2011; Hofmann et al., 2010; Vøllestad et al., 2012), substance use (Bowen et al., 2009; Witkiewitz & Bowen, 2010), and chronic pain conditions (Chiesa & Serretti, 2011; Rosenzweig et al., 2010), as well as among samples of healthy but stressed adults (Bohlmeijer et al., 2010; de Vibe et al., 2012). Increases in self-report measures of mindfulness partly mediated reduced negative affect and improved mental health in several trials (Carmody & Baer, 2008; Garland, Gaylord, & Fredrickson, 2011; Greeson, Webber, et al., 2011; Shapiro, Brown, & Biegel, 2007), suggesting that mindful processes such as observing, describing, nonjudging, nonreacting, and acting with awareness are directly related to change in a core transdiagnostic vulnerability factor.

Mindfulness training may also reduce the tendency to experience negative emotions by enhancing emotion regulation (Chambers et al., 2009; Chiesa et al., 2013; Keng et al., 2011). For example, Mindfulness-Based Cognitive Therapy (MBCT) has been found to increase both attentional capacity and metacognitive awareness, which, in turn, were associated with reduced avoidance of distressing thoughts and feelings, increased ability to tolerate negative emotions, and decreased reliance on rumination—a maladaptive emotion-regulation strategy (Corcoran, Farb, Anderson, & Segal, 2010). Following an 8-week Mindfulness-Based Stress Reduction (MBSR) program, changes in two emotion-regulation strategies—decreased suppression and increased reappraisal—correlated with both increased mindfulness of thoughts and feelings, and decreased symptoms of anxiety and depression (Greeson, Smoski, Brantley, Suarez, & Wolever, 2011). These findings are consistent with the hypothesis that mindfulness training may target negative affectivity, in part, by enhancing cognitive regulation of negative emotions (Baer, 2003; Chiesa et al., 2013; Shapiro et al., 2006).

Chambers and colleagues (2009) have proposed an alternative model of “mindful emotion regulation” in which conscious efforts to control or regulate emotions, through cognitive reappraisal, for example, may be antithetical to traditional Eastern conceptualizations of mindfulness and meditation, in which the goal is simply to observe one's experience as it unfolds moment by moment, without interfering or trying to alter it. In an effort to integrate the observing, accepting attitude embodied in

traditional mindfulness meditation practice with the well-documented psychological benefits of cognitive reappraisal that stem from cognitive-behavioral therapy, Garland and colleagues (2009) proposed a mindful coping model in which stress appraisals (i.e., initial thoughts, judgments, expectations, beliefs, and perceived limitations) can be transformed into positive opportunities for growth, flexibility, and healthy change by meditating on one's distressing experience in the moment, and using metacognitive awareness derived from a "decentered" perspective to let go of concepts, attachments, and self-limitations in order to actively see new possibilities from a larger, nonself-focused context. That conceptualization of mindful coping suggests an instrumental role of Langer's concept of mindful learning in the process of attaining greater mental health through meditation practice.

Another way in which mindfulness can specifically target, or ameliorate, negative affect is by modulating emotional reactivity. Reacting intensely, automatically, and habitually to the experience of negative emotions and stress is itself implicated in various forms of psychopathology, from major depressive disorder and borderline personality disorder to posttraumatic stress disorder (PTSD), and substance abuse and dependence (Kring & Sloan, 2010). Hence, emotion dysregulation in the context of emotional disorders has much to do with the problem of reactivity. Unfortunately, because intense emotional experiences are aversive, people often try to cope by attempting to suppress them (Gross & John, 2003; Salters-Pedneault, Steenkamp, & Litz, 2010; see also section "Suppression" in this chapter). Paradoxically, however, the more one tries to suppress negative emotions, the more distress they experience and the greater the psychophysiological activation, not less (Gross, 2002). Moreover, because, the momentary experience of negative affect can be amplified and prolonged by a number of cognitive biases in attention, interpretation, memory, and self-focus, states of emotional distress can interact with traits of emotional distress to increase the risk, severity, and relapse of emotional disorders (Harvey et al., 2004; Ingram, Atchley, & Segal, 2011; Mathews & MacLeod, 2005).

Experimental investigations of mindfulness in the laboratory are beginning to elucidate how various types of mindful practices can mitigate emotional reactions, and thereby buffer vulnerability to mental disorder. MBCT for recurrent major depression, for example, has been shown to reduce overgeneral memory, which is associated with a depressogenic downward spiral involving an interaction between negatively biased information processing and amplified negative affect, resulting in longer-term depressed mood (Williams, Teasdale, Segal, & Soulsby, 2000). Mindful breathing meditation—one of the core techniques taught in MBSR, MBCT, and other mindfulness-based interventions—has been shown to mitigate cognitive reactivity to negative (sad) mood induction (Arch & Craske, 2006), and to uncouple negative emotional reactions from repetitive thoughts (Feldman, Greeson, & Senville, 2010). In an ongoing open trial of MBSR for healthy but stressed adults who have trouble sleeping, we have observed decreased emotional reactivity during an anger-recall task, in which participants recount "an event from your life that made you angry, and when you think about it today *still* makes you angry" (Greasen et al., 2013). Decreased emotional reactivity to personally salient social stress induced in the lab has also been observed following MBCT (Britton, Shahar, Szepeswari, & Jacobs, 2012). Finally, a cross-sectional survey study found that higher levels of dispositional mindfulness

weakened the association between neuroticism and trait anger and depressive symptoms (Feltman, Robinson, & Ode, 2009), consistent with the theory that mindfulness can mitigate the tendency to react to stress with negative emotions.

Taken together, convergent results from clinical intervention trials and experimental laboratory studies support the hypothesis that mindfulness practice can reduce negative affectivity. Lower levels of negative affect are accounted for, in part, by higher levels of trait mindfulness, and by diminished reactivity to emotional distress in the moment. These findings are consistent with both Eastern and Western theories of the psychological processes by which mindfulness benefits mental health (Walsh & Shapiro, 2006). Ongoing programs of research are translating available results into novel, theory-driven mindfulness-oriented programs designed specifically to target the cognitive, affective, psychophysiological, neural, and behavioral processes implicated in challenging conditions such as alcohol dependence, chronic pain with opiate dependence, and stress-related sleep disturbance (Bowen, Chawla, Marlatt, & Parks, 2010; Garland, 2013; Greeson, 2008; Harvey, 2009)

Repetitive negative thought

Negative thinking in the form of worry, rumination, obsession, catastrophizing, and self-judgment is like an engine that produces negative affect. Negative thinking that is repetitive and unconstructive can induce or exacerbate negative moods, such that transient feelings of sadness can spiral into depression, momentary feelings of fear can feed longer lasting anxiety, and impulsive cravings can develop into addiction (Watkins, 2008). As described elsewhere in this chapter (see section “Attentional bias”), negative thinking is marked by a number of cognitive biases in attention, interpretation, and memory (Mathews & MacLeod, 2005). Briefly, when one tends to attend selectively to negative aspects of a situation, the negativity becomes amplified in awareness. Over time, this repeated mental process can contribute to the onset, maintenance, or relapse of psychological disorders like depression, anxiety, substance use, and insomnia (Harvey, 2008; Mansell et al., 2008). Because repetitive negative thinking is largely dispositional, individuals often report that their automatic thoughts, negative judgments, pessimistic beliefs, and catastrophic, overgeneralized expectations seem automatic and difficult to control. The subjective perception of automaticity is consistent with experimental findings that demonstrate negative thinking and negatively biased attention, interpretation, and memory retrieval are all implicit cognitive processes (Friedman & Whisman, 2004; Teachman & Woody, 2004). Paradoxically, the more one tries to suppress intrusive negative thoughts, and corresponding negative affect, the more helpless, distressed, and out of control one can feel (Salters-Pedneault et al., 2010). Therefore, vulnerability to multiple forms of psychopathology involves a dynamic interaction between negative thinking, negative affect, biased information processing, and unsuccessful attempts to mentally control upsetting thoughts and feelings (Ingram et al., 2011; Mathews & MacLeod, 2005). Whereas cognitive and cognitive-behavioral therapies aim to teach patients a variety of emotion-regulation skills, such as cognitive reappraisal, thought stopping, exposure, and distraction, mindfulness meditation training could conceivably offer a transtherapeutic approach

to coping with repetitive negative thoughts and associated negative affect not by controlling, restructuring, stopping, or otherwise controlling upsetting thoughts or emotions, but rather by fundamentally changing how one relates to so-called mental events that arise in one's consciousness in a given moment (Baer, 2007; Chambers et al., 2009; Greeson & Brantley, 2008; Sauer & Baer, 2010; Shapiro et al., 2006; Teasdale, 1999).

Mindfulness can help individuals change how they relate to thoughts and feelings through several interrelated cognitive, emotional, psychophysiological, and behavioral processes. From a cognitive standpoint, mindfulness meditation practice cultivates a fundamental shift in perspective variably called decentering, reperceiving, or metacognitive awareness (Fresco et al., 2007; Safran & Segal, 1996; Shapiro et al., 2006). This shift in view is characterized by not identifying as strongly with the contents of one's thoughts and feelings, primarily by viewing thoughts, feelings, judgments, expectations, and other perceptions as transient mental events in the field of one's awareness. By simply observing thoughts, emotions, and other perceptions with a sense of openness, curiosity, nonjudgment, and acceptance, one is able to grow increasingly comfortable exposing oneself to potentially upsetting thoughts, feelings, and even physical pain or discomfort without trying to change, diminish, or otherwise control one's experience. Cultivating this ability to "decenter" or "reperceive" one's experience of stressful, anxiety-producing, depressing, or otherwise unpleasant, repetitive thoughts can help prevent such thoughts from causing or exacerbating negative affect (Teasdale, 1999). When individuals, whether generally healthy but stressed or those with psychological disorders, are able to observe upsetting thoughts or feelings without reacting automatically, they typically report feeling more in control, less distressed, and better able to cope (Allen, Bromley, Kuyken, & Sonnenberg, 2009; Dobkin, 2008; Fonteyn & Bauer-Wu, 2005; Kerr, Josyula, & Littenberg, 2011). From a psychophysiology and neuroscience standpoint, reappraisal or developing a "wise relationship" with one's thoughts and feelings is marked by greater cognitive, pre-frontal control of emotional reactivity in the limbic system (Farb, Anderson, & Segal, 2012; Goldin & Gross, 2010; Greeson & Brantley, 2008; Ochsner et al., 2012), less narrative self-focused processing in the default mode network (DMN; Brewer et al., 2011; Farb et al., 2007; Hasenkamp & Barsalou, 2012), and less exaggerated physiological responses to emotional stress (Greasen et al., 2013; Nyklicek, Mommersteeg, Van Beugen, Ramakers, & Van Boxtel, 2013). In addition, recent neuroimaging studies have indicated that mindfulness meditation practice—a largely sensory process—is associated with increased functional connectivity within and among attentional networks, sensory cortices, and limbic structures (Farb et al., 2012; Froeliger et al., 2012; Hasenkamp & Barsalou, 2012; Hölzel et al., 2013; Kilpatrick et al., 2011). Taken together, research in the emerging field of mindfulness neuroscience supports the notion of neuroplasticity, that brain structure, function, and connectivity are changeable with meditation (Tang & Posner, 2013).

Several clinical trials and experimental laboratory studies have found evidence that mindfulness meditation training can reduce rumination—a transdiagnostic mental process marked by repetitive thoughts about one's negative mood and one's life problems (Nolen-Hoeksema et al., 2008). These studies showed that reduced rumination was associated with reduced depressive symptoms (Burg & Michalak, 2011;

Deyo, Wilson, Ong, & Koopman, 2009; Heeren & Philippot, 2011; Van Vugt, Hitchcock, Shahar, & Britton, 2012) and decreased sleep disturbance (Greeson, 2011). Another study found that a single session of mindful breathing meditation, compared to loving-kindness meditation or progressive muscle relaxation, was associated with greater decentering scores as well as less negative emotional reactivity to repetitive thoughts experienced during the guided meditation exercise (Feldman et al., 2010). Therefore, convergent evidence from clinical intervention trials and experimental laboratory studies has shown that mindfulness meditation practice offers a systematic method for cultivating a core shift in perspective characterized by less focus on oneself, less need for conscious cognitive control, less emotional reactivity to repetitive negative thoughts, diminished limbic and physiological reactivity to acute emotional stress, and increased sensory processing in the brain. These cognitive, emotional, neural, and physiological processes, alone or in combination, help mitigate the pathological effects of self-focused, negative, repetitive thinking and associated arousal of negative affect. Empirical findings reviewed here support the theory of mindful emotion regulation, in which a shift in view away from cognitive control and toward unbiased observation, acceptance, and allowance is associated with greater emotional balance, more efficient brain function, and physiological homeostasis, with potential long-term implications for better mind–body health (Chambers et al., 2009).

Experiential avoidance

Attempting to mask, suppress, distract oneself from, or otherwise avoid, unpleasant psychological experiences has been termed experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). According to Hayes, Strosahl, and Wilson (2012), experiential avoidance is believed to cause, exacerbate, or maintain numerous psychological disorders, including depression, various forms of anxiety, PTSD, eating disorders, substance abuse, and chronic pain. One mindfulness-oriented behavioral therapy, called Acceptance and Commitment Therapy (ACT), specifically aims to decrease experiential avoidance by having patients deliberately expose themselves to distressing thoughts, emotions, and beliefs they ordinarily avoid. To target experiential avoidance, ACT couples deliberate exposure to distressing thoughts and feelings with a technique called cognitive defusion. Consistent with the core principles and practices of Buddhism, cognitive defusion teaches patients to let go of attachments to the literality of language, including negative thoughts, judgments, and beliefs, and to see “self-as-context” (Hayes, 2003; Hayes & Shenk, 2004). Building on a fundamental shift in perspective engendered by exposure, acceptance, and cognitive defusion, ACT encourages patients to then engage in values-based action. Values-based action occurs when individuals commit to acting in accord with their most important values, rather than acting in ways that serve to avoid distress in the moment, but maintain distress or disorder long-term (Hayes et al., 2012). For example, in ACT, a patient who repeatedly and uncontrollably worries about multiple areas in their life, such as health, finances, and relationships, could be encouraged to visualize worries passing like clouds through the sky. Viewing thoughts, judgments, and emotions as passing

mental events, rather than identifying with them or even seeing mental events as accurate representations of reality, affords a greater sense of distance, a sense that one is more than one's thoughts and feelings (Fresco et al., 2007). The ability to analyze inner experiences with greater self-distance, without avoiding or ruminating or otherwise reacting mindlessly, is believed to increase adaptive self-focus and insight, which, in turn, can guide wise action, leading to better mental and physical health (Ayduk & Kross, 2010; Baer, 2009; Shapiro et al., 2006; Teasdale, 1999).

There are significant mental- and physical-health implications of learning to let go of experiential avoidance. When upsetting thoughts, emotions, and physical sensations are experienced as transient and constantly changing, without having to avoid or suppress them, patients are often able to disengage from automatic, maladaptive, mindless behaviors, such as overeating, using illicit substances, or using maladaptive cognitive strategies like worry or rumination to try and control unpleasant emotions (Hayes et al., 2012). The phenomenology of defusion in ACT is akin to decentering or reperceiving in mindfulness meditation. From the perspective of ACT, as one develops greater skill defusing from attachments to thoughts, ideas, beliefs, or expectations, one is able to gain psychological flexibility and behavioral freedom, with mental-health benefits comparable to conventional CBT (Powers, Zum Vörde Sive Vörding, & Emmelkamp, 2009). In contrast to other mindfulness-based interventions like MBSR, MBCT, and Mindfulness-Based Relapse Prevention (MBRP), however, ACT does not provide instruction in meditation per se, nor does it expect one to develop and maintain a daily meditation practice to build the core skills of exposure, acceptance, defusion, and values-based action—all of which could also come through mindfulness meditation (Baer, 2003; Shapiro et al., 2006).

A primary mechanism of change in ACT is increased psychological flexibility, defined as "...the process of contacting the present moment fully as a conscious human being and persisting in or changing behavior in the service of chosen values" (Gloster, Klotsche, Chaker, Hummel, & Hoyer, 2011). This definition is similar to both Eastern and Western conceptualizations of mindfulness insofar as each focuses on the core process of detaching oneself from rigid, self-limiting ways of seeing and ways of being that can harm mental and physical health. Hence, like MBSR and other meditation-based versions of mindfulness training, ACT aspires to cultivate a fundamental shift in perspective designed to increase awareness of attachment to rigid, automatic, distress-producing ideas, thoughts, beliefs, and expectations, with the aim of detaching from them. When one's inner experience can be perceived differently—more objectively, without reacting automatically—one has the opportunity to reappraise one's situation and then choose how to act in a way healthy, mindful, flexible way, especially in the face of stress, adversity or illness (see section "Reappraisal"; for a conceptual review, see Garland, Gaylord, & Park, 2009).

In several observational and randomized controlled trials, therapeutic outcomes of ACT have been partly mediated by reduced experiential avoidance, or increased psychological flexibility (Hayes, Levin, Plumb-Vilardaga, Villatte, & Pistorello, 2013). An open trial of MBSR also found significantly reduced levels of experiential avoidance, which were significantly correlated with reduced rumination, thought suppression, and symptoms of anxiety and depression on one hand, and increased mindfulness of thoughts and feelings on the other (Greeson et al., 2010). Qualitative studies have further reported that individuals trained in mindfulness meditation are able to develop

an observing attitude, in which they learn to witness their inner experience more objectively, less judgmentally, and nonreactively, which is associated with both improved psychological well-being and healthy lifestyle behaviors in the face of stress, mental disorder, or medical illness (Allen et al., 2009; Dobkin, 2008; Kerr et al., 2011; Kerrigan et al., 2011; Mackenzie, Carlson, Munoz, & Speca, 2007; Morone, Lynch, Greco, Tindle, & Weiner, 2008).

Taken together, mindfulness-oriented techniques, whether they involve meditation practice or not, combine exposure, acceptance, values, and behavior change strategies to help individuals experience distress without having to avoid it, which in turn affords new possibilities for seeing oneself, and one's possibilities, differently—a mark of psychological resilience to mental and physical disorders.

Attentional bias

Attention enhances information processing of emotionally salient objects or events (Desimone & Duncan, 1995) by selecting them from the environmental context in which they are embedded (Corbetta & Shulman, 2002). Thus, attention gates perceptions of stimuli for the subsequent evaluation of their motivational relevance. Depending on their significance to the survival of the organism, objects of attention elicit the motivation to approach or avoid, while the resultant emotional state, as the manifestation of approach or avoidance motivations, tunes and directs attention (Friedman & Förster, 2010; Lang & Bradley, 2010). As such, attention is often biased towards emotionally significant stimuli, such that individuals detect and sustain attention on mood-congruent objects and events more rapidly than those who are not congruent with their current emotional state (Mathews & MacLeod, 2005). Thus, individuals suffering from chronic, negative emotional states tend to pay attention to disappointing, upsetting, or frightening experiences, while overlooking or ignoring features of the environmental context that are beautiful, affirming, or pleasurable.

Attentional bias has been observed among persons diagnosed with mood disorders, anxiety disorders, eating disorders, chronic pain, and even addiction, among other conditions. Persons experiencing high levels of anxiety, for example, tend initially to orient their attention to threatening stimuli which they then try to deliberately avoid (Cisler & Koster, 2010; MacLeod, Mathews, & Tata, 1986). However, many anxious individuals find it difficult to disengage their attention from threatening objects and events (Fox, Russo, & Dutton, 2002). Similarly, persons with substance-use disorders tend to exhibit addiction attentional bias, whereby attention may be automatically captivated by and fixated on substance-related cues like a liquor bottle or crack pipe (Field & Cox, 2008). Addiction attentional bias may be exacerbated by stress (Field & Quigley, 2009), is associated with craving (Field, Munafò, & Franken, 2009), and can increase the consumption of substances (Field & Eastwood, 2005). Attentional bias towards affectively salient stimuli is subserved by increased activation in brain regions that subserve emotional information processing, such as the amygdala and insula (Costafreda, Brammer, David, & Fu, 2008; Frewen, Dozois, Joanisse, & Neufeld, 2008). By promoting hypervigilance to emotionally significant objects or events, attentional biases may create an obsessive focus that amplifies and perpetuates dysphoria, fear, and self-destructive habits.

Mindfulness training may modify attentional biases by strengthening attentional disengagement from triggers and facilitating attentional reorienting to neutral or health-promoting stimuli. During mindfulness training, participants are taught to recognize when their attention has been captivated by distressing mental content or aversive perceptual experience, and then to shift their focus back to the sensation of respiration as a means of “stepping back” or decentering from emotional reactions (Carmody, 2009). Each time attention wanders to maladaptive thoughts or feelings, the client is taught to accept that this has happened, and then to disengage and return the focus of attention back to the breath. As a result of this practice, mindfulness training improves the general capacity to disengage and shift attention efficiently from one object to another (Jha, Krompinger, & Baime, 2007).

Strengthening domain-general attentional control through mindfulness training may have positive effects on attentional bias in clinical populations. For instance, among persons struggling with alcohol dependence, participation in Mindfulness-Oriented Recovery Enhancement was associated with significant changes in alcohol attentional bias (Garland, Gaylord, Boettiger, & Howard, 2010), and recovering alcoholics who are higher in trait mindfulness are better able to disengage their attention from addictive cues (Garland, Boettiger, Gaylord, Chanon, & Howard, 2012), which predicts the extent to which they can recover physiologically from exposure to such cues (Garland, 2011). Mindfulness training may also reduce attentional biases among individuals suffering from chronic pain syndromes. Compared to meditation-naïve fibromyalgia patients, patients in a mindfulness training program exhibited significantly greater attentional disengagement from pain-related visual cues (Vago & Nakamura, 2011). Similarly, chronic pain patients randomly assigned to eight weeks of Mindfulness-Oriented Recovery Enhancement evidenced significantly greater decreases in pain attentional bias than those assigned to a support-group control condition (Garland & Howard, 2013). Lastly, evidence suggests that MBCT, compared to a comparison group, can reduce attentional bias toward negative information processing among persons with a history of depression (De Raedt et al., 2012).

The practice of mindfully becoming aware of and disengaging attention from distressing objects, events, and experiences may allow for flexible deployment of attention to adapt to situational demands and allow for a fuller appreciation and enjoyment of life.

Reappraisal

Because many situations in life involve a high degree of ambiguity, the meaning of human encounters is often complex, subtle, and indeterminate. Adaptation to ambiguous situations with uncertain outcomes may result in stress and the sense of a loss of control (Monat, Averill, & Lazarus, 1972). When confronted with the same stressor (e.g., being fired from a job), one individual may respond with depression and apathy, another with anger and aggression, and a third with optimism and constructive action. In each case, the stressor event is the same, but the appraisal of that event results in distinct emotional, behavioral, and physiological consequences. Individuals appraise stressors for their risk value or significance to the self, while assessing whether

available resources and coping options are sufficient to meet the demands of the stressor (Lazarus & Folkman, 1984). The appraisal process may be executed rapidly, in 50 milliseconds for certain, evolutionarily salient classes of stimuli, such as snakes (Öhman, Carlsson, Lundqvist, & Ingvar, 2007), and automatically without conscious deliberation (Bargh & Chartrand, 1999). Such automatic appraisals are conditioned both by past experience and by present emotional state. Alternatively, conscious appraisals are slower and more methodical, unfolding over minutes (or even longer) as an individual uses reason and logic to interpret the meaning of a stressor event.

If, through the process of appraisal, available resources are deemed to be insufficient to manage or resolve the stressor, this computation will initiate the biopsychosocial sequelae of the stress reaction. The stress reaction involves the activation of neural circuits linking the extended amygdala to the hypothalamic–pituitary–adrenal axis, the locus coeruleus, and the autonomic nervous system. Activation of this stress pathway results in secretion of beta-endorphin and adrenocorticotropin, which in turn lead to the release of cortisol from the adrenal cortex (Brosschot, Gerin, & Thayer, 2006). Cortisol etches the significance of the stressor deeply within the brain by sensitizing neurotransmission between the amygdala and hippocampus, thereby enhancing information processing of threat-related stimuli and strengthening encoding of fear memories (McEwen, 2007). Concurrently, stress appraisal initiates a rapid “fight-or-flight response” (Cannon, 1929) governed by the central autonomic network (Thayer & Lane, 2009), a system of neural circuits linking the cortex and limbic regions to the viscera and periphery via the sympathetic and parasympathetic nervous systems. During the fight-or-flight response, the central autonomic network prepares the individual to flee or defend against a threatening event by innervating muscle groups, driving the pacemaker of the heart, slowing digestion, stimulating sweat gland activity, and regulating shifts in body temperature (Janig, 2002). These physiologic changes are often coupled with dysphoric emotions of anxiety, rage, and sorrow that further bias appraisal processes toward negative information processing.

Yet, appraisal processes are not static—reappraisal occurs when the initial stress appraisal is modified by an influx of new information or through the reorganization of associations linked with the stressor and its context. During the process of reappraisal, the meaning of a stressful or adverse event is reconstrued so as to reduce its negative emotional impact (Folkman & Moskowitz, 2000; Lazarus & Folkman, 1984). Reappraisal attenuates stress physiology (Gross, 2002), increases top-down prefrontal control over limbic reactivity (Ochsner & Gross, 2005), and is often a crucial step toward reengaging with the stressor event. Mindfulness training may facilitate reappraisal processes (Garland et al., 2009, 2011). In the wake of an adverse event, mindfulness practice allows one to disengage from the initial negative appraisal into the metacognitive state of mindfulness. From the broadened perspective afforded by the state of mindfulness, the scope of attention is enlarged to encompass previously unattended contextual information from which new appraisals of the stressful event may be generated. By accessing this expanded set of information, individuals can then reappraise their circumstances in a way that attenuates the stress reaction and promotes prosocial and constructive action. Speculatively, this “mindful reappraisal” process may unfold temporally such that mindfulness practice first attenuates activation in brain areas that instantiate self-referential, linguistic processing during negative

emotional perturbations (i.e., medial prefrontal cortex; see Farb et al., 2010), which then facilitates the set shifting process of cognitive reappraisal as emotional interference is attenuated while alternate construals of the stressor are evaluated for their significance to the self (Kalisch, 2009).

A growing body of research suggests that mindfulness may promote reappraisal. A prospective observational study of 339 adult participants in an 8-week-long mindfulness-based stress and pain-management program indicated that the stress-reductive effects of increases in dispositional mindfulness were partially mediated by increases in positive reappraisal (Garland et al., 2011). Another large prospective observational study of 322 adults found that increased mindfulness of thoughts of feelings after an 8-week MBSR program was directly related to both increased emotion reappraisal and decreased emotion suppression, which in turn were related to reduced symptoms of anxiety and depression (Greeson, Smoski, et al., 2011). A laboratory study employing electroencephalography found that when compared to controls, meditators evidenced greater reappraisal efficacy as evidenced by significantly larger attenuation of brain activity in centro-parietal regions during reappraisal of aversive images (Gootjes, Franken, & Van Strien, 2011). Trait mindfulness has also been linked with reappraisal in neuroimaging research; trait mindfulness was significantly associated with dorsomedial prefrontal cortex activation during a reappraisal task, which in turn was inversely correlated with amygdala reactivity to negative stimuli (Modinos, Ormel, & Aleman, 2010). Lastly, a recent study found that individuals who had completed a course of Mindfulness-Based Cognitive Therapy evidenced significantly greater reappraisal efficacy during negative mood induction than those who had been treated with cognitive-behavior therapy or a matched control group (Troy, Shallcross, Davis, & Mauss, 2012).

Thus, the cognitive flexibility engendered by mindfulness training may promote emotion regulation by facilitating reappraisal of stressful or adverse circumstances. In undoing habitual or automated ways of viewing and construing difficult circumstances, mindfulness may allow for more nuanced appreciation of challenging life contexts and the opportunities embedded within them.

Suppression

When confronted with unwanted or intrusive thoughts or feelings, many individuals attempt to cope through suppression. The effort to not think about something can, however, ironically enhance the accessibility of the unwanted thought to consciousness. This so-called “rebound effect” is suggested by studies demonstrating that attempted suppression often results in an increased rate of the thoughts and emotions it is directed against (Wegner, Schneider, Carter, & White, 1987; Wenzlaff & Wegner, 2000). Suppression is thought to involve two processes: a conscious search for thoughts and feelings consistent with the desired mental state, and an unconscious monitoring process that searches continually for thoughts and feelings that are inconsistent with the desired state (Wegner, 1994). Inadvertently, by searching the mind for undesirable mental contents to be replaced, this actually leads to increased accessibility of the unwanted thoughts, especially under conditions of high stress

(Wegner & Erber, 1992). When suppression is sustained over time, it depletes the resources needed for self-control, resulting in a rebound of unwanted thoughts and feelings (Muraven & Baumeister, 2000). These deleterious effects may be exacerbated when persons whose neurocognitive control resources have already been depleted due to chronic thought suppression engage in acute suppression of intrusive thoughts (Garland, Carter, Ropes, & Howard, 2012).

Suppression is a common coping response, yet its effects may be especially pernicious among psychologically vulnerable individuals. Indeed, suppression exacerbates posttraumatic stress, addiction, and obsessive-compulsive tendencies, among other pathological states and behaviors (Wenzlaff & Wegner, 2000). For instance, when instructed to suppress urges following alcohol cue exposure, alcoholics exhibited faster reaction times to alcohol-related statements than to neutral phrases (Palfai, Monti, Colby, & Rohsenow, 1997). Similarly, abstinent alcohol dependent individuals experienced greater Stroop interference for the word "alcohol" after they had initially attempted to suppress alcohol-related thoughts compared to individuals who expressed thoughts of drinking (Klein, 2007). Rebound effects following suppression have also been identified for appetitive behavior: suppression of thoughts of smoking (Erskine, Georgiou, & Kvavilashvili, 2010) and eating (Erskine & Georgiou, 2010) has been shown to result in greater enactment of such behaviors in the lab and in everyday life. Moreover, suppression is commonly used to cope with intrusive thoughts, feelings, and memories resulting from traumatic experiences. Ironically, suppression may exacerbate the intrusive trauma-related cognitions that are the hallmark of PTSD (Tull, Gratz, Salters, & Roemer, 2004) by impeding the processing and subsequent integration of traumatic memories into long-term memory (Elzinga & Bremner, 2002; Foa & Kozak, 1986). In that regard, after survivors of a motor-vehicle accident engaged in a period of thought suppression, they experienced twice as many thoughts about the accident than they did prior to suppression (Beck, Gudmundsdottir, Palyo, Miller, & Grant, 2006). Coping through suppression has been shown to predict the occurrence of PTSD up to three years after a motor-vehicle accident (Ehlers, Mayou, & Bryant, 1998; Mayou, Ehlers, & Bryant, 2002). Suppression may also underlie the comorbidity between these conditions; for example, an observational study of patients with comorbid substance dependence, psychiatric disorders, and extensive trauma histories found that thought suppression is associated with higher levels of posttraumatic stress symptoms and drug craving (Garland & Roberts-Lewis, 2013).

Insofar as participants in mindfulness-based interventions are taught to accept their mental experiences rather than push them away or cling to them, mindfulness training may prevent the maladaptive consequences of suppression. Thus, mindfulness training may obviate the need to suppress unwanted thoughts, emotions, and urges by enhancing acceptance and fostering a nonjudgmental attitude toward these experiences. This practice has been conceptualized as a form of mindful exposure (Hölzel et al., 2011) which facilitates experiencing unpleasant events without avoidance or emotional reactivity, leading to extinction of conditioned responses and desensitization to experiences that were previously felt to be distressing.

Empirical research indicates that mindfulness training may decrease suppression. Indeed, the salutary effects of mindfulness training on alcohol use and drinking

consequences are mediated by decreased suppression (Bowen, Witkiewitz, Dillworth, & Marlatt, 2007). Mindfulness-Oriented Recovery Enhancement has been shown also to lead to significant reductions in thought suppression that were associated with decreases in alcohol attentional bias and increases in heart-rate variability recovery from stress and alcohol cue exposure (Garland et al., 2010). Furthermore, in observational research, the effect of MBSR on rumination has been shown to be partially mediated by decreases in thought suppression (Greeson et al., 2009). Lastly, in an experiment in which participants were asked to suppress their emotions, those who engaged in mindfulness meditation following suppression performed equally as well as those who had not depleted their self-control resources previously, indicating that mindfulness meditation may restore the depleting effects of suppression (Friese, Messner, & Schaffner, 2012).

Thus, mindfulness may reduce the tendency to suppress aversive thoughts and feelings, thereby increasing awareness of distressing mental content that might otherwise drive mindless, automated, and self-destructive responses. By allowing thoughts and feelings that had been previously suppressed to surface to consciousness, habitual or schematized ways of thinking and behaving that may have been operating unchecked by controlled cognitive processing during active suppression may become accessible to explicit cognitive control.

Summary

The transdiagnostic mental processes reviewed above are all characterized by *mindlessness*, as evidenced by entrapment in old categories; by automatic behavior that precludes attending to new signals; and by action that operates from a single perspective (Langer, 1997). In this way, mindlessness is akin to being on automatic pilot (Kabat-Zinn, 1990; Langer, 1997). Conversely, mindfulness practice can broaden one's perspective to realize myriad psychological- and physical-health benefits. In the next section, we describe how the process of mindful learning provides a unified framework for understanding how mindfulness meditation training functions as a transtherapeutic process.

Mindful Learning: A Lens for Seeing Mindfulness Meditation as Transtherapeutic

In the perspective of every person lies a lens through which we may better understand ourselves. (Langer, 2005)

Mindfulness, at its essence, involves a fundamental shift in perspective—a shift toward present-focused attention, open awareness, and an understanding of context and conditionalities. This shift in perspective is illustrated by the distinction between the transdiagnostic qualities of *mindlessness*, which pervade mental disorders, and the transtherapeutic qualities of mindfulness, which afford resilience, control, and self-regulation (see Table 28.1). As articulated by other authors (Lutz, Slagter, Dunne, & Davidson,

Table 28.1 Transdiagnostic mental processes and transtherapeutic mindful processes.

<i>Transdiagnostic mental processes</i>	<i>Transtherapeutic mindful processes</i>
Attentional bias	Open monitoring
• Selective attention, negative bias	• Nonjudgment, broadened awareness (esp. sensory awareness)
Negative thinking	Decentering
• Repetitive negative thought: worry, rumination, catastrophizing, obsession, etc.	• Nonreactive observation of thoughts, feelings, and perceptions
Inflexible appraisal	Flexible reappraisal
• Rigid, automatic, rule-bound information processing, judgments, and stereotypic decision-making	• Realize automatic thoughts, fixed assumptions, and habitual behavior; reappraise to see and act differently
Self-focused attention	Mindful self-focused attention
• Self-absorption	• Metacognitive awareness
• Self-concept	• Self-in-context
• Self-schema	• Sensory focus (not narrative focus)
Memory bias	Clear seeing
• Overgeneral (autobiographical) memory	• Accurate, nonbias, not deluded
Negative affectivity/Emotional reactivity	Emotional Balance
• Neuroticism; propensity to experience distress (anxiety, depression, anger, loneliness, etc.)	• Positive emotions, wholesome states, nonreactivity, equanimity
Suppression	Mindful exposure
• Thought suppression (of unwanted intrusive thoughts)	• Observe, describe, nonjudge, accept, allow, let be
• Emotion suppression (of feelings and outward expression)	
Avoidance	Mindful exposure
• Of inner experience; distress intolerance	• Observe, describe, nonjudge, accept, allow, let be
Behavioral dysregulation	Skillful self-regulation
• Habitual reactivity, characterized by rigid, narrow, stereotypical cognitive-behavioral response pattern to emotional distress	• Nonreactivity; act with awareness
• E.g., substance use, overeating, sedentary behavior, sleep disturbance	• Flexible behavioral self-regulation

2008; McCown, Reibel, & Micozzi, 2010), mindfulness meditation practices, in their different forms, are all intended to cultivate the transtherapeutic qualities of mindfulness, including adaptive self-focused attention, clear seeing, open monitoring, and decentering by observing, allowing, and not reacting to automatic thoughts, feelings, and perceptions. Together, these transtherapeutic mindful processes intentionally cultivated through meditation offer a systematic means of exposing oneself to biases, preconceptions, self-limiting thoughts, and habitual mental, emotional, and behavioral tendencies that, left unexamined, can lead to faulty, narrow, and maladaptive self-views with consequences for everyday choices, behavior, and health.

Langer (2005) suggested that engaging in any activity wholeheartedly, without reservation, without judgment, and without fear of evaluation can inspire mindful creativity, spontaneous joy, and deep satisfaction that is rooted in authenticity and direct personal experience. The phenomenology of mindfulness meditation, viewed from the perspective that meditating can be an act of curiosity, interest, openness, and even delight, is therefore consistent with Langer's notion that engagement in any new activity can stimulate mindfulness, and the concomitant mental, physical, and behavioral health benefits that flow from it.

As a practical example to illustrate how mindfulness meditation, through mindful learning, can target transdiagnostic mental processes, take the case of substance use, abuse, or dependence. Addictions typically involve multiple, interacting transdiagnostic mental processes that can cause, exacerbate, or trigger relapse of disorder (Brewer, Elwafi, & Davis, 2013; Garland, Boettiger, & Howard, 2011). For instance, attention can be biased toward substance-related cues, which can feed into negative thinking (worry, obsession, catastrophizing), negative affect (anxiety, anger, depression), and inflexible, rigid appraisals about what must be done in order to cope with an emotional reaction or a harshly critical view of oneself. Paradoxically, attempts to suppress negative thoughts and emotional reactions, and to avoid uncomfortable physical sensations like tension or withdrawal symptoms, seem to magnify the very sources of distress one wishes to avoid, often leading to greater craving and substance use. Consequently, even though using a drug to provide a feeling of greater calmness or comfort can work temporarily, it negatively reinforces substance use as form of behavioral dysregulation. We propose that mindfulness training specifically, and efficiently, targets multiple transdiagnostic mental processes implicated in substance misuse, and other stress-related mental and medical disorders.

Mindfulness-based interventions like MBRP and Mindfulness-Oriented Recovery Enhancement are gaining empirical support for treating substance-use disorders, and improving rates of recidivism (Bowen et al., 2010; Garland, 2013). Recent reviews (Brewer, Elwafi, et al., 2013; Garland et al., 2011; Khanna & Greeson, 2013; Witkiewitz, Lustyk, & Bowen, 2013) also spoke to potential mechanisms of change, which appear to involve transtherapeutic mindful processes listed in Table 28.1. These processes include: (1) mindful exposure to distressing thoughts, emotions, or addiction-related triggers without reacting to them (i.e., urge surfing); (2) flexibly reappraising negative self-judgments or situational limitations as opportunities to see things differently (i.e., an opportunity for learning, meaning, or growth); and (3) purposefully cultivating positive emotions through loving-kindness to foster a sense of connection, shared experience, and self-in-context.

Hence, one can view mindful learning through mindfulness meditation practice as a vehicle for therapeutic change on multiple levels in the context of substance use, abuse, or dependence. Given that transdiagnostic mental processes functionally underlie vulnerability to many other emotional disorders, including depression, anxiety disorders and PTSD, eating disorders, and self-harm, transdiagnostic treatments including mindfulness training offer promising avenues of further research attention and clinical translation (Barlow et al., 2011; Farchione et al., 2012; Garland, 2013; McKay, Fanning, & Zurita Ona, 2011; Sauer-Zavala et al., 2012).

Conclusions and Future Directions

The history of science is rich in example of the fruitfulness of bringing two sets of techniques, two sets of ideas, developed in separate contexts for the pursuit of new truth, into touch with one another. (Oppenheimer, 1953)

From both Eastern and Western views, mindfulness cultivates learning (Kabat-Zinn, 2005; Langer, 1997). From the perspective of mindful learning, uncertainty means possibility for change, including the possibility of adopting a new perspective on the mind, on oneself, and on one's context of ever-changing life conditions. According to Langer (1997), "A mindful approach to any activity has three characteristics: the continuous creation of new categories; openness to new information; and an implicit awareness of more than one perspective." As we have described in this chapter, Langer's view parallels the core principles and practices involved in mindfulness meditation practice, where one is encouraged to become aware of mental percepts, including thoughts, feelings, judgments, evaluations, and impulses, without identifying with them (Grossman & Van Dam, 2011; McCown et al., 2010). Consistent with the process of mindful learning, mindfulness meditation practice offers a systematic method for developing a fundamentally new perspective that "thoughts are not facts" (Segal, Williams, & Teasdale, 2002), we can have "thoughts without a thinker" (Epstein, 2004), and "we have more possibilities available in each moment than we realize" (Nhat Hanh, as quoted by Miller, 2004). Using mindful learning as a lens through which to view two different traditions of wisdom, one can come to see the transtherapeutic qualities of mindfulness, as they apply across conditions.

But will those who are suffering from psychological distress be inclined to meditate, or stick with meditation long-term? Can mindful learning through meditation practice actually be rewarding? Both Brewer, Davis, and Goldstein (2013) and Langer (1997) point out that because the mind tends to wander and seek variety, concentrated attention is itself not naturally rewarding. However, according to these same scholars, becoming interested and curious while paying attention during meditation can lead to greater joy, tranquility, concentration, and equanimity. Because focused, concentrated attention is considered an instrumental part of the foundation by which mindfulness meditation engenders open awareness, insight, and wise action, approaching meditation with an attitude of interest, curiosity, and novelty can support the creative process of awakening, discovery, and well-being.

Although neuroscience research and personal meditation practice both reveal that people tend to be mindless and reactive by default (Farb et al., 2012; Kabat-Zinn, 1990), mindfulness training does offer an opportunity to grow, analogous to Langer's (2005) personal renaissance detailed in *On Becoming an Artist*. Based on a functional understanding of transdiagnostic mental processes, and the rigid thoughts, beliefs, and behaviors that exemplify them, one can therefore frame mindful learning as a therapeutic process by which one comes to see things from a new perspective, becomes more psychologically flexible, and, with practice, frees oneself from previously limiting perceptions that underlie unhappiness or dis-ease. As described by Kristeller (2007), "With the suspension of our usual, conditioned, or overly determined responses, we

may experience an increased emergence of more novel, creative, or ‘wiser’ perspectives on life challenges.” The implications of mindfulness meditation training for research and clinical practice, therefore, are significant.

From a research standpoint, taking a functional view of transdiagnostic mental processes is reflected in current funding priorities at the NIMH, which now aims to better understand cognitive, affective, neural, genetic, and other biobehavioral mechanisms that underlie mental disorders (Insel et al., 2010). Scientific investigation of mindfulness training as a transtherapeutic approach for ameliorating transdiagnostic mental processes could be considered high priority from this new functional view of mental health and illness. Moreover, if research continues to demonstrate that mindfulness training produces therapeutic benefits across a wide range of mental and medical disorders, as has been suggested to date, then there could be substantial implications for shifts in healthcare coverage and health policy (McCabe Ruff & Mackenzie, 2009). However, some of the major barriers to clinical research on mindfulness training include a lack of consensus on how to operationally define mindfulness, how best to assess mindfulness, and whether intervention-related outcomes can be specifically attributed to mindfulness practice (or mindfulness itself), rather than to nonspecific effects of social support, health education, or relaxation (Baer, 2007; Chiesa, 2012; Davidson, 2010; Grossman & Van Dam, 2011).

Future studies, and ongoing clinical experience, will be needed to further explore the potential value of taking a transdiagnostic view of mental disorders, considering mindfulness as a transtherapeutic process, and looking through the lens of mindful learning to see ever-new possibilities for knowing, healing, and growing.

People suffer because they are caught in their views. As soon as we release those views, we are free and we don't suffer anymore. (Hanh, 1998)

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Mindful Health and the Power of Possibility

Michael Hogan

Inspiration

I will never forget meeting Ellen Langer for the first time. Upon arriving to meet her in Harvard's William James Hall, in 2009, I was actually extremely ill, but mindlessly ignoring the symptoms. The painful and yet *irrelevant* swelling in my right leg, and the weak and feverish state that led me to *sleep* through a very stimulating lecture by Daniel Dennett, was in fact a serious blood infection that would later result in my hospitalization. Little did I know that my conversation with Ellen Langer would be the thing that completely transformed my hospital experience from a potentially *stressful, painful nuisance* into a very *interesting and rewarding experience*. I have taken this experience forward in the context of some recent work we have done on the utility of mindfulness practices for coping with chronic pain, which I will present toward the end of the chapter.

But first, I would like to open with a broader narrative and fundamental observations: To understand the transformative power of Ellen Langer's perspective (1978, 1989), and to better understand her creative action, I believe it is useful to experience firsthand her version of mindfulness—the *act of noticing new things*—which is actually very easy to practice, if for no other reason than it energizes and engages us, and opens us to new possibilities. Further, it is useful to consider the way Langer applies her version of mindfulness to understanding of social psychology and developmental psychology phenomena, and science generally. Her thought, as laid out in her four books (Langer, 1989, 1997, 2005, 2009) on mindfulness and in her many empirical papers, represents a veritable stream of understanding that liberates one from a constrained, passive, rigid view of reality, possibility, and human potential. It is Ellen's work that has inspired my own research in the area, and I would like to focus first on my broader philosophical deliberations and how they have shaped my ongoing research agenda.

Eastern and Western Conceptions of Mindfulness?

It is useful by way of a preamble to ask a simple question: Are there distinct “Eastern” and “Western” conceptions of mindfulness? I think the answer is “no.” I think there are many different ways to think about mindfulness, but mindfulness itself knows no bounds, and even simple definitions of mindfulness—*noticing new things*—can be expanded and embedded in more complex worldviews and abstractions that speak to the skill level, application, associated state and scope of mindfulness in action (see below). Consider, for example, what happens when we follow the traditional Eastern line of thinking, for instance, following Austin (2000), highlighting a number of levels (or states) of consciousness that bridge the connection between “mindfulness” (Bishop et al., 2004) and “no-mind.” This is something I did personally when I first explored mindfulness, so it is useful to retrace the steps.

Bishop and colleagues (2004) describe mindfulness

as a kind of nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is. . . . Mindfulness begins by bringing awareness to current experience—observing and attending to the changing field of thoughts, feelings, and sensations from moment to moment—by regulating the focus of attention. This leads to a feeling of being very alert to what is occurring in the here-and-now. It is often described as a feeling of being fully present and alive in the moment. (p. 232)

As I will argue below, if we take as our starting point *the act of noticing new things*, as Langer does, then what Bishop describes is a somewhat narrow conceptualization and application of mindfulness. By broadening our conceptualization and abstracting backwards from the act of noticing new things to the philosophical framework of formism, we can generate a number of categories that help us to broaden our view of mindfulness in action, and this may have implications for the type of research questions we ask.

Nevertheless, by Bishop’s definition, central to mindfulness is direct experience of events in the mind and body. Bishop and colleagues note that thoughts that arise during the practice of mindfulness are not suppressed—all events linked to mind–body experience are considered an object of observation, not a distraction. At the same time, secondary elaborative processing of the thoughts, feelings, and sensations is inhibited. Inhibiting secondary elaborative processing frees up cognitive resources, and because these cognitive resources are directed toward the open experience of ongoing events in the mind and body, an attitude of curiosity and acceptance is established in relation to the stream of conscious experience. Acceptance involves being “open to” or “allowing” current thoughts, feelings, and sensations (Hayes, Strosahl, & Wilson, 1999). Again, I will argue that when cognitive resources are directed elsewhere, it is possible for mindful awareness to be applied to problem-solving activity and envisioning future possibilities, much like Langer describes in her book, *Counterclockwise*, and it is possible to operate at different levels of mindful skill in this regard.

Bishop et al. distinguished their definition of mindfulness from Langer’s definition, which, they believe, emphasize an explicit focus on external (environmental) stimuli

rather than the variety of thoughts, feelings, and sensations that arise when attempting to focus, for example, on the breadth.¹ And notably, in describing what he calls shallower meditative modes, Austin (2000) argued that practitioners do not necessarily distinguish external from internal focus. In other words, the first stage of meditation may involve a mode of mindfulness where recurrent thoughts and sensations are linked to both external and internal stimuli. It is only when the practitioner moves to a deeper meditative mode that they can truly choose whether or not they will focus selectively on external or internal stimuli. Furthermore, at the deeper level, Austin pointed to a movement from transient thoughts and sensations linked to the focus of attention (be it internal or external) to “no thoughts” (Austin, 2000, p. 300).

It is this capacity for no thoughts that is essential to the experience of “nothingness” as distinct from “mindfulness,” and Austin’s scheme highlighted how different types of “nothingness” experience act as important steps on the royal road to “no-mind.” Specifically, Austin (2000) noted that states of consciousness during meditation differ by reference to the intensity of awareness the practitioner can attain, maintain, and use, with higher intensity states allowing for deeper levels of experience, at least until a final stage is arrived at where a very high intensity state of awareness is no longer needed to maintain a stable, trait-like type of awareness that is unbounded.

For example, during the early stages of practice, as intensity of awareness increases from moderate to maximal, practitioners of meditation report significant changes in the experience of (1) a bounded self, (2) a sense of time and place, (3) sensate perceptions registered, (4) positive affect, and (5) detachments from cravings/aversions. Austin described a moderately advanced state called “absorption with sensate loss: internal absorption” (p. 302), where there is temporary awareness of awareness itself permeated by silent space. In this state, which characteristically lasts from seconds to minutes, there is no bounded self experienced, no sense of time or place, and no sensate perceptions registered. Levels of positive affect are high and are retrospectively described using words like “enchantment,” “bliss,” “rapture,” and so on. Importantly, this state of consciousness is the fifth level in Austin’s eight-level scheme, which transitions from shallow states of meditation (level 1), through internal absorption (level 5), and on through to the “stage of ongoing enlightened traits” (level 8).

While it is conceivable for us to use the term “nothingness” as a summary term to describe Austin’s fifth level (“absorption with sensate loss: internal absorption”), there is a higher level state that is a *fuller* type of “nothingness.” Specifically, after internal absorption (level 5) has been experienced, the practitioner can focus attention again on external stimuli and, with a maximal intensity of awareness, experience a sense of oneness with *external* stimuli. At this level (level 6: “Insight-Wisdom,” p. 303) there is no bounded self experienced, no sense of time or place, but *maximal* sensate perceptions registered. This state of consciousness comes before the state of “Ultimate being” (level 7, p. 303), which is the fuller type of “nothingness” mentioned above. According to Austin, “Ultimate Being” involves the experience of emptiness with a maximal intensity of awareness linked to no bounded self, no sense of time or place, no sensate perceptions, and an inexpressible emotional experience. Austin used the footnote description “pure being, beyond subject and object” (p. 303).

Notably, “Ultimate Being” is a state of consciousness that is sustained for seconds to minutes at best. In other words, “nothingness” (both at level 5 and at level 7) is

not long retained, and, ultimately, it is a nonfunctional state (in the sense that it is not linked to any adaptive goals):² it is a state that one must “let happen” and then “let be” (Hogan, 2002).

Having experienced these states of consciousness, the practitioner can move to the final stage in Austin’s scheme, “The Stage of Ongoing Enlightened Traits.” The unique aspects of this state are: (1) it is ongoing, and thus better described as a trait rather than a state;³ (2) it is linked to a moderate (rather than maximal) intensity of awareness and thus can better sustain itself alongside an unbounded external and internal awareness; (3) it allows for free access to an unbounded sense of self; and (4) it is “so in the flow of events that positive things happen with the lightest touch” (p. 303).

We can also use the term “no-mind” to refer to this final state. No-mind is a new *normal* (and thus *trait-like*) state of consciousness that is experienced after level 7 states have been repeatedly experienced for a sufficient period of time to allow for new automatic patterns of sensorimotor experience to be consolidated in the brain, thus acting as a relatively stable background state during the pursuit of day-to-day goals. No-mind can also be described as *transcendence-in-action*: it amounts to a skill (the maintenance of a transcendent state undergirding goal pursuit) that is slowly transferred to multiple other skill domains. This view is consistent with organismic models of skill development (Fischer & Bidell, 2006; Pascual-Leone, 2000). In the sense that no-mind is derived via mindfulness, the weakening of verbal control is a necessary part of skill development, as is the exercise of an increasing intensity of awareness, with higher intensity states allowing for deeper levels of experience that can, for example, penetrate and negate body representations.

When intention enters the field of “nothingness”—and it always does, “nothingness” itself being a fragile state—it is experienced with great intensity, and an inference readily generated is that “intention is the source of great power,” an inference not inconsistent with the idea that, in the context of meditation, the switch from “no-intention” to “intention” corresponds to a relative increase in high frequency (15–25 Hz) electrical brain power (Cahn & Polich, 2006). An increase in power and stability of the “nothingness” state—a function of practice—reinforces the sense of calm, focus, freedom, coherence, and intentional power and control that is experienced when in the no-mind state. Eventually, the no-mind state itself dominates, and the practice of nothingness is less necessary. With explicit practice and application, transcendence-in-action (no-mind) will manifest in physical and mental movements that are increasingly complex.

Although longitudinal studies are unavailable, it is reasonable to estimate that 8–10 years of practice, mixing sitting and moving meditation and repeatedly experiencing level 7 states in the later years while also testing the consequences associated with the pursuit of different goals *in and around the state*, is sufficient to entrain no-mind as a relatively stable background state during the pursuit of most day-to-day goals (Hogan, 2002).

This view is consistent with the body of literature suggesting that the development of expertise in many domains of skill (music, sport, academia, chess, and so on) takes approximately 10 years of intense practice (Hayes, 1989). Regular practice is also needed to maintain certain applications, particularly those that involve a merger of

no-mind with intense physical exertion/pain, extremely complex or difficult physical/mental skills, or noxious stimulation (Kakigi et al., 2005). Also, because no-mind is associated with a movement toward unbounded external and internal awareness, and free access to an unbounded sense of self, it can be usefully applied to the pursuit of any goal conceived of.

Ultimately, this process of moving toward “no-mind” involves acting as an inner empiricist, following the age-old tradition of practicing meditation and allowing for the growth of an increasing intensity of awareness, such that one can move through levels of consciousness and stabilize at a new level of dynamic equilibrium. At the same time, the path outlined above can have a profound effect on one’s thinking about self, other, and world, including the possibility that a whole new process of abstraction and derived relational responding can arise (Hogan, 2009). I followed this path for a while, but then I read Ellen Langer, and I started to notice new things.

Noticing New Things

An idea, to be suggestive, must come to the individual with the force of revelation.
—William James

Ellen and I both teach social psychology. A critical reading of social psychology reveals much to us about the conditions under which people impose rigid, stereotyped views upon themselves and other people, and the conditions under which behavior is a rigid function of contextual control (Myers, 1999). What is often so startling to students who first discover social psychology research is just how rigid, stereotypical, and limited our worldviews and our behaviors often are. Nevertheless, every year, one or two students in my first-year social psychology class approach with great excitement and tell me how inspired they are to *discover* all these human limitations so carefully catalogued by social psychologists. Awareness of the conditions shaping rigid, stereotyped thinking and action, they tell me, has actually liberated them. Some report feeling more open to experience, less rigid in their evaluation of self, other, and world. They report clearer perception, greater awareness of the subtle nuances of experience. They are noticing new things. They are energized and inspired. Some go a step further, extrapolating and anticipating the open field of possibilities: they report a transition from mindless acceptance of all that they know and feel and do, to mindful awareness of all that they *can* know and all that they *can* feel and *can* do. Their prior learning no longer dominates the way they interpret the present moment. The fullness of the present moment itself and the possibility space that opens by virtue of the fusion of the present moment with the ineffable future moment infuse their field of action with a new radiance. All is new. The well-springs of creativity are open. Reality and potentiality come flooding in.

Some students, I believe, remember the raw significance of their inspired insight as they progress to higher levels of ability and skill—they remember to notice new things—they remember mindfulness. Social psychology education provides a wonderful opportunity to shed light upon mindfulness and mindlessness. Experimental social psychology is full of examples of the price people can pay for mindless *learning*, or

mindless assimilation of their “culture.” Research by Chanowitz and Langer (1981), for example, demonstrates the negative consequences of mindless reading of medical information. They provided students with information booklets about a disorder called “chromosythesis,” a condition that could lead to diminished hearing. Some of the students were told that 80% of the population had the disorder, and they were asked to imagine how they might help themselves if they were diagnosed as having “chromosythesis.” Another group was told that only 10% of the population had it, making the disease seem less relevant to them, and they were simply asked to read through the information booklets. All students were then tested to see if they had the disorder, and all were told that, yes, they did indeed have it.

In the next phase of the experiment, participants were tested using a series of objective hearing tests. Those participants who were led to believe that the disorder was less relevant to them and who simply read through the information booklets performed significantly worse on the hearing tests than the group who were led to believe that the disorder was potentially relevant to them and who also thought through the consequences of having the disorder. Langer describes this as one example of the negative effects of *premature cognitive commitments*. Specifically, when information is mindlessly received and accepted without critical question or creative “*what if*” deliberation, we run the risk of implicitly committing to a singular, rigid understanding of the information. When later we are faced with a situation where this “prior learning” is brought to bear on our action in context, we may find ourselves functionally constrained by the rigid understanding we have implicitly established. Mindless reading and mindless learning result in mindless reactivity. We will return to this idea later when describing a mindfulness intervention study we have carried out recently with patients with chronic pain, one core aspect of which was educating them that the label *chronic* may itself limit their awareness of the variability in their symptoms and the contextual factors that influence their ongoing experience of pain.

Contextual Constraint and Contextual Sensitivity

The human mind is capable of perceiving a great number of things, and is so in proportion as its body is capable of receiving a great number of impressions. —Baruch Spinoza

Broadly speaking, there is an important distinction to be made between a mindful and mindless response in context. On the one hand, we can talk about mindful awareness and sensitivity to context and the corresponding ability to respond flexibly to the variable and direct contingencies of our environment, while also mindfully using language and imagery to transform the stimulus functions of the environment and thus open our possibility space and facilitate our goal pursuit. At the basis of developing human intelligence is this capacity to receive, transform,⁴ and respond to a great number of things, a great number of impressions. On the other hand, we talk about the mindless imposition of prior learning in a new context such that we lose awareness of the direct contingencies, and, in the ongoing cycle of perception and action, we forestall our ability to respond flexibly to a variable environment. Further, this kind of mindless imposition of prior learning will automatically (i.e., quickly and without our

awareness) transform the contingencies (or stimulus functions) of the environment and thus limit our capacity to mindfully transform our possibility space during goal pursuit.

Some of what we like to call “prior learning” may simply reflect how little we have in fact learned from past experience and how constrained we are in our ability to flexibly respond in new contexts. Nevertheless, researchers who study learning, memory, and language are quick to tell us how important it is to be able to *learn* and *remember*, and how vital it is to possess the tools of language and mental imagery, which allows us to transform sensory input and further shape our learning, memory, and action in context (Hayes, Barnes-Holmes, & Roche, 2001; Kosslyn, Thompson, & Ganis, 2006; Pinker, 2008). At the same time, when we consider the simple mechanics and pragmatics of the wakeful brain—the constant cycling of perception and action in context (Fuster, 2003)—most cognitive neuroscientists and psychologists would agree that the mindless reentry of memories into the ongoing cycle of perception and action is maladaptive in the context of the requirement for flexible goal pursuit in a highly variable environment. In other words, the mindless reentry of memories—be they procedural memories (acquired skill), semantic memories (acquired knowledge), or episodic (autobiographical memories)—is maladaptive because mindlessness, by Ellen Langer’s definition, diminishes awareness of the current context and all that is new in the current context.

Mindlessness implies action on “automatic pilot,” and although some cognitive neuroscientists argue that automaticity of certain functions enhances our overall efficiency, with key brain areas devoted to, for example, transforming *new* sensorimotor experiences into *automatic* and *acquired* sensorimotor patterns (Hogan, 2004), none of this implies that automaticity of select functions cannot be *combined* with mindful awareness of our current context, or that mindful awareness of our current context necessarily *reduces* the efficiency or efficacy of our action. Lifespan development is marked by growth in both executive functions (e.g., ability to sustain, switch, and divide attention and maintain goal focus) *and* growth in the efficiency with which new skills are transformed from slow and variable to fast and consistent in practice (Bialystok & Craik, 2006). Even if we consider sensorimotor functioning in very basic terms—in terms of whole-body movement—what is clear is that the maintenance of environmental awareness is necessary for flexible, adaptive action in context. For example, if, when walking, ongoing cognitive activity divides our attention and inhibits environmental awareness, our sensorimotor actions are likely to falter (Verrel, Lövdén, Schellenbach, Schaefer, & Lindenberger, 2009). Mindfulness corrects.

At the same time, mindfulness—*the act of noticing new things*—extends its influence far beyond the simple sensorimotor act. We recognize the challenge of dividing our attention and being mindful to two distinct sources of cortical input, for example, sensory input that helps to regulate our movements when walking up the stairs to work and input from long-term memory designed, for example, to help us calculate the best sequence of actions to start the working day when later seated in front of our computer. We recognize the challenge of selecting goals, optimizing successful pursuit of our goals, and compensating for losses associated with the inability to focus on other nonselected goals. We usually focus on one thing at a time, but we also divide our attention and plan out sequences of future adaptive moves. Langer likens

the brain to a large corporation, with a CEO who is charged with monitoring the overall functioning of the corporation and its transactions with the outside world. This CEO does not, cannot, and should not actively monitor everything. The job of maintaining the heating system, for example, is delegated to the custodial staff and need not consume the attention of the CEO until it requires a major investment for replacement. The effective person—like the effective CEO—allocates attention wisely, choosing where and when to be mindful. As our goal changes, mindfulness opens us to new possibilities. Mindfulness is transformed by virtue of the context wherein it is practiced. Ultimately, mindfulness functions in the context of any goal—mindfully reading a textbook in the hustle and bustle of the college library at exam time, happily noticing new things while engaged in a dialogue with the author; mindfully talking with a friend, a colleague, or someone you meet in passing, opening oneself to the verbal and nonverbal possibilities; mindfully cooking the dinner; mindfully painting, playing a musical instrument, playing football, dancing, etc. The point is that every context affords us the opportunity to notice new things. Every experience affords us a new possibility space that is constantly open to redefinition. Mindfulness opens us to possibilities.

Mindfulness, Philosophical Worldviews, and Adaptive Functioning

In my most recent philosophical deliberations in relation to mindfulness and the act of noticing new things, I have observed a synergy between mindfulness as an *applied stance* and formism as a *philosophical stance*, or worldview. Why formism in particular? Following Pepper (1942), the root metaphor of formism is similarity. Immanent formism begins with the simple common-sense perception of similar things: similar-looking blades of grass, similar-looking animals, and so on. Closer examination reveals *differences* between blades of grass, animals, etc., and our *discrimination* of differences becomes more and more acute, as does our discrimination of the grounds for similarity.

Two aspects of event perception soon emerge as significant: the particularity and character of phenomena. We perceive particulars (two sheets of paper) that possess a certain character (both are yellow, and both rest side by side on a table). Theoretically, a given object may have an infinite number of characters, and a given character may occur in an infinite number of particulars. The concept of participation is used to describe the tie between characters and particulars, and the cognitive instrument that is generated by the participation of characters in particulars is the concept of class. A class is a collection of particulars that participate in one or more characters (e.g., all hairy things). An organization of classes is called a classification (e.g., all animate, four-legged, hairy things). However, the formist maintains a radical freedom and an intimate relationship with the dispersive field of observation, because systematic organizations of facts are not assumed by formists, and if operational principles were used by formists to organize facts, formism would begin to look like *mechanism*, Pepper's second world hypothesis. Unlike mechanism, which is a philosophical world

hypothesis that advocates the construction of an integrated collection of laws describing the whole workings of observed reality, a causal law in formism is simply a bridge from one set of characterized particulars to another. The key challenge for the formist is moving through the field of observation and describing reality with clarity.

But even in the absence of a holistic, integrated set of laws that explain the interconnections between the dispersive elements of reality we perceive and describe, many see signs in the evidence that nature is intrinsically more organized than the indefinite formist thinking categories would suggest. As a consequence, formism does not survive well in the transition from philosophy to psychological science and is nowhere very prominent in theories of human development, perhaps because the dispersive, analytical style of thinking it fosters does not permit very coherent, integrated thinking about growth, maturation, and learning. However, as Langer notes, many of the models of development that psychologists have used in the past may foster fixed views, for example, as to the nature of intelligence and the components or mechanisms of mental health. For instance, one view of intelligence, says Langer, makes us believe that there is a reality out there, and the more intelligent the person, the greater their awareness of this reality. Great intelligence, in this view, implies an *optimal fit* between individual and environment. The optimal fit idea of intelligence derives from early notions (e.g., those of Galton, Spencer, and Binet) that emphasized in the context of evolutionary theory the importance of perceptual discrimination capacities for survival. The mindful person will probably notice how this view of intelligence may constrain action, and from the perspective of mindfulness research and theory comes an alternative view: an individual can define their relation to their environment in several ways, thus creating the reality that is out there. The notion of optimal fit is potentially dangerous, particularly if it results in a rigid search for the “one” reality or the “one” best solution to a problem in context.

The functional significance of this rigidity operates in antipathy to the flexibility of nonnormative, nonorthodox, contextually sensitive forms of mindful awareness and action that Langer and others talk about. One problem with mechanistic worldviews of psychological functioning is that they often imply relational judgments that are problematic when they foster rigid and stereotyped views of people, including ourselves, and this has significance for our collective mental health. For example, research suggests that adults who, when younger, mindlessly endorse statements such as, “As you get older, you are less useful,” do not live as long as adults who have a more positive view of aging (Levy, Slade, Kasl, & Kunkel, 2002). Furthermore, negative stereotypes impact directly upon older adults’ performance, with age differences in memory performance, for example, mediated by negative stereotypes about aging and memory (Chasteen, Bhattacharyya, Horhota, Tam, & Hasher, 2005). Notably, older adults’ cardiovascular stress response in a performance context is much reduced when they are primed with positive aging stereotypes (insightful, sage, wise, accomplished, etc.) as opposed to negative aging stereotypes (decrepit, dependent, senile, confused, etc.; Levy, Hausdorff, Hencke, & Wei, 2000). Mindfulness may help to overcome these negative effects of mindless negative stereotypes. For example, older adults who receive training in either Transcendental Meditation (predicted to enhance mindfulness after meditation practice) or mindfulness as Langer studies it (noticing novelty⁵)

demonstrate marked enhancement in intellectual functioning as well as physical functioning (Alexander, Langer, Newman, Chandler, & Davies, 1989).

We can maintain a vicious cycle of helplessness, or we can reinforce mindful mastery. For example, if we mindlessly label people as less able, we may rob them of their autonomy, and they may come to perceive themselves as less able as a result of not being provided with opportunities to exercise control, which in turn may inhibit their desire for autonomy and control, thus inducing helplessness (Woodward & Wallston, 1987). A “dependence support script” defines many social interactions between older adults and social partners, such that dependent behaviors are reinforced through “overhelping,” while independent behaviors are ignored (Baltes & Wahl, 1992). Much of Langer’s research and thinking aims to reverse this process and reinforce autonomy and mindful mastery instead.

We can mindfully empower ourselves, and we can mindfully empower those around us. Mindfulness itself—the act of noticing new things—is a controlled activity, and for this reason it naturally enhances perceived as well as actual control. For example, Langer describes work with nursing-home residents who were asked to focus their attention on the alternatives they rejected throughout the day (e.g., the choice of juice at breakfast), rather than succumbing to a mindless routine. This monitoring task served to remind them of the choices implicit even in the most mindless routine activities, and increased their perceived control accordingly. Even in the most “mundane” acts of daily living, there is a vast space of possibilities, and if we simply open our minds and the minds of others to these possibilities, we truly may help ourselves to live a fuller, richer, healthier life.

As such, the mindfulness of Langer implies not only a form of attentiveness, but perhaps also a philosophical worldview in relation to the overall function of attentiveness that clashes with mechanistic worldviews. The other two worldviews Pepper talks about are organicism and contextualism. There is nowhere in Langer’s writings any suggestion that mindfulness practice results in any organic growth of higher levels of integration and complexity (central to organicism), or that mindfulness itself implies a focus on the historical event and the goals of the analyst in analyzing these events (pragmatism). Having said that, certain classes of discrimination can emerge from a formist approach to the analysis of mindfulness, specifically, in light of the higher order concept of *discrimination*, and these classes may generate interesting avenues of investigation for future mindfulness research.

Specifically, in my recent thinking on mindfulness, I consider it potentially useful to think about *the act of drawing novel distinctions* by reference to the skill level of the person (novice versus expert), the application they choose to focus on (i.e., a focus on present experience, current problems, or future possibilities), the state of the person engaged in the act (i.e., either playful or serious state, or paratelic versus telic; cf. Apter, 2007), and the scope of their life domain focus (i.e., narrow or broad).

Expertise

Much like Austin (2000) outlines, there may be levels of expertise associated with meditation practice, and similarly there may be levels of expertise amongst scientists

who adopt the formist strategy of noticing similarities and differences and formulating causal laws bridging one set of characterized particulars to another. Furthermore, although Langer bemoans the tendency of medical doctors to classify people based on the symptoms they present with, expert medical doctors who also exercise mindfulness may notice novel features of a persons' medical condition that help them to make the best possible diagnosis and advise on the best possible course of therapy. As such, the novice-expert distinction may enrich mindfulness research by seeking to identify the various domains in which expertise in mindfulness can be beneficial and functional.

Application

A focus on the different applications of mindfulness also implies the need for further scientific scrutiny of the types of situations where mindfulness might be useful. Ellen Langer has led the vanguard in this regard. However, the bulk of applications of mindfulness in a therapeutic context have focused on helping patients to cultivate better present-moment awareness of sensory, emotional, and cognitive experience. In the context of chronic pain, it may also be useful to extend the application of mindfulness to social experience, as we did in our recent study (see below). Also, while Ellen Langer has focused considerable attention on the application of mindfulness to problem solving and creative, possibility thinking, the therapeutic implications of this application of mindfulness have not been extensively researched.

State

While mindfulness, or the act of noticing novelty, is akin to many descriptions of play that imply a focus on novelty and flexibly adjusting behavior in novel ways to ongoing changing circumstances (cf. Smith, 1984), it is also possible for mindfulness to operate in the context of more serious states of mind, for example, when focused on problem solving under conditions of threat and social pressure (e.g., when running out of time in an exam-hall setting in a high-stakes-exam setting). Again, further research can make use of this distinction and determine whether mindfulness functions differently when experimental participants are examined in a telic (serious, goal focused) versus a paratelic (playful, process focused) state (Apter, 2007).

Scope

Finally, although experts may learn to apply mindfulness to their specialist domains, it is possible that they might apply it exclusively to these domains and not more generally in their life (e.g., at home with their children). Alternatively, a person who has only limited experience of actively noticing new things may apply the skill to a much broader range of life domains, even if they operate with less discriminatory capacity than the expert does when working in their domain of expertise. As such, questionnaires designed to measure individual differences in mindfulness might wish to probe the level of expertise and the scope of application of mindfulness in action, as both

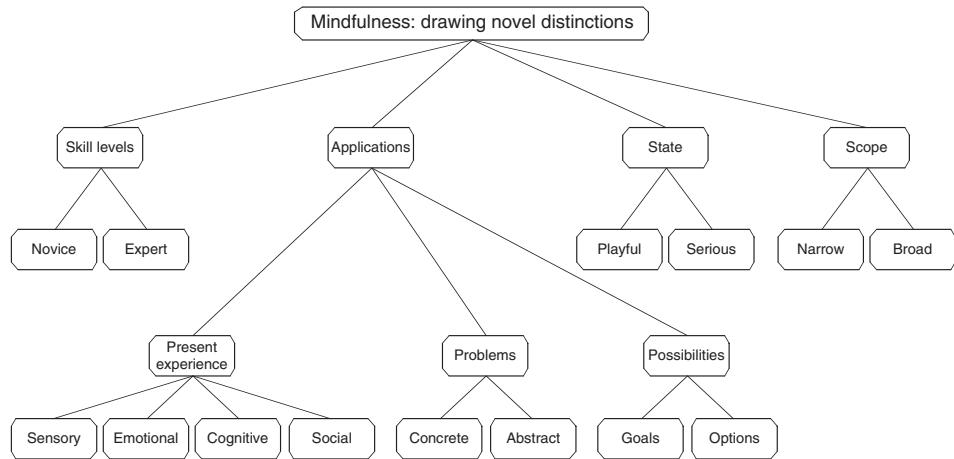


Figure 29.1 Mindfulness: drawing novel distinctions.

may be important factors that are related in different ways to life outcomes (e.g., life satisfaction, psychological well-being, productivity, relationship quality, etc.; see Figure 29.1).

Mindful Health and the Power of Possibility—Online Mindfulness for Chronic Pain

In her most recent book, *Counterclockwise*, Ellen Langer considered how mindfulness operates when people learn that they have cancer. Although science is learning that cancer is sometimes fully treatable, most of us, said Langer, mindlessly assume that cancer is a “killer.” Rather than being mindfully aware of our symptoms and the conditions associated with the presence and absence of symptoms at any given moment in time, and rather than being mindfully aware of the variable nature of our interactions with medical professionals, friends, and family, or changes in the way we work and play, the diagnosis of cancer may lead us to identify fully with the label “cancer patient.” As soon as we identify with the label, all the preconceived ideas we ascribe to the label come to control our behavior. However, Langer also pointed to research by Golub (2004), who found that while some people diagnosed with cancer *add* cancer to their identity, others let the diagnosis *take over* their identity, with the latter group faring less well on measures of recovery and psychological well-being.

Langer suggested that mindfulness makes us more optimistic because we are open and attentive to possibilities, and that this in turn facilitates recovery. Research does suggest a relationship between mindfulness and optimism (Weinstein, Brown, & Richard, 2009), and between optimism and recovery from coronary-artery bypass surgery (Scheier & Carver, 1992). Converse to the view that optimists have a rosy view of their future that invariably leads them to ignore their present circumstances, Langer argues that mindful optimists are likely to pay greater attention to their

recovery than do pessimists, and in so doing they aid the recovery process and help anticipate complications.

Mindful awareness of our state can enhance our ability to control our state. For example, Delizonna, Williams, and Langer (2009) demonstrated that, when compared with a group who were asked to measure their heart rate upon first waking in the morning and just before going to bed, people who are asked to measure their heart rate regularly throughout the day, thus attending to its “variability,” later demonstrate greater capacity to speed or slow their heart rate without instruction.

Langer believes that the future is largely indeterminate, not uncontrollable. We don’t know for sure whether or not we can control something unless we try, and if we fail this does not imply that we cannot control the thing we set out to control, only that we failed to control it at the time of trying—the situation remains indeterminate, but the possibility of control is still a possibility.

We recently developed an online mindfulness program to help people suffering from chronic pain (Dowd et al., 2013). The program drew on mindfulness meditation aspects of the mindfulness-based stress-reduction approach developed by Kabat-Zinn (1990) and on mindfulness-based cognitive therapy. It included a meditation component and skills-building component focused on how to cultivate and sustain positive emotional experiences, particularly within social relationships. We called our mindfulness program Mindfulness in Action (MIA) to distinguish it from other programs and to highlight the focus on daily application of mindfulness skills, including the skill of noticing new things, noticing variation in symptoms of pain, contexts that influence pain, and the value of broadening the focus of attention outside of a narrow focus on the sensory experience of pain. We compared this program to a Pain Education (PE) condition, using materials developed by Zautra and colleagues, and relevant materials drawn from a patient’s handbook on self-management of chronic pain.

Our program was organized around a series of didactic presentations in which general information about chronic pain and related themes in health and medicine were transmitted via e-mail (see Table 29.1). Participants were measured before and after the intervention period, and 6-months later, on a battery of tests measuring anxiety, depression, pain experience, pain interference, and impressions of change over time. Notably, both MIA and PE groups showed decreases in pain interference on completion of the intervention, and these benefits were maintained at 6 months’ follow-up. Participants in both groups also reported reductions in depression and anxiety after completion of the intervention. However, only the reductions in depression were maintained at 6 months’ follow-up.

However, changes on a number of measures showed unique benefits for the MIA program. For example, unlike the PE group, participants in the MIA group reported a reduction in self-reported “Pain right-now” on completion of the intervention. Notably, this effect of MIA was not found for pain “on average.” Given that mindfulness practices emphasize nonjudgmental awareness in the present moment (Kabat-Zinn, 1990; Shapiro & Carlson, 2009), measures of “pain right-now” may represent a potentially useful indirect measure of MIA. Although awareness of “pain now” may be heightened in the context of mindfulness practice, the “nonjudgmental way” in which pain is evaluated may reduce its negative impact in the present moment. However, it may take considerable time and regular mindfulness practice to alter retrospective

Table 29.1 Session-by-session summary of the structure of the MIA and PE interventions with associated mindfulness exercises for the MIA intervention.

Session no.	Session title	Session content	Mindfulness in action		Pain education	
			Meditation	Session topic	Session content	Session content
1	Introduction	Introduction to mindfulness Program overview	Breathing Practice review	What is pain?	Acute pain	Challenges of chronic pain: disability and suffering
2	Positive and negative emotions	Emotional systems Letting go of emotions Two dimensions of emotion	Breathing	Pain concepts that cause misunderstandings	The experience of pain Pain behavior	Physical injury and damage Role of the spinal gate Role of endorphins
3	Mindfulness	What is mindfulness? Introduction to mindfulness Meditation—building a daily practice	3-min breathing-space	Physiology of pain	Physical deconditioning	What is physical deconditioning? Doing too much
4	Awareness: A crucial skill	Benefits of awareness Barriers to awareness Ironic process (Yellow Jeep) Consequences of mindlessness	3-min breathing-space			
5	Acceptance	Mindfulness, awareness and the management of chronic pain Role of acceptance in mindfulness	Body scan	Avoiding physical deconditioning	Living within your limitations Use good pacing procedures Use good body mechanics Use caution during danger times The importance of planning ahead and pacing yourself The activity–rest cycle	Benefits of the activity–rest cycle
6	Living with pain	Living with pain Acute versus chronic pain Mindfulness as a response to suffering	Body scan	Activity pacing		

7	Pacing yourself	Rationale for activity–rest cycle Basic steps Benefits of activity–rest cycle ARC planner	Body scan Standing Walking	Physical fitness
8	Emotional Space	Emotional clarity Emotional complexity Relation between thoughts & emotions	Emotions Sensations & thoughts	Sleep difficulties Why sleep is important? Developing healthy sleep habit
9	Thoughts & beliefs	Automatic thinking Reviewing the link between thoughts, emotions, and physical health Importance of illness beliefs Role of illness beliefs in adjustment	Seated thought Sleep difficulties continued	Tips for when you can't sleep at night
10	Savouring the positive	Changing the context of thoughts Mindful, intentional engagement with positive experiences Savouring positive experiences Positive emotions as a choice Scheduling pleasant events	Pleasant events	Interacting with your medical doctor
11	Relationships	Interpersonal relationships Mindful communication	Pleasant events	Your relationship with your medical doctor
12	Review		Review	Maintaining reasonable expectations Communicating with your doctor

judgments of pain "on average." The positive effect of MIA on "pain right now" was not sustained at the 6-month follow-up assessment, and it may be that sustained mindfulness practice is necessary to maintain benefits and consolidate more stable changes in judgments of pain on the average.

MIA participants also reported significantly greater improvements than PE participants in three areas: their ability to manage their emotions; their ability to manage stressful situations; and their ability to enjoy pleasant events. The differences between MIA and PE conditions in ability to manage emotions and stressful events were maintained at 6-months follow-up. The collection of unique MIA benefits—greater perceived ability to manage emotions, manage stressful situations, enjoy pleasant events, and reduction in present moment perceptions of pain—highlight an interesting common theme: greater ability to optimize emotional experience, despite experiencing pain and associated stress.

While much of the mindfulness-based research prior to this had been criticized for a lack of adequate control groups (e.g., Baer, 2003), our study evaluated a mindfulness intervention in a randomized-controlled trial compared with psychoeducation. The use of an active control condition also strengthened the argument that mindfulness may produce some unique beneficial effects. Importantly, the study highlighted that the mindfulness intervention was not more effective in all areas. Both interventions showed benefits, but the unique MIA benefits are consistent with the focus of the MIA program. However, even in the context of random assignment to conditions and the possibility that nonspecific treatment elements such as attention and expectation for improvement were controlled for, it is possible that our MIA intervention helped build a better therapeutic engagement than the PE condition. Another limitation pertains to the assessment of home practice. In common with other mindfulness-based interventions (see Baer, 2003, for a review), our data-collection strategy relied on self-report methods that may lead to biased estimates. Furthermore, although using a heterogeneous sample has advantages from the point of view of generalizability, future research may wish to focus on more homogenous samples than those used in our study, as mindfulness practices may bring varied benefits for patients with different pain aetiologies or pain locations (Dworkin et al., 2005).

Future research using more advanced technologies could capture data on times logged on to an online mindfulness practice system and of engagement with the system, giving direct data on adherence and facilitating more timely follow-up on participants dropping out. These latter data could provide more information on participant satisfaction with the programs.

The main clinical implication of our study is that it supports the feasibility of using computerized interventions as an additional option for chronic-pain management. The research adds further to the body of literature that supports the use of mindfulness interventions for the treatment of chronic pain. However, it does not resolve the many conceptual issues around the operational definition of mindfulness or the psychological mechanisms through which mindfulness may operate. Nevertheless, it supports previous research that suggests that the ability to pay attention in the present moment to a broad range of stimuli may facilitate the noticing of positive experiences, even in the face of negative stressors (Zautra, Fasman, et al., 2005; Zautra, Johnson, & Davis, 2005).

Conclusion

In this chapter, I opened with a short tribute to Ellen Langer, to whom I am incredibly grateful for the pleasure of her inspired company when I was feeling unwell and lacking all inspiration. Ellen has reoriented my thinking in relation to mindfulness in a very positive and applied direction. I considered some of the philosophical, psychological, and practical implications of her approach to mindfulness, and related approaches, and I argued that a formist approach to the analysis of mindfulness in light of the higher order concept of *discrimination* may generate some new ideas for future mindfulness research. Specifically, I considered the value of thinking about *the act of drawing novel distinctions* by reference to the skill level of the person (novice versus expert), the application they choose to focus on (i.e., a focus on present experience, current problems, or future possibilities), the state of the person engaged in the act (i.e., either playful or serious state), and the scope of their life domain focus (i.e., narrow or broad). I closed with a brief overview of a recent study we conducted where we evaluated an online mindfulness intervention for chronic pain, and reported benefits of mindfulness over PE for the outcomes of pain right now and ability to manage emotions and stressful situations; and the ability to enjoy pleasant events. While the bulk of clinical work has focused on applications of mindfulness to cultivate better present-moment awareness of sensory, emotional, and cognitive experience, Ellen Langer has led the vanguard of researchers who now focus on many different and highly pertinent applications of mindfulness, including medical and life decision-making, critical thinking, creativity, perspective and worldview cultivation, and much more. It is difficult to do justice to the profound influence that Ellen Langer has had on me, but I will continue to sing her praises and work to create something worthwhile with the inspiration she has provided me.

Mindfulness—or the act of noticing new things—is ever-present. Mindfulness may well open the well-springs of creativity, and when this happens our *reality* is nothing like it was before. All is new. We experience both a positive disintegration and a novel reintegration of all our parts, all our deep-seated conceptual and abstracted systems. The fullness of the present moment and the possibility space that opens by virtue of the fusion of present and future moments infuses our field of action with a new radiance. Reality and potentiality comes flooding in. Our system is reborn and ready for creative action.

Notes

1. Bishop and colleagues have not done a very careful reading of Ellen Langer's books. Ellen Langer describes mindfulness as the act of noticing new things, and her view certainly situates mindfulness in everyday environments, that is, outside of the "meditation" context—but it is an error on the part of Bishop and colleagues to assume that Langer's definition of mindfulness implies mindful awareness of the external world only. In fact, one of the most profoundly interesting aspects of Ellen Langer's work is the way she situates mindfulness, both empirically and theoretically, in relation to mindlessness and, specifically, in relation

- to the problems associated with mindless reading, thinking, social interaction, and critical engagement in the field of science and culture generally.
2. The final drawing in the Zen oxherding drawings is the drawing of a man greeting another man on a woodland path. It is sometimes called “Return to the World.” It is necessary to return to the world after “nothingness” has been experienced such that everyday goals can be pursued.
 3. Austin asks: what could explain this staying power? And he answers: “Ultimately, it could reflect the stability of a whole new simplified neurophysiological baseline” (p. 309). Consistent with Bishop et al.’s (2004) view that mindfulness is a *mode* or “the manner in which a thing is done … a psychological process … a skill that can be developed with practice” (p. 234), I assume that consistently accessing level 7 states will reconfigure and make automatic patterns of sensorimotor experience that are instantiated in the neocerebellum and the frontal cortex (Hogan, 2004), thus altering the nature of goal-pursuit behavior considerably, that is, outside of level 7 states and inside of normal day-to-day states of consciousness. At the same time, having experienced level 7 states consistently for a time, normal day-to-day states of consciousness are readily connected to an unbounded external and internal awareness. But regular practice of meditation (or Taijiquan, or “something”) is needed to maintain automaticity. Taijiquan, for example, ultimately brings practice into everyday movements and, therefore, much like Ellen Langer’s mindfulness, practice is an everyday act.
 4. By virtue of the design of the human brain, all sensory input is transformed in one way or another in the cycle of perception and action (Coward, 2005; Fuster, 2003).
 5. Langer notes that the pace of modern living and the culture of Western industrialized societies is not altogether conducive to sitting still and meditating for 20 min twice daily (as is recommended in TM). For this reason, she believes her method of cultivating mindfulness is more readily achievable in daily practice, and in fact can be readily cultivated in the context of any normal daily activity.

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What Will It Take for Physicians to Practice Mindfully?

Promoting Quality of Care, Quality of Caring, Resilience, and Well-Being

Ronald M. Epstein

Few would question the importance of mindfulness and self-monitoring in the clinical practice of medicine. All clinicians are at their best when they have the capacity to see each patient as presenting a novel and unique set of challenges and circumstances, to seek information rather than prematurely close off a clinical inquiry, to be aware of and apply appropriate correctives to cognitive and affective biases that influence clinical judgment, and to respond to uncertainty with flexibility and aplomb (Borrell-Carrio & Epstein, 2004; Epstein, 1999; Epstein, Siegel, & Silberman, 2008; Langer, 2009).

Yet, after training, clinicians practice largely on their own and receive only sparse feedback on their performance. Thus the burden of maintaining moment-to-moment awareness of their clinical responsibilities is left largely to the individual practitioner (Eva & Regehr, 2005). Even expert clinicians—those who are well trained, hard-working, and ethical—experience fluctuations in their ability to recognize and respond to patients' needs, whether it be during a primary-care consultation, a liver-transplant operation, or a psychotherapy session. Some of these lapses have their roots in the lack of self-awareness and self-regulation of attention, intention, and attitudes towards care. Lack of self-awareness of their own emotional reactions toward patients can affect physicians' ability to listen attentively to patients and respond to the patients' physical and emotional needs (Balint, 1955; Novack et al., 1997). Lack of self-awareness of their own thinking processes (metacognitive awareness) can lead to the unexamined misapplication of "heuristics" (rules of thumb), biases, and "cognitive predispositions" to clinical situations (Croskerry, 2012), resulting in patients receiving less-than-optimal care. Lack of metacognitive awareness also can lead to ignoring important contextual factors that might influence medical decisions (Schwartz, Weiner, Harris, & Binns-Calvey, 2010; Weiner et al., 2010), and satisficing with the first but not necessarily the most adequate explanation for the patient's symptoms. Lack of self-awareness of the moment-to-moment unfolding of a surgical

procedure can lead to clinicians moving ahead on auto-pilot rather than “slowing down when they should” (Leung, Epstein, & Moulton, 2012; Moulton & Epstein, 2011; Moulton, Regehr, Mylopoulos, & MacRae, 2007) during difficult and unexpected moments. In addition, lack of self-awareness commonly leads to burnout when it accompanies ignoring one’s own psychological and physical needs; in turn, burnout is associated with poorer quality of care and leaving the healthcare workforce (Shanafelt, Bradley, Wipf, & Back, 2002; Shanafelt et al., 2005). Conversely, the capacity for mindful practice—moment-to-moment nonjudgmental attentiveness to one’s own thoughts, feelings, and experiences during everyday practice to promote clarity and insight (Epstein, 1999)—appears to contribute to accurate diagnoses, treatment plans that take into consideration patients’ unique contexts, improved patient safety, and more compassionate care, as well as improved resilience and well-being of the healthcare workforce (Beckman et al., 2012; Krasner et al., 2009; Sibinga & Wu, 2010).

This chapter focuses on the applications of mindfulness for health professionals to improve their effectiveness and resilience. The chapter begins with definitions and overviews of the relevance of mindfulness and mindful practice to medicine. The next sections introduce a heuristic model along with three interrelated discourses relevant to mindful practice—quality of care, quality of caring, and clinician resilience and well-being. The final part of the chapter will describe efforts to promote mindful practice and future directions.¹

Mindfulness in Medical Practice

Mindfulness emphasizes an open, adaptive, and flexible approach to the world (Brown, Ryan, & Creswell, 2007; Langer, 1978, 1989; Langer, Blank, & Chanowitz, 1978). While the large literature on mindfulness features multiple conceptualizations, frames of reference and sets of psychological attributes (Table 30.1) drawn from social (Brown

Table 30.1 Measurable qualities of mindfulness, clustered by theme.

Reactivity: nonreactivity, lowered reactivity and/or self-regulation of reactivity to inner experience
Attention: observing, noticing, being receptive to, being curious about, seeking novelty in, having insight into and self-regulating one’s attentional processes with regard to (1) one’s own inner experience (e.g., sensations/perceptions/thoughts/feelings) and (2) the external world (context, environment)
Awareness: acting with awareness, self-regulating transitions between automatic pilot and deliberative processing, focused concentration, nondistraction, being in the present, insight
Acceptance: nonjudging stance applied to internal experience and experience in the world, tolerance of pleasant and unpleasant experiences
Flexibility: decentering (adopting multiple perspectives), flexibility in thought and behavior, letting go
Labeling: describing/labeling inner experiences with words

& Ryan, 2003; Langer, 1978, 1989; Langer et al., 1978) and cognitive-behavioral (Linehan, 1993; Segal, Williams, & Teasdale, 2002) psychology, philosophy (Thompson, 2007), cognitive neuroscience (Davidson et al., 2003; Decety & Lamm, 2009; Eisenberg & Eggum, 2009; Pfeifer & Dapretto, 2009; Riess, 2010; Siegel, 2007), and Eastern and Western spiritual traditions (Brown et al., 2007; Hassed, de Lisle, Sullivan, & Pier, 2008; Kabat-Zinn, 1990, 1994, 2005; Lau et al., 2006; Ludwig & Kabat-Zinn, 2008; Shapiro & Schwartz, 1998; Shapiro, Schwartz, & Bonner, 1998; Varela, Thompson, & Rosch, 1991), fundamental to all definitions of mindfulness is self-regulation of attention.

The current concept of mindfulness has been informed by modern secular applications of contemplative traditions, particularly Buddhism (Bishop et al., 2004; Kabat-Zinn, 1990, 2005; Santorelli, 1999; Shapiro & Carlson, 2009). According to Kabat-Zinn, mindfulness is a particular kind of nonjudgmental attentiveness to physical and mental processes (Kabat-Zinn, 1994). This awareness “leads the mind back from theories, attitudes and abstractions” (Varela et al., 1991) to be more firmly planted in the experience of the moment. Fundamental to these approaches is a focus on moment-to-moment attention, being in the present, direct experience, and the deconstruction and questioning of categories that we form about the world. Mindfulness includes taking a “nonjudgmental stance,” a self-awareness of, self-regulation of, and adaptive responses to the tendency to judge and categorize; and “nonreactivity” (or lowered reactivity), the ability to self-monitor and self-regulate one’s reactivity to promote adaptation to different contexts and unanticipated situations. Contemplative traditions call for practicing “skills” of mindfulness, often formal sitting meditation; this practice is a container within which mindfulness is cultivated, eventually transforming the way the individual relates to the world. Neurocognitive research supports correlates between meditation practice and changes in the structure of the brain in areas thought to be related to the cognitive and emotional changes reported by those who engage in those practices (Brown et al., 2007; Hölzel et al., 2011; Jha, Krompinger, & Baime, 2007; Lau et al., 2006; Siegel, 2007). Importantly, mindfulness is a means, not an end; physicians and other health professionals who are more mindful should be able to bring greater clarity and insight to their clinical work, teaching, research, and administrative duties (Epstein, 1999, 2003a, 2003b). Yet, we know little about the degree to which formal contemplative practice is necessary or sufficient to catalyze and facilitate neurocognitive changes, and to promote a more mindful approach to work, learning, and well-being.

Important elements of mindfulness have been developed and tested by social psychologist Ellen Langer (1989). Langer promotes a four-component conceptualization of mindfulness: (1) adopting multiple perspectives on a particular situation (“decentering”), (2) attending to the contextual “particulars” of each situation, (3) considering categories to be “soft” and context dependent (e.g., not to have our attention, affect, and cognition be imprisoned by the abstract categories and formulas that we create), and (4) the capacity to see information as novel and facts as provisional (Langer, 1997, p. 111). Thus, a mindful person consciously creates novelty and curiosity in the process of perception, deliberation, and action (Dyche & Epstein, 2011). In a series of brilliant experiments, Langer provides evidence that

promoting these four components can have positive effects on physical and mental health, learning, and even survival (Alexander, Langer, Newman, Chandler, & Davies, 1989; Langer, 1978; Langer & Imber, 1979; Langer & Rodin, 1976; Langer et al., 1978). In medicine, where uncertainty is the rule, these are some of the characteristics that would likely distinguish ordinary physicians from expert diagnosticians and wise therapeutic agents (Bereiter & Scardamalia, 1993; Ericsson, 2007). While Langer's conceptualization of mindfulness overlaps with those derived from contemplative and other psychological traditions, it has a greater focus on actions in the world rather than the products of the mind (e.g., sensations, thoughts, feelings, emotions) and focuses on educational and ecological interventions more than contemplative practices.

More recent elaborations of mindfulness in health care emphasize more than attention. They also include intention and attitude (Schmidt, 2004; Shapiro & Carlson, 2009) reflecting the moral imperatives that underlie the spiritual traditions from which the concept of mindfulness is derived and the healing contexts in which it is realized. Our conceptualization of mindfulness also includes the interpersonal domain, encompassing the idea of "shared mind" (Epstein, 2012; Epstein & Gramling, 2012; Epstein & Street, 2011) and mindful communication (Beckman et al., 2012; Connelly, 2005; Horton-Deutsch & Horton, 2003; Krasner et al., 2009; Makowski & Epstein, 2012; Zoppi & Epstein, 2002). Shared mind and mindful communication encompass the social nature of health care and the need to achieve consensus and congruence during key communication tasks in health-care settings—information exchange, responding to emotions, managing uncertainty, decision-making, and promoting self-management.

There is a vast literature (not reviewed here) of mindfulness-based interventions for patients that include meditation and other secularized contemplative practices, many of which have demonstrated positive effects on a range of mental- and physical-health problems (Brown et al., 2007; Grossman, Niemann, Schmidt, & Walach, 2004; Lau et al., 2006; Siegel, 2007, 2010). Mindfulness-based approaches have also been adopted by organizations, athletes, musicians, and health-care professionals to improve their performance in some way. Positing a mediating influence suggests that mindfulness itself should be measured. Yet, measuring mindfulness presents challenges (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Baer et al., 2008; Brown & Ryan, 2003), and some even claim that the idea of measuring mindfulness by self-report is to some degree an oxymoron (Grossman, 2008). For example different measures emphasize different aspects of mindfulness. Some emphasize attention to the products of the mind, whereas others consider the external world (e.g., life events, interactions with others, communication). Some emphasize focused attention (e.g., on the breath), whereas others promote open receptive observation of thoughts, feelings, and sensations that arise. While a number of scales have been developed (Baer et al., 2008; Brown & Ryan, 2003, 2004; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008; Haigh, Moore, Kashdan, & Fresco, 2011; Lau et al., 2006; Walach, Buchheld, Buttenmuller, Kleinknecht, & Schmidt, 2006), the field is too young to expect consensus on which elements can and should be included.

A Heuristic Framework for Mindful Practice in Medicine

Mindful practice has fundamental qualities that are relevant to the practice of medicine that appear to be learnable by health-care professionals (Beckman et al., 2012; Krasner et al., 2009; Rosenzweig, Reibel, Greeson, Brainard, & Hojat, 2003; Shapiro, Astin, Bishop, & Cordova, 2005; Shapiro et al., 1998). Important qualities of mindfulness in medicine include a capacity for applying the skills of focused concentration, receptive awareness, and self-monitoring in high-stakes and high-stress situations. As noted previously, while different models of mindfulness emphasize one's own inner landscape (Bishop et al., 2004) and/or the external world (Langer, 1989), in the clinical practice of medicine both are important; the ability to understand one's own "cognitive dispositions to respond" (Croskerry, 2009a, 2009b), emotional influences on clinical practice (Balint, 1955; Epstein & Peters, 2009; Groves, 1978; Halpern, 2001; Hibbard, Peters, Slovic, & Tusler, 2005; Peters, Vastfjall, & Garling, 2006), and interactions with others (Entwistle, Carter, Cribb, & McCaffery, 2010) are all essential to good clinical practice. Thus, mindful practice incorporates how attention, perception, curiosity, openness, modulation of judgments, and presence apply to one's own thoughts, feelings, and sensations, as well as one's relationships with others and the external environment. Importantly, mindful practice in medicine also has a moral dimension, specifically, the intention toward compassion towards self and others, and other prosocial behaviors (Halifax, 2012). For clinicians, mindfulness is not merely directed towards achieving a particular psychological state or proficiency. Some argue that, in the absence of prosocial intentions (e.g., respect for persons, beneficence, nonmaleficence, and justice; Beauchamp & Childress, 2001), focused attention and self-monitoring should not be considered "mindfulness" at all; assassins might cultivate some of these same qualities of attention, yet might not be considered "mindful" because they lack the intention towards prosocial ends and attitudes of compassion. Nonetheless, we take the pragmatic view that in health care, training in awareness must be accompanied by the cultivation of prosocial intentions and actions.

Of the multiple attributes that comprise mindfulness, four seem especially relevant to the practice, language, and culture of medicine. First is attentive observation. This quality refers to attentiveness of the external landscape as well as the landscape of one's own mind—the ability to "observe the observer while observing the observed" (Epstein, 1999). It is characterized by a nonjudgmental awareness of what is present regardless of whether it is comfortable or uncomfortable, or familiar or unfamiliar. Attentiveness means noticing nuance, and discernment about how *this* situation differs from the prior situation (Langer, 2005). Attentiveness also includes meta-awareness ("awareness of awareness")—mechanisms that alert us to our own biases and predispositions, and the degree to which "we don't see things as they are, [but rather] as we are" (Nin, 1969).

The second quality of mindful practice is critical curiosity when confronting new situations (Dyche & Epstein, 2011; Fitzgerald, 1999). Critical curiosity implies an attitude of respect and awe. It is an interest in new knowledge rather than application of formulas that exclude disconfirming data and only allow confirmation of what one already believes to be true. While curiosity may come naturally to a young child, in

professionals it is a sign of self-discipline, as it is often easier to engage in the routine enactment of overlearned behaviors (Langer & Imber, 1979) than to question one's assumptions and look for creative ways of managing a complex situation.

The third quality of mindfulness is a capacity for "beginner's mind," which refers to the habit of seeing familiar situations with new eyes, from more than one perspective simultaneously (Fitzgerald, 1999; James, 1902). "Facts" are considered as merely contextual, conditional, and provisional understandings of the world (Langer, 1989). Beginner's mind involves a sense of incompleteness and not-knowing, and a willingness to live with uncertainty. Beginner's mind can be cultivated through contemplative practice (Suzuki, 1980) as well as through mindful approaches to learning (Langer, 1997). Beginner's mind is a mark of high-quality care. In Bereiter and Scardamalia's (1993) conceptualization of expertise, "routine experts" have only one way of solving a problem; while this serves well in routine situations, it can also lead to the mindless application of rules to situations that should be treated as exceptions. In contrast, "adaptive experts" are sensitive to context and nuance, and are mindful in the sense that they seek unique features of each situation, maintain a dynamic understanding of evolving situations (Weick & Sutcliffe, 2001), and employ practical wisdom to know when exceptions must be made to general principles (Kahneman & Klein, 2009; Schwartz & Sharpe, 2010).

The fourth quality of mindfulness is presence and engagement. This quality implies turning toward (rather than withdrawing from, rationalizing, or minimizing) that which is unfamiliar, dissonant, difficult, or disturbing. Patients can comment on how "present" their physicians are when they say "he/she was really there for me." However, deconstructing this quality of "being there" for patients (and colleagues and learners) is elusive. In medicine, physicians routinely encounter people who are experiencing great suffering, loss, and humiliation; situations in which their actions cannot fully alleviate patients' suffering; and gut-wrenching conflicts involving ethics, autonomy, and money. Furthermore, the relationships physicians have with patients may evolve over years, and thus tolerating this distress becomes more challenging than one-time encounters. Turning toward discomfort implies that the practitioner has the resilience to tolerate the personal distress that it may engender. Developing resilience, therefore, is an important precondition for compassionate and therapeutic presence (Epstein & Krasner, 2013).

Importantly, these qualities are habits of mind during the moment of practice—"reflection-in-action" (Schon, 1983, 1987)—in contrast to "reflection-on-action," which refers to after-the-fact reflections, perhaps in the quiet of a seminar room away from the clinical setting. While qualities of mindfulness have appeared in the medical literature for a long time, few have proposed methods for promoting mindfulness in physicians in such a way that it improves the quality of care that they provide in the moment of clinical practice and their resilience to approach difficult situations. One important pioneer in this realm was Michael Balint, a British psychoanalyst who offered seminars in which, through the retelling of difficult clinical cases and reflective questioning, general practitioners would learn about how their own thoughts and feelings about patients might affect their care (Balint, 1955).

The next three sections address three interrelated discourses relevant to mindful practice in clinical practice—quality of care, quality of caring, and clinician resilience

and well-being. Descriptive studies suggest that these three areas are linked (Dyrbye, Power, et al., 2010; Dyrbye et al., 2008; Shanafelt, 2009; Shanafelt et al., 2009, 2012), and preliminary interventions suggest that changes on one can affect changes in the other two (Krasner et al., 2009). Here, the focus is on physicians, but clearly such approaches may be equally applicable to other health professionals.

Mindful practice and quality of care

Gladys Wright² is a 63-year-old woman who has been cared for by Dr. Fenton, her family physician, for 25 years. He knows her well from her numerous visits for arthritis, high cholesterol, and poorly controlled diabetes, which had at one point led to a seriously infected foot. Dr. Fenton had repeatedly prevailed on Mrs. Wright to exercise more, adopt a better diet, and to increase her insulin from two to four shots per day. The visits had acquired a routine quality about them, with little change in the clinical drama over a period of years. On this visit, though, Dr. Fenton perceived that something was not well with Mrs. Wright, yet he could not quite put his finger on what was different about her this time. That momentary sense of “differentness” came before he questioned her in greater detail about her symptoms, in which she reported that her clothes seemed looser, she had lost some of her usually good appetite, and she felt bloated; everyday tasks seemed to be more of an effort, and she felt “down.” The impressions also came before he could name what it was that he had noticed was different—that she seemed more gaunt and lacking her cheerful luster and sparkle that she would usually bring to her office appointments. She came with her husband, a rarity. A physical examination was unrevealing, yet Dr. Fenton’s worry only increased. Even though the possible causes of these vague symptoms can be numerous, Dr. Fenton spent more than the usual amount of time wondering what to do next, and thought to order a scan of the abdomen based on a “gut feeling” that she might have cancer, specifically of the pancreas or ovary, which often present with vague mild symptoms and weight loss. The CT scan showed a large pancreatic mass blocking the outlet to her stomach. While the cancer would prove incurable, she had palliative surgery and chemotherapy that improved her quality of life and survival.

Monica Judge is a 16-year-old girl referred to an endocrinologist, Dr. Clark, for failure to grow. She had been followed by a primary-care physician, Dr. Johnson, with annual checkups. At the insistence of an agency involved in and concerned about the child’s welfare, blood tests were ordered, which showed that she had essentially no thyroid function; the test was the most abnormal that the endocrinologist had ever seen. Looking through the medical chart, Dr. Clark noted that Monica had been seen annually for physical examinations. The chart

notes routinely said, “Normal physical examination, healthy child,” even noting that there had been no breast development, body hair, or menses, and that her height was 3 feet 7 inches, clearly not normal for a 13-year old. A growth chart had been maintained carefully by Dr. Johnson, the graph indicating that she had not grown at all in the past 5 years. Her parents were not well educated and did not question the physician’s proclamations each year that Monica was healthy. This condition will likely result in Monica never achieving a height greater than 4 feet; if treated 3 years previously, she would have had nearly normal growth.

The first discourse regarding mindful practice in medicine relates to quality of care, considering the skills to arrive at an accurate diagnosis, skills to recommend an appropriate treatment plan, and technical skills during surgery or other medical procedures. Fundamental to diagnosis and treatment is a well-honed capacity for attentive observation of self and others. The ability to notice—that something was different and novel, and that this was not an “ordinary situation”—was a refined skill in Dr. Fenton but tragically absent in Dr. Johnson. But it was not just noticing that something was different with the patient—it was also the ability to recognize a certain kind of telling discomfort in the clinician that might provide clues that something was the matter. Medicine, like many professions, has much that is routine; clinical encounters involve complex tasks that must be performed quickly and efficiently, lest each patient visit last for hours. Physicians, thus, need to alternate between automaticity, during which they rely on pattern recognition, gut feelings, and heuristics to move quickly from one task to the next; and deliberation, more effortful mental processing (Leung et al., 2012). Excellent practice is characterized by “preattentive processing” (Polanyi, 1974); even before “noticing,” Dr. Fenton was aware of the need to slow down and shift from automatic to deliberative processing. The quality of “subsidiary awareness” (Polanyi, 1969) kept those gut feelings close to the threshold of awareness, yet not interfering with the automatic processing that was necessary to get through a busy day of clinical practice. His “attentiveness in automaticity” (Moulton & Epstein, 2011) is one feature of mindfulness that fostered the early recognition of novel elements in this particular situation as opposed to others that might superficially seem similar. This discernment occurred during an otherwise familiar and somewhat ritualized encounter and triggered uncertainty, mental flexibility, and slowing down in order to characterize it further. Neurocognitively, the physician had cultivated the capacity for “alerting” attention—recognizing familiar signals—as well as “orienting” attention—attending to the unexpected. Importantly, while preattentive processing, subsidiary awareness, and attentiveness in automaticity may require little mental effort, they are not necessarily innate; through reflective questioning and modeling, trainees and professionals may find encouragement to cultivate and enact these skills appropriately in busy clinical practices.

In contrast, Dr. Johnson was not able to step outside of his routine automaticity, despite the obvious presentation of data that would indicate, even to an untrained layperson, that something was amiss. He kept careful records including charting the child’s growth, yet each office note appeared nearly identical to the previous

one—"patient well, follow up in a year." In fact, the patient *appeared* well, and neither she nor the parents reported any medical complaints. As ludicrous as it might seem, although cognitively Dr. Johnson knew that children were supposed to grow, he failed to acknowledge that reality in this situation. He was in a state of mindlessness, or "inattentive automaticity"—he lacked an internal mechanism ("gut feelings") that might alert him that something was amiss. Dr. Johnson was not incompetent merely because he lacked the capacity to solve medical problems, but because he lacked the mechanisms to recognize novelty in what otherwise might seem routine; he had little sensitivity to context and lacked the capacity to recognize and adapt his expertise to unfamiliar situations.

Reports of physicians' mindless behavior abound in medicine as they do in other work- and home-related contexts (Langer, 1989). While some of these situations might be due to denial (such as not "noticing" that someone might be alcoholic), often they are due to lack of discernment of what is novel in the familiar.

Consider Marcus, a 64-year-old recreational tennis player who had previously had tendinitis of the shoulder. He was seen with a new episode of shoulder pain, and reported a recent low-grade fever with night sweats. The first (senior) colleague gave a diagnosis of a recurrent shoulder tendinitis—ignoring the fact that the fevers and night sweats are not typically characteristic of a tendon problem. The second (more junior) colleague confirmed the (erroneous) diagnosis. Both failed to notice massively enlarged lymph nodes just below the shoulder in the armpit. Only after a third colleague (a seasoned nurse-practitioner) noticed the lymph nodes did the patient's fever and sweats (symptoms characteristic of cancer of the lymph nodes) "make sense" and count as relevant data. While the enlarged nodes had been there for weeks, "noticing" them, and thereby arriving at the correct diagnosis, required setting aside presuppositions and seeing the situation with new eyes. Clinicians, bombarded with information that they must sort through, use simple rules so that some concerns that "trump" others and rise to the level of conscious attention.

Of course, quality of care, patient safety, and medical errors depend on more than just the ability to notice the unexpected (Sibinga & Wu, 2010). Pioneering work by Croskerry and others has defined a set of "cognitive dispositions to respond"—cognitive factors that influence the diagnostic process that are outside of everyday awareness, and affect clinicians' responsiveness to their own cognitive and affective processes (Croskerry, 2003; Croskerry, Abbass, & Wu, 2008; Croskerry & Norman, 2008). For example, clinicians may preferentially pursue data that support a provisional diagnosis rather than data that might refute it. Or, they may favor diagnoses seen recently (e.g., influenza during the winter) rather than those not seen recently (e.g., whooping cough or lung cancer). Affective influences may lead clinicians to place blame on a patient for her distress by considering a condition "psychosomatic" rather than consider a biological cause (Epstein, Quill, & McWhinney, 1999; McWhinney, Epstein, & Freeman, 2001). Clinicians may look only for typical presentations of illness

and ignore the fact that the majority of presentations in some populations may be atypical (e.g., women with diabetes tend not to have chest pain during a heart attack). Incorrect diagnoses make it less likely that patients will receive appropriate further evaluation and treatment while increasing the risks of iatrogenic harm.

Finally, lack of self-awareness may affect direct sensory experience. Normally, in a young child with a high fever, physicians check the degree of neck rigidity to determine whether the child needs a lumbar puncture (spinal tap) to exclude the possibility of meningitis. But this subjective judgment is prone to influence of fatigue and avoidance—for example, if the child (and his worried parents) is being seen by an inexperienced resident late at night who would have to wake his supervisor from sleep were the child determined to have a stiff neck and need further evaluation (in this case, a lumbar puncture [spinal tap]). Considering the possible long-term consequences of a delayed diagnosis of meningitis (brain damage, deafness, etc.), the resident's lack of self-awareness of his own affective state could lead to a tragic outcome. Conversely, self-awareness of these potential biases could allow adaptation, slowing down, asking for help, and revisioning the situation from another perspective. Unfortunately, there are few mechanisms in the current health-care environment that help clinicians to manage (and to learn to manage) the unexpected effectively; while checklists can be helpful in avoiding some kinds of errors (Gawande, 2009), they tend to be oriented to the expected, not the unexpected. Thus, clinicians themselves must develop these mechanisms.

Mindful practice and quality of caring

Gloria Edwards is a 38-year-old African-American woman who has been unable to work due to chronic pain involving her whole body in the absence of any evident injury or underlying disease; she cannot tolerate most pain medications, due to heartburn, and does not want to take opioid medications. She has diabetes and continues to gain weight, yet cannot make inroads into changing her diet and exercise; she frequently does not come for follow-up visits and often undermines recommendations made by health professionals who try their hardest to listen carefully and be kind. Her marriage is unhappy, and she has an uncontrollably impulsive 8-year-old at home; yet she has been unwilling and unable to follow through with mental-health treatment. She spends most of each office visit in a loud, uninterrupted, irritable monologue.

John Chalmers is a 63-year old white engineer with recurrent cancer of the lymph nodes, and has just been told that the cancer has continued to grow despite the most recent course of chemotherapy. His physician has thought long and hard about what would help John, and spends most of the visit

presenting choices about two potential options for second-line chemotherapy, one of which involves bone-marrow transplantation. John's comments about whether it's "worth it" and his question about whether he should retire from his job go unnoticed by his physician, who is more focused on discussing treatment options.

The second discourse of the mindful practice triad is about quality of caring. Caring starts with noticing another's suffering. While some forms of suffering are obvious to physicians, such as a person writhing in pain from a kidney stone, other forms are less often recognized—such as the terror of receiving the news that one's cancer has progressed and feelings of depression and defeat. In fact, patients' expressions of emotional distress in health-care settings often goes unrecognized (Levinson, Gorawara-Bhat, & Lamb, 2000; Morse, Edwardsen, & Gordon, 2008; Suchman, Markakis, Beckman, & Frankel, 1997), likely because physicians' training prioritizes physical suffering over mental or social suffering, and prioritizes cure over care. In addition, patients often will not report worrisome symptoms unless asked, and rushed physicians may assume that the first concern stated by a patient might be the only one (Marvel, Epstein, Flowers, & Beckman, 1999).

Having noticed another's suffering, physicians can communicate empathy—a cognitive/emotional understanding of the other's experience. However, the paucity of expressions of empathy in "high-stakes" consultations such as those described above is puzzling. Why would an otherwise caring person not notice another's suffering and respond to it in some way? It appears that there are several "roadblocks" to empathy that relate to failure of mindfulness. First, physicians have to notice something that is unexpected and consider it "worthwhile" to discuss. Thus, physicians make tacit judgments about the merit and acceptability of a patient's concern. While it is understandable why a physician might selectively ignore some of Mrs. Edward's concerns out of sheer exasperation, ignoring the indirect concerns about mortality in someone with advanced cancer should surely attract the physician's notice. This physician's seeming insensitivity may have its roots in his inability to differentiate his own thoughts and feelings from those of the patient, so-called self-other differentiation (Eisenberg & Eggum, 2009; Halifax, 2012). Often, physicians are not fully aware of how patients' experience of the same situation differs from their own. In particular, this physician was preoccupied with trying to ascertain the treatment regimen that is most effective, whereas the patient was frightened, anxious, and confused. Based on his misperception, he engaged in detailed discussions about the merits of one treatment or another and did not notice the patient's emotional reaction. Furthermore, implicit bias may play a role (Green et al., 2007; Sabin, Rivara, & Greenwald, 2008). Physicians normally deny explicit prejudice and stereotyping, yet patients such as Mrs. Edwards invite unconscious stereotyping and stigmatization on the basis of race, gender, weight, personality, and disease. In contrast, mindful awareness may invite curiosity rather than stereotyping, openness rather than premature closure, and the ability to see the world through another set of eyes (Djikic, Langer, & Stapleton, 2008).

Mindful self-awareness of whether one's focus is on one's own concerns (self-focus) as opposed to focusing on the sources of distress for the patient (other-focus) is

key not only for accurate empathy but also for compassion—arguably it is the most potent expression of caring. The various definitions of compassion converge on three elements—the ability to recognize another's suffering, experiencing some kind of appropriate emotional resonance, and motivation to act with the intention of reducing the patient's suffering. Compassion may be communicated through presence, silence (Back, Bauer-Wu, Rushton, & Halifax, 2009), or action. By engaging with the patient to identify sources of distress, seek reliable clinical evidence, and prescribe the most appropriate treatment, healing intention is more likely to be effective.

Even for those who aspire to mindful awareness, compassion, and presence, intention is never pure. Physicians, like all humans, have needs and desires that may conflict with the needs of the patient and can be fatigued, biased, insensitive, and overwhelmed. Cognitive load and haste get in the way of noticing suffering as well as expressing compassion (Darley & Batson, 1973). Furthermore, psychological and neurocognitive studies suggest that compassion is most often expressed towards those who are seen as “deserving.” Because judgments about who deserves compassion are usually below the level of awareness, these judgments are prone to gender, racial, age, and disease-related (e.g., smoking-related illnesses, AIDS) biases. And, if the physician's emotional resonance is too high, they themselves may experience personal distress as a secondary reaction to the patients' suffering; their intentions thus may be directed towards self-preservation rather than prosocial caring (Halifax, 2012). Caring also often involves more than just the patient. Often family members accompany seriously ill patients to the doctor, and, in health-care settings, other health professionals may be distressed and seeking some kind of support; these “third parties,” too, express needs that may complement or conflict with those of the patient. Physicians, thus, often make tacit judgments about *whose* values to consider and *whose* needs to prioritize. These judgments affect clinical care. For example, patients, families, and other clinicians may weigh in when a physician is deciding about whether to suggest a course of chemotherapy for cancer that has a very low likelihood of extending the patient's life and may cause additional suffering.

Not surprisingly, many of these judgments are outside of clinicians' awareness. Because physicians and other health professionals have a very strong professional ethic, they may bristle at the notion that some patients evince disgust and avoidance, while in other situations they might feel that their revulsion and rejection is justified by the patient's actions (Groves, 1978). Yet these emotions affect the relationships that they form with patients. Moment-to-moment situational awareness can help clinicians be aware of these biases, provide choices, and help clinicians to align their actions with their values.

Mindful practice and clinician resilience and well-being

A wealth of data have documented high levels of burnout in medical students, residents, and practicing physicians (Dyrbye et al., 2008; Shanafelt et al., 2012), and the consequences of burnout in terms of professional functioning (e.g., medical errors, empathy), attrition (e.g., leaving practice), and health (e.g., automobile accidents, health problems; Dyrbye, Massie, et al., 2010; Dyrbye, Power, et al., 2010; Shanafelt et al., 2002, 2005; West, Tan, Habermann, Sloan, & Shanafelt, 2009). According to

Maslach (2003), burnout is characterized by emotional exhaustion, low sense of personal effectiveness, and depersonalization (e.g., treating people as objects). Lack of respect for trainees' basic human needs (e.g., sleep, food, using the toilet) is pervasive in health-care settings (Leape et al., 2012a, 2012b) and, along with the increased isolation and administrative burdens that physicians report, may contribute to their bitterness, cynicism, and lack of respect for patients. Yet, there are few opportunities for clinicians to become more aware of and develop more effective responses to stresses in the workplace. Medical educators often quote Francis Peabody's (1927) essay on the care of the patient, "the secret of the care of the patient is caring for the patient"; yet missing is Lucy Candib's (1995) challenge to apply self-compassion and care for the healer in order to care for the patient. In other words, to promote mindful practice, clinicians need to feel supported, safe, and respected.

Recognizing the difficult environments in which physicians practice, it is especially important for health-care institutions and individuals to have means for enhancing physicians' resilience and well-being so that they have the ability to be attentive, curious, flexible, and present to patients, while also attending appropriately to their own human needs (Epstein & Krasner, 2013; Zwack & Schweitzer, 2013). Interestingly, loss of resilience and well-being can be accentuated by the seemingly energy-saving measures of withdrawal, and turning away from distress. Thus, mindful practice, which promotes engagement, awareness of the present moment, cognitive flexibility, and turning towards dissonance (Makowski & Epstein, 2012), has the greatest potential to promote well-being, resilience, and better patient care if embedded in a culture that supports such efforts (or at least does not undermine them; Leape et al., 2012b). Several reviews outline ways in which physicians have learned to become more resilient, including methods both within and apart from the clinical setting (Hassed et al., 2008; Quill & Williamson, 1990; Suchman, 2001; Weiner, Swain, Wolf, & Gottlieb, 2001; Zwack & Schweitzer, 2013). These include finding ways to engage more deeply with work, effective mentoring, Balint groups, and other insight-oriented group sessions at work, meditation and other contemplative practices, meaning-centered psychotherapies, reflective writing, support and recognition at work and finding time for spiritual, community, and family activities at home.

Promoting mindful practice

While there have been important advances in understanding the psychology of self-awareness, self-monitoring and self-regulation, we are only at the beginning of efforts to promote these qualities in the health care workforce. Fundamental to these efforts is creating a "container" of mindfulness within which cultivation of other qualities can reside. This "container" is deliberate practice—we become skilled at what we do habitually, and we *become* what we habitually do. Like musicians, who practice scales and exercises to have the technical capacity to respond in the moment to musical direction and inspiration, professionals working in high-stress high-stakes fields where errors are easy to make and difficult to fix need some means for developing skills of self-awareness, self-monitoring, and self-regulation. Ideally, training for those skills would occur in settings apart from and embedded within clinical practice. Like learning any

complex and demanding set of skills, motivation, encouragement, support and “communities of practice” (Haidet, Fecile, West, & Teal, 2009) help to promote learning, retention, and attitudinal change. Furthermore, physicians in particular tend to be self-critical, driven to succeed, prone to postpone gratification, and other-centered (Gabbard, 1985; Gabbard & Menninger, 1989); they are often criticized that they do not attend to their own physical health, mental health, and health-care needs. Intervening early in training is likely to promote some habits of self-awareness, but often these are not easily translated from the classroom phase in which trainees think of themselves as students to the clinical phase of training in which they think of themselves as healers.

With those caveats in mind, and largely drawing from secular contemplative and psychological traditions noted previously, several centers have implemented methods for promoting mindful practice. Many of these programs are based on Kabat-Zinn’s Mindfulness-Based Stress Reduction programs (Kabat-Zinn, 1990; Santorelli, 1999). Effective programs utilize both workshop settings and exercises in real clinical practice. They consider whether to introduce material early in training prior to clinical experience or at the point of medical students’ transition from “student” to “junior doctor.” They also address the optimal use of home practice. Programs consider how much contemplative practice would be realistic to expect, and the degree to which formal and informal meditation practices should be emphasized. Programs also have begun to consider how to direct training to individual physicians and trainees as part of a larger institutionally based initiative. Institutionally based efforts could create a sense of community around efforts to promote mindful practice and achieve a sense of “institutional mindfulness” (Weick & Sutcliffe, 2001). Outcome measures to date have mostly focused on clinician well-being. Increasingly, institutions are interested in transforming fundamental attitudes and clinical behaviors to provide a more mindful approach to clinical care while also promoting clinician resilience.

The best studied of mindfulness-based programs for practicing physicians is a year-long (52-hour) “mindful communication” program for 70 primary-care physicians at the University of Rochester (Beckman et al., 2012; Krasner et al., 2009). A series of eight weekly 2.5-hr workshops was followed by an all-day retreat and a series of 10 monthly sessions. Each session used some combination of formal contemplative practices (e.g., sitting meditation, walking meditation, “body scan” exercises), informal contemplative practices (e.g., mindful dialogue, awareness/perception exercises, team exercises), narrative writing (Charon, 2001) with reflective listening, appreciative inquiry-based dialogues (Cooperrider, 2003), and interactive lecture-discussions. All of the exercises are punctuated with reflective questions (Table 30.2; Borrell-Carrio & Epstein, 2004)—questions that “tend not toward edification” (Streng, 1967) but to “open up” the mind to curiosity, inquiry, and novelty (Dyche & Epstein, 2011; Langer, 1997) while modulating the impulse to judge and categorize prematurely. Each session had a clinically relevant theme reflecting the context of the clinicians’ work; themes included pleasant and unpleasant experiences, medical errors, reflective listening, decision-making, professionalism, attraction to patients, setting limits, uncertainty, teamwork, and death and dying. Similar programs are now offered as 4-day intensive workshops.

Table 30.2 Reflective questions (examples).

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- “What ideas and feelings are affecting my ability to observe?”
 - “What is new or unique about this situation?”
 - “What am I assuming that might not be true?”
 - “How are prior experiences and expectations affecting how I view the situation?”
 - “Are there things that I present as fact that are not quite so clear?”
 - “What would a trusted peer say about the way I managed this situation?”
 - “How would I know when the visit should be finished?”
-

Data in part from Borrell-Carrio and Epstein (2004).

Outcome measures included mindfulness (Baer et al., 2008), well-being, quality of care, and quality of caring. Not surprisingly, measures of physician mindfulness improved dramatically (>1 SD), and improvements in psychological well-being paralleled other studies of mindfulness interventions in clinical and nonclinical populations. There was also a significant reduction in self-reported burnout; as previously noted, a number of studies link physician burnout to medical errors, lower patient satisfaction, and physician attrition. There were marked improvements in physician empathy and psychosocial orientation, important correlates of high-quality interpersonal care. Changes in quality of care and well-being were all mediated by changes in mindfulness, in particular the capacity for self-observation and self-regulation of reactivity. These changes all lasted beyond the end of the intervention. Similar findings have been reported from other programs using this training model (Martin-Asuero & Garcia-Banda, 2010). In addition, personality using the NEO personality inventory was measured as a potential covariate (Costa & McCrae, 1991). Surprisingly, while personality did not predict responsiveness to the program, there were changes in personality noted; participants exhibited greater resilience (“mental stability”) and conscientiousness on the NEO compared to prior to the program.

In a follow-up report to this intervention, physician participants were interviewed to explore what they had learned that might be helpful for future efforts to enhance mindful practice (Beckman et al., 2012). Importantly, several months after completing the program, participants reported that they had adopted healthier ways of managing the stresses of clinical practice and that they found the cultivation of formal and informal mindfulness practices to be helpful. Physicians also noted a need for community. Physicians are increasingly isolated—physically because they work in diverse settings or emotionally because there is little time for learning about each others’ stresses, discussing challenging professional situations, and developing personal connections. This sense of isolation may be exacerbated as more impersonal and publicly discoverable electronic documentation is rapidly replacing collegial face-to-face communication. We take from this observation that approaches to promoting mindful practice should strive to develop a sense of community from which physicians can draw support. In addition, physicians needed—but found it difficult—to give themselves permission to engage in activities that would improve their self-awareness and self-care, despite recognizing that these activities would enhance their own resilience and their capacity to provide the kind of patient care they and their patients’ value. Thus, programs

should become “routine” and part of the institutional fabric of health care practice, and made available and accessible.

Most of the mindfulness-based programs reported in the medical literature are targeted to medical, nursing, physical therapy, and dental students. Medical school remains highly stressful and oriented toward the acquisition of facts and skills; while many medical schools offer support groups, there is little consistent emphasis on self-awareness, self-care, well-being, and resilience. While many medical schools offer elective mindfulness-based workshops, few offer them as part of the required curriculum. The University of Rochester’s required five-session series of 90-min workshops in mindful practice for medical students is offered during the third year, when students are entering their clinical rotations and are in the midst of an identity shift from “student” to “junior doctor.” Similar workshops are offered for some residency programs and the medical center teaching faculty. At Monash University, the largest medical school in Australia, a required mindfulness course has resulted in students’ improved ability to manage stress (Hassed, 2008; Hassed et al., 2008), confirming prior findings from elective experiences for health professionals (Beddoe & Murphy, 2004; Connelly, 2005; Dobie, 2007; Rosenzweig et al., 2003; Shapiro et al., 1998, 2005; Shapiro & Schwartz, 1998). Other medical schools have adapted these and other mindfulness-based programs, but there is not yet a compendium of programs and the data that derive from them; until recently, these efforts have been poorly studied, and the programs may be quite variable in format, content, and quality. Importantly, we distinguish sessions that promote cultivation of skills and habits of self-awareness from support groups. While support groups provide psychological support and a “friendly ear,” they may not necessarily enhance the skills and habits of mind that promote insight and resilience in the moment of clinical practice.

It is clear that there is no one-size-fits-all approach; optimally, students, residents, and practicing clinicians should have a choice of different types of experiences that could promote mindful practice. Such efforts are in their infancy and constrained by the generally slow pace of change in medical education. The diffuse authority and small size of many training programs make studying the effects of mindful practice training on physician and patient outcomes difficult. In clinical practice, some large medical groups have provided opportunities and incentives for mindfulness-based training. Strong institutional leadership is required, along with a resolve to change institutional culture to favor mindfulness, curiosity, and person-centeredness as a balance to the current emphasis on protocol-driven care, checklists, and productivity.

Conclusions

Mindfulness as a construct and mindful practice as a set of clinical behaviors, skills, and attributes create a container within which physicians can develop a more creative, effective, and reflective way of practicing that puts the patient’s interests first, undistracted and undistorted by the biases, blind spots, and judgments that physicians unconsciously apply to their experience. Mindful practice may contribute to quality of care through regulation of attention and promotion of curiosity, so that each patient is seen as a unique human being, important aspects of care are not

neglected, and the effects of premature closure, haste, and unexamined negative emotions are attenuated. Mindful practice helps physicians be more emotionally available to patients who are experiencing distress and helps them sustain attentiveness and presence in the face of unpleasant and distressing circumstances. Mindful practice also contributes to physician well-being through an enhanced ability to monitor and respond to their own stresses before they get out of hand. Preliminary evidence suggests that mindfulness-based programs for physicians actually do promote mindfulness, well-being, resilience, patient-centered attitudes, and the quality of interpersonal care that physicians provide. Effectiveness of mindful practice programs likely results from specific and non-specific factors. Specific mindfulness-related skills include deeper listening, enhanced curiosity, lowered reactivity, and greater self-awareness. Interpersonal mindfulness would be expected to lead to a greater sense of community to support and encourage mindfulness in practice and encouragement to engage in self-care. Mindful practice refers to knowing and responding to one's internal landscape, as well as curiosity and responsiveness to interpersonal and contextual features of the practice environment. By cultivating the skills, willingness, and resilience to practice mindfully, physicians and health-care institutions can enhance quality of care, quality of caring and physician resilience and well-being.

Notes

1. The literature on mindfulness-based interventions for patients and the effects of such interventions on chronic disease, physical symptoms, psychological well-being and survival is vast and is reviewed in other chapters in this volume; other chapters will also address detailed discussions of the cognitive and neurophysiological correlates of mindfulness and specific measures of mindfulness.
2. All personal names throughout the case studies are pseudonyms, and any potentially identifying data have been changed.

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Mindfulness As/Is Care

*Biopolitics, Narrative Empathy, and
Technoscientific Practices*

Alexander I. Stingl and Sabrina M. Weiss

In a letter to Levy-Bruhl, which has been preserved, he [Husserl] seems to admit that the facts go beyond what we imagine and that this point bears a real significance. It is as if the imagination left to itself is unable to represent the possibilities of existence which are realized in different cultures.... In order to grasp the essential structures of a human community one must himself take into account, and relive, the whole milieu ("Umwelt") of this society.... Reflection is historicity—on the one hand the possession of myself and on the other my insertion into a history.... I at once discover a temporality and a historicity that I am. (Merleau-Ponty, 1964)

Freedom is not so much linked to choice (a selection from pre-given option or commodities) as it is to autonomy, and autonomy is linked to the ability to make (or refuse to make) activities (including language and the systems of representation and value) one's own, that is, to integrate the activities one undertakes into one's own history, one's becoming. (Elizabeth Grosz "Feminism, Materialism, Freedom," in Coole & Frost, 2010)

The Flight From Narrative and the Escape From Phantasm

As Zizek would tell you, for Lacan, there is no reality without fantasy; not, Zizek would add, in this subjectivist way, where there is no reality but the fantasized one.

In the following pages, we will build on that aspect, but let us look at this again with a somewhat different voice. A few decades before Lacan, the German philosopher, Georg Simmel, wrote about the fragmentary character of life: The lives we have are but fragmentary, and to become totalities, we complete them with ideas and narratives about the world in which we live. The life lived as a process of becoming is such a completed totality, which meets a total world, and, in meeting and crossing, life becomes fragmentary.

Both Zizek's Lacan and Simmel address matters that refer to more than metaphysical deliberations, matters that include the fact that we have bodies and perceptions upon which the processes of our lives are built. Nonetheless, even with our feet standing on grounds of a real world and with our experiences rooted in actual practices, to become meaningful to us and to be communicable to others, our experience of the world and our lives still seems to lack something, it seems never completely whole. Simultaneously, and this is something of a paradox, this lack occurs because our perceptions, practices, and experience appear filled with ambiguities, vagueness, and gaps—indeed, this is the case, because the concepts that we deploy to make sense of and render intelligible perceptions, practices, and experiences are not unconditional; instead they are what constitutes these very ambiguities, vagueness, and gaps. One particular fragmentation by way of ambiguity is the temporal coordination of diverse processes, such as the coordination of several processes into being understood as “one’s lifetime.”

This may all still seem obscure, but a real-life example will make this more lucid: Imagine a person falling down a flight of stairs in her house for the third time in a short while. The first two times, she thought, she was just being clumsy, but the third time, she clearly felt her legs “give away.” She goes to see a doctor, who orders a number of tests, including the use of medical-imaging technologies: PET and fMRI scans of her head. After the results come back, the physician shows her a black-and-white image and says: “This is a picture of your brain, do you see these white spots here? This is multiple sclerosis, MS. This is what you have. It is a progressive disease. These white spots will increase in size and number.” From this moment forward, this image of “increasing white spots” begins to take over the patient’s life. She seems, quite *mindlessly*, to live and organize her life’s processes according to the visual narrative of the white spots that her doctor *mindlessly* has strung for her. Whenever her life and the world around her intersect, whenever a fragment that is her life needs completion, her imagination completes her life as a phantasmagoria ruled by her “white spots.”

This kind of metaphoric utterance of a complex visual-text enunciation is what we can understand as an example of techno-scientific practices in doctor–patient interactions. And like any kind of practice undertaken by human beings, these can be engaged more or less mindfully or mindlessly.

In the work of Ellen Langer (2009), a similar practice in doctor–patient interaction is referenced in the example of calling a cancer patient’s condition “cancer in remission.” The narrative structure here is similar: the doctor universally and *mindlessly* applies a biomedical term for all their patients, then individual patients adopt this status hierarchy description narratively, creating the facts and becomings of their life—their personalized, local ontology and temporal order, so to speak—in accordance with the doctor’s priming.

“Cancer in remission” means that, from the point of view of social bureaucracy, one is in the ongoing process of dying, and therefore, as a member of the *new chronic*, one is a member of the *already dead* (Cazdyn, 2012). “In remission,” as Langer shows, does not mean that one is cured; it does not end the cancer, but it keeps the cancer present in one’s life bearing a certainty of its return. The completion of life from a fragment to a totality is, therefore, achieved through or “techno-scientifically enacted and embodied” in the *cancerous trope*.

In this paper, we argue that a genuine science that studies critique does have the steam to employ mindfulness as “the practice of critique” and disrupt—in a near-Kantian Enlightenment or Foucauldian psychagogic style—the mindless enactment of technoscientific narratives and open technoscientific regimes for new ideas and better practices.

We engage with Langer’s mindfulness in two ways. As a way to emphasize the benefits of incorporating Langer’s (1975, 1989, 2009) understanding of mindfulness/mindlessness, Stingl highlights the contact zone between mindless media practices and individual life-course choices as a “narrative dialectics of techno-scientific practices.” This describes the dialectic relations that are entered into by technoscientific practices, such as spatialization and temporalization in the gaze of medical visualization practices, and by individual life-courses in the form of narratives. Complementing this substantive engagement, Weiss demonstrates a procedural application of mindfulness in metapractice through the heuristic model of *disruptive enactments* as a constructive critique of current interdisciplinary approaches to complex problems.

In the following four sections, we will develop conceptual and cognitive aspects of narrative empathy through the frame of *semantic action theory* (SAT); illustrate these issues in Stingl’s work on imaging technology as a biomedical practice and persuasive technology, and in Stingl’s and Weiss’s study of the question of alternative options in responding to attention-deficit and hyper-activity disorder (ADHD); and conclude with the argument that *disruptive enactment* constructively implements mindful and (en)active research perspectives in the style of critique (Kant) or psychagogy (Foucault).

Scapes and Styles: Mindscape, Narrative Empathy, and Executive Functions

In negotiating theoretical and practical knowledges, forms of being (social), (techno-scientific) practices, and ways of becoming, we conclude that individuals reconstruct their selves, their choices, and their life-courses in the form of microclimates of truths and sequences of facts and events that represent narratives. In a more theoretically rich language, we can say that making free choices in the form of acts and events (Grosz, 2008) and integrating them into one’s narratives of self entails the assembly of complex cognitive information along with different ecologies and (vital) materialities *enabled* through *assemblages* that make expressions possible in retaining the possibility of their intelligibility for others, *constrained* by *arrangements* that make practices legitimizable within frameworks (Stingl, 2010, 2011). We want to unfold this now, as simply as possible, to show how this insight can be used to further develop research perspectives and operationalizations that include mindfulness in the form of *disruptive enactments* (a concept suggested by Weiss).

As a cognitive task, that is, (1) involving percepts, concepts, and their modes of mutual and emergent interpellations (let’s tentatively call these *syncepts*, *paracepts*, and *homeocepts*), (2) solving the information order problem, and (3) their sequentialization (*narratives*), decisions and the capability for decision-making in general and

doing so *mindfully* in particular are rich in prerequisites. In an analysis, these prerequisites can be subject to an interrelated point of view of embodiment and enactivism (Merleau-Ponty, 1964, 2003; Noë, 2009; Thompson, 2007), developmental neurocognitive research (Diamond, 2013; Diamond & Lee, 2011; Kerr, 2008), semantic agency theory or SAT (Stingl, 2010, 2011), and mindfulness psychology (Crum & Langer, 2007; Langer, 1975, 1989, 2009; Langer, Djikic, Pirson, Madenci, & Donohue, 2010; Langer & Moldeveanu, 2000; also on physical exercise, see Ratey, 2008). For the aspect of neuro-cognitivism, the reference objects here are the so-called *executive functions*.

Executive functions, sometimes also called executive control or cognitive control functions, summarize a “family of top-down mental processes” that are required when mere reliance on routine, rote, and automated behavior patterns and habits would be erroneous or fatal, or would lead to malappropriations. Not unlike Kant’s (1784) concept of *Enlightenment* or Whitehead’s (1929) *Function of Reason*, the use of executive functions can be considered

effortful; it is easier to continue doing what you have been doing than to change, it is easier to give into temptation than to resist it, and it is easier to go on “automatic pilot” than to consider what to do next. There is general agreement that there are three core EFs...: inhibition [inhibitory control, including self-control (behavioral inhibition) and interference control (selective attention and cognitive inhibition)], working memory (WM), and cognitive flexibility (also called set shifting, mental flexibility, or mental set shifting and closely linked to creativity). From these, higher order EFs are built such as reasoning, problem solving, and planning.... EFs are skills essential for mental and physical health; success in school and in life; and cognitive, social, and psychological development. (Diamond, 2013, p. 136)

In sum, they

make possible mentally playing with ideas; taking the time to think before acting; meeting novel, unanticipated challenges; resisting temptations; and staying focused. Core EFs are inhibition [response inhibition (self-control—resisting temptations and resisting acting impulsively) and interference control (selective attention and cognitive inhibition)], working memory, and cognitive flexibility (including creatively thinking “outside the box,” seeing anything from different perspectives, and quickly and flexibly adapting to changed circumstances). (Diamond, 2013, p. 135)

While we are aware of conceptual and empirical differences between them, we are taking seriously the existence of research potentials in this field where enactive, embodiment, and somaesthetic perspectives converge with mindfulness and executive functions, which we view in the frame of SAT (Stingl) and *disruptive enactments* (Weiss). We think that a reconstruction of the contact zone of conceptual/perceptual mechanisms, the cognitive aspects of narrative empathy, and executive functions in the developing and plastic brain is particularly pressing because even minimal successes can have significant effects: Existing research shows that “interventions that achieve even small improvements in [inhibitory control] for individuals could shift the entire distribution

of outcomes in a salutary direction and yield large improvements in health, wealth, and crime rate for a nation” (Moffitt et al., 2011, p. 2694).

From a developmental point of view, we hold that organisms developmentally interact with different environments (see epigenetics, immunology, gut biomes, etc., fields that Weiss currently researches) from the moment we are biologically conceived and even more so once we possess rudimentary responsive neuro-cognitive networks. Ecologies (Guattari, 1989) and environments (Stingl, 2010) are interdependent, interactive, and interpenetrative *amongst* themselves and also *with* each of us as individual and responsive organisms (Lewontin & Levins, 2007). We exist enmeshed in dynamic and mutually interactive (or dialectical) developmental relations.

The simplest yet most useful distinction that we find acceptable distinguishes between three ideal types of environments for dynamic sentient beings: vital material, social, and cultural environments.

- There are *vital material environments* that consist of the physicochemical objects around us that present us with agencies in the form of affordances, contingencies and restraints for our (ideo-motor) movements and sensory inputs, such as walls, chairs, tables, trees, mountains, etc., things that smell, taste, sting, are red, green, blue, loud, silent, scratchy, harmonic, polyphonic, etc.
- We are also part of *social environments*, which are constituted by the actual interactions we have with people in dialogue, direct touch, and so forth.
- Then, there are *cultural environments*, which provide traditions, values, institutions, and stories and fictions.

Since actors encounter these environments as contingent and their meanings as providing shifting options, differences, and variabilities, they are confronted with the necessity to make decisions to experience them and live their lives in them as a *Whole*.

Our biological body, including its brain, is certainly as much part of this *Whole* as are stories and texts and practices. And this is precisely the point: There are contingent, possible orders of meaning, time, and space that we can realize. These realizations are not arbitrary but require that we have some of them, if not all of them, potentially present to mind and that we have the cognitive means to make choices and realize them. The topologies of these possible orders are what we have come to call *scapes*: *somatic scapes* (referring to the body), *semantic scapes* (referring to topologies of relating practices meaningfully), and *narrative scapes* (referring to topologies of sequentialization).

For radical historization, in cases of “decisions made,” we have created genealogical discussions on what we call *thought-scapes* (Stingl), and for the situatedness of strong objectivities, we speak of *mind-scapes* (Weiss). When referring to embedded *thought-scape*, we refer to the idea that an

intellectual climate circumscribes the field of the conceptual relations or potentialities that an interlocutor can possibly make. Relations include analogies, metaphors, equivocations, comparisons, creative misunderstandings, &c. The history of scientific progress is, in my account, a history of creative misunderstandings and equivocations. The intellectual climate’s diachronic aspect is understood as a *thought-scape* (or *Denkraum*...).

A *thought-scape* represents a field or sphere of cognitively possible/intelligible problems or *problematizations* (Foucault). Problematization describes a historical and social situation that constructs potential outcomes of truth-and-false selections in a web of possible solutions. This problematization is also described as a “historical space of conditioned contingency”.... In the progress of discourses throughout history, a chain of discoveries may lead to the emergence of new problems. At first, these problems remain largely implicit and cannot be made explicit for lack of proper concepts. They keep summing up and remain implicitly present but unresolved, until they are concretized and rendered explicit (and largely public) by a string of publications or public enunciations that thereby open up a new *thought-scape*. (Stingl, 2011)

As for *mandscape*, Weiss describes the field of potentially accessible sensory inputs, of which a portion can be in “focus” to an observing agent:

Even if an input is not instantaneously available, if it is readily available within a scope of ease for the agent/contextual standards, it can be part of the mandscape. This notably (see also Stingl & Weiss, 2013; Weiss, Restivo, & Stingl 2014) adds an interactive dimension between the agent’s context (usually culturally/socially informed) and the features of the accessing technology (somatic/material/social). ex. James Bond’s watch, a technological aid to perceive time, would usually be available, even if not in view and covered by a sleeve. But if James Bond is tied down, he can’t move his arm so that the watch is visible to him and thus it would not count as being within his mandscape. His options are to free his arm (a somatic technology), trigger a gadget in his watch (material technology), or ask an enamoured Bond Girl to read it for him (social technology). With one of these options, he can count his watch as being once again within his mandscape.

When situating *how* we bring *thought-scapes* to bear in socially complex situations where decision-making requires us to evaluate options first as they appear within our *mandscape*, we often find ourselves in conflicts that could be articulated explicitly. However, this is only possible with great difficulty because our routinely afforded cues seem to fail or have evaporated (for an interesting social psychological operationalization, see Oevermann, 2001, 2005).

Weiss further describes this situation of *normative vertigo*:

A type of vertigo that recognizes the uncomfortable, disorienting effects of disrupted normative standards (in lieu of disrupted spatial or perceptive mechanisms). Just as sensory inputs provide us with a sense of place in the spatial world, so too do normative standards, like right/wrong, self/other identity, and core values (individual and institutional) allow us to feel secure about our place in the normative social world. When these guideposts become disrupted, there is an urgent need to reorient oneself, by grasping the first solid standard that can be utilized to regain balance, a conceptual version of putting one’s hand against the wall to steady oneself. This can be used to describe both the sudden, seemingly illogical leaps made by opponents of social change and to explain sudden outbursts of irrational and violent behavior at the sudden disruption of a normative standard.

The ordering of options, of overlapping different scapes onto each other—that is, thought-scapes and *mind-scapes*—leads to the construction of narratives. With “narratives,” we do not mean notary descriptions, fictional accounts, or hyper-rich narrations

as created by social phenomenology. Instead, we adopt Barbara Tversky's narrow definition of narrative that allows for operationalization and renders the concept of narrative into a pragmatic one: "the representation of at least two events with a temporal ordering between them" (Tversky, 2004, p. 381). Based on descriptions people gave in response to different empirical problems, for example of their flats or of city tours, Tversky and colleagues identified two distinct types of perspectives of narrative ordering and a third, hybrid perspective of ordering:

- route perspective: following a tour from one object succeeding another by linear change of viewpoint;
- survey perspective: description of landmarks from a stationary, externalized viewpoint;
- gaze perspectives: hybrid in the fact that like a route perspective, the spatial relations are relative to a viewer and like a survey perspective, the point of view is constant. In a gaze perspective, landmarks are described relative to each other from the viewer's stationary point of view in terms of the viewer's spatial orientations (such as left, right, back, front). (Tversky, 2004)

Tversky remarks that it is

curious that a route perspective conforms to the broad sense of narrative as a representation of at least two events linked in time, but that a survey perspective may not. In a survey perspective, there are declarations but not events and the links are spatial not temporal. Yet it is notable that although space is static, it is so frequently described dynamically, as if the listener were travelling through it, imposing a temporal order on relations that are stationary. (Tversky, 2004, p. 382)

There are many additional aspects worthy of further discussion, for example linear versus heteroscopic gazes of representation in clinical practice or political theory (e.g., Stingl, 2012); however, that would be beyond the scope of this chapter, in which we aim to survey several research fields that could potentially benefit from linking mindfulness, cognitive perspectives, and narrative empathy.

With Tversky's narrow conception of narrative, we can now implement a concept of narrative empathy that is sufficiently precise for our research purposes. This is important because many usages of "empathy" are ambiguous and vague. For example, folk psychology and so-called "common sense" approaches tend to equate empathy with sympathy. And with regard to ideas about "illness narratives" and patient life-courses, popular accounts tend to argue that it would be desirable if doctors had more empathy. Sometimes this means that people wish doctors would show more sympathy to their patients' emotional situations instead of being "cold and professional"; sometimes it means that people think doctors should communicate better and not in medical jargon; sometimes it means that people feel that their doctors do not take them seriously, for example when they report symptoms that doctors cannot classify immediately.

It is counterproductive to adopt this vague "folk concept" of empathy. Instead, we will build narrative empathy as a much more rounded and operationalizable concept that accounts for consequences that Tversky's narrower definition of narrative deploys.

Narrative empathy should, in our view, be conceptualized further in the following two orders:

- 1 a temporal ordering of events with regard to spatial boundaries, as suggested in the work of Suzanne Keen. She distinguishes between three types of empathy: *bounded*, *ambassadorial*, and *broadcast narrative* (Keen, 2011):

In narrative fiction, authorial strategic empathizing takes three forms. The first is *bounded* empathy, on behalf of members of one's own group (here it would be highly unusual not to find other people, but one might also discover an honored object, such as the flag, or a location such as the homeland).... *ambassadorial* empathy, attempts to move more distant others on behalf of those represented empathetically, often but not exclusively other human beings.... and *broadcast* strategic empathy: it calls upon every reader, and most often evokes compassion for universal objects of concern, like infants and victims of disasters. (364f.)

- 2 a second tier of ordering is found in Fritz Breithaupt's concept of triadic narrative empathy. Breithaupt (2008, 2011, 2012) acknowledges the existence of (at least) three credible standard accounts for empathy: (1) the mirror neuron account in neuro-cognitive science; (2) the theory of (theory of other) mind or simulation account; and (3) the coercion or Stockholm syndrome account.

He does find internal problems with each of them, which leads him to identify these three as separate modes or cultures of empathy that are steered by an underlying form of empathy that they have in common. This can account for their theoretical weaknesses: In this triadic approach, an actor decides between two (or more) opposing actor narratives that they are presented with, that is, between two or more different options for the (temporal) ordering of events. In a saturated model of decision-making, this would lead to a reconstruction of the trialectics of somatics, semantics, and narratives on the basis of narrative empathy, such as in the situation of doctor–patient interactions where actors are “merely” embedded in institutions from a simplified sociological point of view. By contrast, the trialectics allows for a far more complex yet pragmatic approach, which contemporary health care debates and discourses on technoscientific governance and biomedicalized practices are clearly lacking.

In conclusion, the narrative ecologies we live in present us with contingencies that we need to put in order and with opportunities and gradients for decision-making. Enactive/embodiment perspectives, narrative empathy, and mindfulness, in our view, are important complements for pragmatic research in cognitive development and executive functions, as executive functions “are critical for many of the skills that most people would agree will be important for success in the twenty-first century—such as creativity, flexibility, self-control, and discipline” (Diamond, 2013, p. 155).

Medical Imaging as Persuasive Technology

Science as technoscience is enactive

Philosophers of science prefer to distinguish between science and technoscience. Science, they argue, is more than “just an ideal,” in part because science is the

investigation of “true” scientific objects. On the other hand, they argue that science cannot be rooted in practice(s) like technoscience (see the discussions in Nordmann, 2012, 2006; Nordmann, Bensaude-Vincent, Loeve, & Schwarz, 2011), because then it would be technoscience when what we need is a “pure science.”

Rather than superficially gloss over this complex discussion, we merely emphasize that science cannot be separated from practice for a number of reasons, and, as a consequence, science is always bound to technoscientific practice. Among other aspects, the following is noteworthy: Once science constructs or conceptualizes scientific objects according to “pure science,” this purity exists only in the lab where the context of object-making can be controlled; hence this is a matter of practice (Knorr-Cetina, 1999; Rheinberger, 2001). In many scientific fields, such as biology or medicine, science in the making is science in the field or in the clinic, where practices abound.

Finally, humans engaging in science are generally in a situation where they cognitively negotiate percepts and concepts, that is, they exist in an enactive situation that involves practices, and once people have theories about their practices, they engage in technosciences.¹ A concept of “pure science,” however, as we argue in the example of biomedical research and practice,² could not be reconciled with the insights of enactive perspectives or with postanalytic views (such as epistemic relativism or ontological realism). This is because the conceptualization of categories of health and illness, as well as of diagnostics and therapeutics, falls under the consequences of postfoundational critique that has been widely accepted in political theory circles and is now increasingly echoed within science and technology studies.

Experts and novices/lay knowledge

In dealing with the process of negotiating percepts and concepts and with the issue of enactivism—such as we find in the discourse of biomedical research or in the clinical situation of doctor–patient interactions, as well as in communications between medical practitioners from different fields (e.g., between a general practitioner and a radiologist)—we find gaps of a semantic nature between different types of knowledges. Sometimes, semantic gaps describe the slippage between percepts and concepts (Day & Goldstone, 2012; Goldstone & Hendrickson, 2010), sometimes they describe the separation between different types of understandings of conceptual issues, such as the Cartesian body/mind dichotomy or other binary oppositions (D’Oro, 2007), and sometimes they describe the gulf between expert and lay-knowledge (Chi, Felotovich, & Glaser, 1981, 1981, Epstein, 1995; Mogendorff, te Molder, Gremmen, & van Woerkum, 2012). If we take the use of images in lay–expert interactions, where experts use images not only to illustrate or exemplify but also to legitimize their arguments, we can see how critical the asymmetry between lay and expert knowledges can become, insofar as the image can become a truth-maker for the expert’s argument in the eyes of the lay-person, who cannot interpret the picture with the same depth (on “depth” and “knowledge”: Chi et al., 1981). Similar asymmetries can be seen in science news reports on brain research or mental health in nonacademic publications that are accompanied by “brain-scan” images; these images more often than not are archival or stock images that have little to nothing to do with the actual

research reported on, but they lend not just credibility but impenetrable authority to the expert knowledges therein.

In actual medical practice, the images produced by imaging technologies are interpreted by specialized radiologists who never get to meet actual patients; meanwhile, those practitioners (general physicians and specialists) who interact with patients still use select images in their dialogue with their patients. The images used in the dialogue can only be fully interpreted and explained by an expert who isn't even present, whereas patients are lay people who are confronted with truth claims by doctors for whom the images serve to strengthen the truth claim. This strengthening occurs either by either aiding in the production of a coherent narrative for the claim or providing legitimizing force by calling on "myths of transparency" (see Beaulieu, 2002; Deleanty, 2010; Joyce, 2008; Klein, 2010; Mol, 2002; Saunders, 2008; van Dijck, 2005) that exist in the popular culture of medicine. Doctors are in a situation exhibiting the ideal-typical structure of expert–lay interactions that involve decision-making: the expert (doctor) is (1) a primary gatekeeper for the information that a lay-person (patient) receives about the situation, and (2) they are an important gatekeeper for the proficiencies that a lay-person can attain to understand both the meaning and the vagueness of information.

ad (1) The situation is originally described as *epistemic paternalism* (Goldman, 1991) and is constituted by an ethical dilemma of how much information a doctor should provide a patient with—given that "bad news," unclear information (the patient is confused by the doctor's technobabble), or even lack of information (waiting for further test results or being unable to create a diagnosis at all) can cause anxiety, nocebo-effects, etc.

ad (2) Patient empowerment is evoked in the form of a critique—an inquiry for the "conditions of possibility"—suggesting patients become empowered when they are *enabled* to understand the information properly, whereas limits to the information they are given does not provide them with autonomy at all.

Both conditions, (1) and (2), are subject to critical inquiries from science and technology studies, including somaesthetics, as well as political studies, since they involve concepts of the human body, technoscientific practices, and questions of (bio)power/(bio)politics, and leadership (see Stingl & Weiss, accepted). However, they are also issues of cognitive studies, narrative empathy, and mindfulness research, since issues of decision-making are involved.

Because of the gatekeeper function that doctors as experts both have for the knowledge that patients as lay-/novice-actors can reliably obtain and can make sense and meaning of, we want to suggest that health-care experts and practitioners should develop a mindful approach—not a paternalistic one—and encourage mindfulness in their lay-interlocutors. Therefore, we suggest emphasizing the term *epistemic responsibility* (Code, 1987, 2006) with regard to lay-expert interactions that involve technoscientific practices to emphasize that participants should be mindful of the narrative dialectics that exist in interactive processes of constituting knowledges.

The technological invention of disease and persuasive technologies

It has been effectively demonstrated that there is a need for awareness of the role of technologies and technoscientific practices not just in the creation of an understanding of disease, but quite literally in the invention of disease itself. Bjørn Hofmann (2001) has notably studied the influences of technology on “disease-making,” identifying three different ways this occurs:

- Medical practice, since about the 19th century, has become dependent on technology in the production of data; therefore, “technology provides the physiological, biochemical, and biomolecular entities that are applied in defining diseases” (Hofmann, 2001, p. 10).
- Technology constitutes *medical semiotics* by establishing the procedures of the attainment of knowledge of disease in medical theory, as well as the forms of practical disease recognition in the constitution of “the signs, markers and end-points that define disease entities, and it strongly influences the explanatory models of disease as well as medical taxonomy” (Hofmann, 2001). Before the 19th century, medical semiotics was largely defined by procedures originating in the juridical discourse.
- Technology establishes actions and reactions that are embedded in the process of the constitution of disease by diagnosis and treatment technologies.

Hofmann can conclude that the “content and configuration” of modern medical knowledge (Hofmann, 2001) have been become effectively changed with the introduction and evolution of technology. Most importantly, technology-dependent semiotics, in defining and detecting disease, rely on “paraclinical signs” (such as detection via imaging technologies, X-ray, PET, CAT, fMRI). A criterion for the constitutive role of these paraclinical signs is reproducibility.

Imaging technologies, such as X-ray, ultrasound, PET, fMRI, etc., are tools that are used either to help diagnose patients or to conduct biomedical research. This *narrative dialectics of technoscientific seeing* with imaging technologies presents doctors and patients, in their interactions, with a double-bind (Bateson, 1972) of a visualizing or cyborg gaze (Prasad, 2005). Imaging practices constitute a *gaze perspective* (Tversky) from the expert’s point of view. They construct new disease narratives and affirm existing ones, all while concurrently resting on histories of biomedical practices and medical semiotics. In this technological construction of disease narratives (through the cyborg gaze), the behaviors and attitudes of both doctors and patients are changed. Doctors, as “users” of the technology, find themselves “configured” (Oudshoorn, Rommes, & Stienstra, 2004) by the technology; patients find themselves convinced of the legitimacy of the epistemic scenery the doctor has put in place. Technology has *persuaded* both doctor and patient, and it has caught them in said double-bind. Therefore, imaging technologies should be classified as *persuasive technologies*, defined as: technoscientific practices that refer to the noncoercive and nonfraudulent uses of technology both to alter attitudes and behaviors of its users and to confer agentic properties of social actors onto technological objects and media (see Fogg, 2002; Turkle, 1984; Tuttle-Ross, 2002). Technoscientific practices do not create evidence or facts. What

they create are entitlements to knowledge (Boghossian, 1996, 2003; Graham, 2012; Luper, 2004) or affordances. Facts, as such, follow in the form of the sequencing of practices: People decide to follow upon the creation facts in further interaction, for example, between radiation, pharmacological, or no treatment.

Technologies, that is, technoscientific practices that involve apparatuses, media, machines, and/or complex object relations, are often tacitly employed in interactions to aid in the legitimization of truth claims. The production of “evidence” by way of *persuasive technologies* does not mean that evidence is a lie or inherently false. The important aspect is that evidence is never just self-evident, nor can it be. In medical imaging, for example, the pictures that a doctor shows their patient are not what the imaging machine produced directly, but are the result of numerical data that were filtered and processed by a series of technician presets and computer programs (Joyce, 2008).

In our conclusion, a technology is revealed as a social actor in the actions that follow, because science and technology exist only through technoscientific practice. The persuasive agency of technology requires us to be mindful and to insert disruptive elements into mindless, harmful enactments of these technologies.

The narrative dialectics of technoscientific seeing

As we have seen, the structure of lay-expert interaction follows a simple pattern here. The interactive practices produce contingent narratives: (1) that are dependent on technologically assisted or produced practices, concepts, and images that enact visual metaphors; (2) that do not represent a corresponding truth or evidence, but only create entitlements to knowledge and affordances, and in the case of imaging; (3) where the practitioner in the act of diagnosis has the authority over the use of images in the eyes of the patient and is thus assigned a specific type of responsibility, namely *epistemic responsibility*. Following the discussion on narrative empathy above, we want to understand responsibility here in light of *mindful* decision-making and informed consent. We must understand that the patient’s situation, if they are to be autonomous, must be viewed from a political postfoundational perspective. That means that there is not a deterministic path to the one, correct decision. Decisions must be made because the options are undecidable (Laclau, 1990, 1999), that is, there is no “fundamental principle” (neither a calculus nor an epistemic [paternalistic] authority) that determines the solution for the patient. We conclude that first of all, it is the epistemic responsibility of any health care practitioner to enable and empower each patient to make a decision for themselves and be able to take responsibility for their own decisions; second, this calls on the creation of a culture of mindfulness among practitioners that they must also promote among their patients.

Despite the fact that individually many members of the biomedical research and health-care system would subscribe to this or a similar demand, in Western health-care systems such a culture and attitude are rarely put into (systematic) practice. Many reasons could be cited for this, but we will summarize them here under the concept of the *colonial matrix of power* (Mignolo, 2012); to address this, we advise the development of critique (Kant), psychagogy (Foucault), mindfulness (Langer), and disruptive enactments (Weiss) as inherently similar gestures of *epistemic disobedience* (Mignolo).

Attention and the Political Imagination Deficit

The functioning child

The necessity for epistemic disobedience, for disruptive enactment as a mode of critique, and for mindfulness as a practice of care is apparent in the following statement by an American physician, who is quoted on the practice of prescribing medications for attention-deficit as a rule rather than exception: “I don’t have a whole lot of choice. We’ve decided as a society that it’s too expensive to modify the kid’s environment. So, we have to modify the kid” (Schwarz, 2012).

Technoscientific practices of biomedicine and (mental) health care appear as a case of epistemic paternalism in the discourse of attention and ADHD. More importantly, the narrative of attention/attention-deficit has “infected” the Western idea of development, education, and (academic) success.

We have argued in our publications (Stingl, 2010; Stingl & Weiss, 2013), but also at professional conferences or lectures for students and teachers in training, that from the point of view of a radical historization of the concept of attention/attention deficit combined with the point of view of contemporary research on cognitive development, the current diagnostic and therapeutic regimes of the ADHD discourse are highly questionable: Leading clinicians mindlessly exclaim that their job is to help children “to function,” instead of enabling and empowering children to discover and develop their potentials to become happy, politically active citizens.

No attention without abstraction

In the late 18th century, philosopher Immanuel Kant (1798/1983) argued in his *Anthropology* that there are three fundamental and indispensable powers of the mind (*Genueth*): *Distractio*, *attentio*, and *abstractio*. We cannot dispense of either one, because they constitute our capability for creativity cooperation and communication in the form of *playfulness* and *mindfulness*.

Kant discusses *attention* as part of the awareness of representations that pertain to knowledge. Awareness of a representation has two “active” dimensions, which are opposite to their “passive” other. *Attentio* and *abstractio* stand in a necessary opposition to *distractio*. Abstraction can even be seen as superior to attention. But even if this seems like a hierarchical construction, it must be emphasized that for Kant, neither mode of the mind (cognitive mode) can exist on its own. Kant’s idea has been radically changed by two centuries of attention/attention-deficit discourse, which has focused on disciplining children to “function” by denigrating the importance of both distraction and abstraction. Attention has become the one and only buzz-word.

However, Kant’s description would allow us to connect cognitive research on executive functions with playfulness (Brown, 2009) and mindfulness (Langer, 1989, 2009): To be able to let go of being fixed on a representation, relation or practiced at all, one must be capable of *distractio*. If one misses out on a representation that rises up in one’s mind and that one could “attend to,” then that is *distractio*. If a representation rises, one of two possible acts will follow: One can either attend to it or abstract from it. What Kant describes is that the act that follows is either one of closure (*attentio*)

or one of keeping open (*abstractio*), for one either promotes or “inhibits” the representation from entering into a unity (relation) with another. Therefore, says Kant, abstraction is not understood to mean “to abstract” but “to abstract from.” Abstraction is the higher power over attention, Kant says, for it implies the freedom of the ability to think and one’s power over own mind. This power, however, can only be learned through practice and exercise, just like judgment and imagination. Attention and abstraction help the formation of one’s self-perception and identity as an individual, a member of social groups, and as a citizen (i.e., a participant of political process). Analyzing the historical change of these concepts and care practices since Kant along research on cognitive development, that is, on executive functions, reveals that we have come upon a critical moment.

Executive functions and alternative practices

If we take seriously what research on cognitive development, academic success, creativity, and happiness suggests (Brown, 2009; Diamond, 2013; Ratey, 2008), then we must strongly disagree with the ongoing biomedicalization of childhood in the narrative of attention/attention deficit.

Learning should include creative forms of expression, such as art, music, and theatre, and it should include physical education, such as noncompetitive martial arts (Diamond & Lee, 2011), because these have highly positive effects on childhood development, as well as adults and the process of ageing. When we say, that “we take seriously,” we argue that a critique of how technoscientific practices are established as “normal” is important here: We look at how and why practices have become normalized, such as diagnosing more and more children with ADHD and prescribing medication, but also what alternatives are justified, and which are honed because they have only a novelty value or a nostalgic value. This critique is, therefore, inherently mindful.

Political imagination

We want to emphasize that the issue of development and executive function involves the development of imagination, in particular of political imagination. In the medicalization of childhood, in making children “function,” nothing is done to help the development of an active and open (political) imagination. Rather, medicating children (even in cases where it would be genuinely indicated) without including elements of abstraction, mindfulness and development of executive functions, will lead to an impoverished imagination and to a dysfunctional society. However, to be able and empowered to participate in social and political life, to become an active citizen, rests with necessity on our political imagination, our ability to think in alternatives, and our ability to make informed decisions.

Michel Foucault (2010) has made a congruent argument on political participation and freedom of speech. He argued against pedagogy as the art of teaching predefined skills and truths, and an art of disciplining the masses. Instead, he expressed his favor

for a concept of *psychagogy*, of learning how to care for the self and to speak freely (*parrhesia*), to learn how the procedures of truth and false are produced.

Doctors–parents–children

In the situation of diagnosing children and suggesting treatment options, researchers analyze the situation as a doctor–patient interaction. However, we think that the construction of the actual interaction and of the research perspective is largely insufficient. This situation is not a dyadic doctor–patient situation, but triadic: doctor–parent–child. Decision-making should involve all three parties, and it should be characterized by epistemic responsibility among all three, not by a top-down hierarchy of epistemic paternalism. Our research aims at understanding how and why the construction of the doctor–patient interaction in practice as well as in research is dyadic and paternalistic. Also, we argue that we need a *mindful* critique of this interaction that accounts for responsible practices that treats the actors equally and allows for mutual responsibility in the interaction.

And finally, how a majority of people conceive of childhood and development today, focusing on the (bio)medicalization of attention, has diminished the potential for creativity and innovation, along with diminishing the potential for active and reasoned political participation (Stiegler, 2010). If we take seriously the idea that childhood is the development that enables political participation and active citizenship and that takes seriously children's rights (see James, 2011; O'Neill, 1989; Rehfeld, 2011; Torney-Purta & Amadeo, 2011), we must aim at understanding that technoscientific practices involving children must be created in a way that promotes and does not hinder the development of narrative empathy, mindfulness, decision-making, and imagination.

Mindfulness Through Disruptive Enactment

When examining changes in practices and knowledges, it is easy to fall into one of two traps: first, to assume that “newer is better” and that “modern methods” are, by virtue of their novelty, more effective/efficient/scientific/truthy; second, to wax nostalgic about “classic” or “traditional” methods that were more “natural” or “less artificial.” Both are mindless polemics that commit essentialist fallacies rather than engage mindfully with the nuanced and varied ethical layers of the issue. This is very apparent in studies of care practices and health knowledges: everything, from dietary regimens to “traditional” holistic health movements to shifts in birthing practices, is laden in controversy and disagreement over facts, values, and acceptance. Often, these debates devolve into “high-tech versus low-tech” or “natural versus artificial” binaries that force not only patients and practitioners, but materials to “choose a side” as a social identity. In addition to exacerbating the contentious atmosphere, this harsh climate does nothing to clarify these issues for the purposes of developing socially just and culturally aware policies that offer maximal opportunity with minimal obstructions or harms.

The heuristic concept of *disruptive enactment* is a Foucauldian-inspired conceptual model that offers constructive ways out of this dichotomous bind. As a theory that specifically targets periods or situations of change—where one technoscience practice/knowledge becomes less dominant, and another becomes more prevalent—*disruptive enactments* frame this change ecologically and thus invite recognition of a multitude of factors—structural, agential, institutional, ideological, cultural. Although this method seeks to help characterize change, it is not merely descriptive; the *ethos* of the issue always permeates the discussion to generate a strong ethical/normative/values component. It is impossible to adequately examine these types of issues, which have real effects on real people, from a value-neutral perspective.

The bounds of the *disruptive enactment* heuristic are as follows:

- 1 a type of assemblage/dispositif that challenges an existing regime of knowledge and practice; and
- 2 a locus for multiple types of expertise to converge to produce an emergent third, an unexpected source of agency that develops momentum among experts and practitioners; and
- 3 a transformative factor that makes new enunciations and performances both (im)possible and (un)true.

The incorporation of Deleuze's *assemblage* and Foucault's *dispositif* highlights the pervasive hybridity of technoscience, knowledge-practice, and the social as well as material composition of technology. *Emergent third* derives from Michel Serres's (2007) *Parasite* and Ludwig Fleck's (1979) "trinary cognition" as the "unexpected guest" who arrives to disrupt a dyadic interaction and an "existing fund of knowledge" through which an observer evaluates an object (and that is reinforced through the observatory exercise), respectively. The transformative factor draws from Foucault's discourse analysis, which asks both what makes a particular enunciation possible and what makes it true. But rather than a centripetal (inward) focus seeking to explain what the enunciation is, the *disruptive enactment* analysis tracks centrifugal (outward) impacts on the possibility and truth status of other enunciations and performances.

By framing a case as a *disruptive enactment*, important questions about expertise, possibilities, and truths are made explicit. For example, when considering the increased use of brain imaging as a *persuasive technology*, the issue cannot be discussed without considering the participation of various "experts"—technicians, programmers, physicians—who each bring a specific set of knowledge-practices into the doctor-patient interaction. These types of expertise—intersecting with institutionalized training, health-care policies, and cultural norms of patients—make certain utterances possible, such as the measurement of multiple sclerosis by the number of white spots in a brain image, and others impossible, such as an association of trembling hands with demonic possession or simple inattention. But these utterances are not just transmitted from doctor to patient; they are the result of a series of diffractions and transformations as numerical data are transformed into images by a technician-program *apparatus*, the images are given meaning within a particular social and expertise context, and the locus

of interaction—an examination room—is situated within the greater health-care system and media environment (complete with public-service announcements and direct-to-consumer advertisements urging patients to ask their doctor about some ailment or pharmaceutical). And the image itself carries a type of agency based in its material characteristics (the semitransparent plastic sheet held up to the lighted viewer) and social context, making it both a *parasite* (its existence relies upon the doctor–patient interaction) and a *third* entity in this interaction that is consulted by the others and that offers answers in its way. Through these considerations, we have become more *mindful* in our investigation of this topic.

Likewise, when discussing the shift towards increased medication of children with ADHD, we can become more *mindful* in the questions we ask. We should not just ask, “Is it bad to treat a child with Ritalin to manage his ADHD?” We must first ask, “What is this ‘ADHD,’ and why do we want to manage it?” We could also ask, “How did we deal with this type of behavior before, or was it even considered undesirable in the past?” As we showed (Stingl & Weiss, 2013), a radical historization of this topic reveals important historical and institutional insights into not only the origins of the social norm of attention in children, but the larger sociopolitical context of industrialized labor driving ideologies about human development in the social ecology. What social developments were necessary to allow the measuring of attention such that there could be a “deficit” in a person? With significant shifts in health-care policy (such as the passage of the Affordable Care Act), how does legitimization of particular regimens—resulting in insurance coverage of certain treatments—affect parental considerations about response options? There is a direct causal link between expertise-based legitimization of certain technoscientific practices and social justice here that cannot be ignored once the connections are made. But even as we can trace a lineage from the past to the present, so too does this approach offer a way to *mindfully* ask, “In what ways can we make possible more opportunities for health and happiness for parents and their children?” Can we *mindfully* disrupt the unsatisfactory present to enact a more socially just future?

Notes

1. This summary description appears slightly more tautological than it really is.
2. Similar accounts can be provided for physics; see, for example, Barad (2008) or Esfeld (2001, 2013).

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Training the Mindful Health Practitioner

Why Attention Matters

Craig Hassed

Introduction

There is an ancient teaching story, *The Blind Men and the Elephant*, which is said to have originated in India but appears in many wisdom traditions from the Sufis to Buddhists. It goes roughly as follows:

Six blind men were taken by a king to an elephant, instructed to touch a different part, and then describe what he felt. The one who touched the ear said it was a fan, the one who touched the leg said it was a tree trunk, the one who touched the stomach said it was a wall, the one who touched the trunk said it was a python, the one who touched the tail said it was a rope, and the one who touched the tusk said it was a pipe. They then started arguing over who was right and who was wrong, but to allay their agitation the king told them that they were all correct.

One way of interpreting the allegory is that we are all like the blind men, and the king, being the one who sees, is symbolic of real understanding and wisdom. The blind men each took their limited experience to be all that was to be known about the subject, thinking their perspective to be the only correct one. Argument and conflict would be a natural outcome of such an error.

In most discussions where people express opinions, like the blind men in the story, we are all correct in part, but we are wrong if we mistakenly believe that there is no other perspective that has merit. Scientific and psychological theories are classic illustrations of the abovementioned story, and one particular example is what is popularly known as “mindfulness.”

This chapter will explore mindfulness from a range of perspectives, making the case that all these perspectives are in fact correct, complementary to each other, and merely describing different aspects of the same thing. It will then go on to explore what these

different perspectives mean in terms of skills and how these skills can be applied in the training of healthcare professionals using the experience of introducing mindfulness-based skills into the health-practitioner training at Monash University in Australia.

Mindfulness From Different Perspectives

One of the common traits of skillful mindfulness teachers is that they make it so simple, but for something that should be so simple, there is sometimes an incredible amount of complexity within the burgeoning mindfulness literature, whether that is about the theory, practice, or scientific evidence. Does this complexity help or hinder the investigation, understanding, and teaching of mindfulness? Is it an indication deepening insight, or evidence of confusion making the simple complex and the obvious obscure? Does the very study of mindfulness enliven it or potentially make it moribund? As Mark Twain once said: “Studying humour is like dissecting a frog—you may know a lot but you end up with a dead frog.” Dissent and division regarding what mindfulness is and isn’t potentially distracts clients and practitioners alike and weakens the promotion and application of it. One way in which such a division could be characterized is the Western social psychological approach, which has arisen from empirical science observing people acting under experimental conditions. The other is the Eastern approach, which has arisen from contemplative-based wisdom traditions where intuitive knowledge comes more from direct experience. It will be argued in this chapter that there is no conflict between these two positions at all, and, more than being complementary, they actually enrich and inform each other; in fact, neither would flourish in wider society without the other.

What Is Mindfulness?

What, then, is mindfulness? The working definition used in this chapter is that in its simplest and most universal description: Mindfulness is a mental discipline that involves training attention. So, mindfulness is about paying attention, and “paying attention” does not mean the presence or absence of attention itself—whether the light is on or not—but means the intentionally knowing and choosing what the attention is directed to—what the light is illuminating. The former is a condition of life the latter is a function of the mind. This is “attention regulation” by another name. There are other elements commonly associated with mindfulness that are implicit such as intention, being present, acceptance, nonattachment, and openness to what is observed. When paying attention, other consequences arise such as novelty, because every moment is, in truth, novel. There is also improvisation, creativity, and flexibility when we are not unconsciously repeating the past. It is a simple fact that is easily overlooked if we are experiencing the present moment filtered through our ideas of the past or future.

In a strict sense, mindfulness is not primarily a relaxation exercise; relaxation is a side-effect and not the primary aim of the practice. Mindfulness could be further elaborated according to the way in which we are paying attention, such as to the present

moment with acceptance and nonjudgmentally, or the effects that come with paying attention mindfully, such as novelty, interest, creativity, change of mindset, precision, and insight. Widely known and respected teachers of mindfulness whose original experience arose from the contemplative traditions of Buddhism, such as Jon Kabat-Zinn or Allan B. Wallace, might emphasize the former, and psychologists and researchers, such as Ellen Langer or Helen Newman, might emphasize the latter.

Is Mindfulness One or Many?

Mindfulness as a totality is one thing, but it has many different facets, possibly an infinite number of them, and each one is merely a different way of looking at it. It could be argued that an elephant has many different parts, and although it could be described as being one thing, the parts are all different. So, for example, there is the Five Facet Mindfulness Questionnaire, which elaborates on what are seen as being the five essential elements of mindfulness being observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. These qualities are more evident in mindfulness meditators compared to nonmeditators, and they have a positive correlation with well-being (Baer et al., 2008).

But can these five facets really be separated? Can one, for example, be judgmental of inner experience but maintain nonreactivity? Can one describe what one sees without being observant? Can one act with awareness if one is being unobservant, judgmental, and reactive? It would seem that if one pursues one facet of mindfulness, all the others come with it. So, for example, although a patient's initial intention may have been to deal with chronic pain better, profound shifts in ways of thinking and living will naturally arise as a result of cultivating mindfulness. In fact, one won't learn to deal with the pain unless such shifts occur.

Is Mindfulness Eastern or Western?

Is the present moment Eastern or Western? Are the senses? Is the breath? What about the capacity to observe or discern? Is consciousness itself Eastern or Western? No, there is nothing particularly Eastern or Western about mindfulness or paying attention, but there is much that is universal about it. That is why the elements of mindfulness can be found in all the great wisdom traditions of East and West.

Mindfulness is sometimes incorrectly characterized as being an Eastern or Buddhist practice. Buddhism, of course, arose from the Indian Vedic tradition, which predated it by many centuries, and all the elements of mindfulness principles and practices can be found there. This is not to underestimate the enormous contribution made by many current-day teachers and researchers inspired by Buddhist teachings and practices, indeed, this tradition has probably made the single greatest contribution of the modern revival of contemplative sciences and practice within the mindfulness context and has inspired various forms of psychotherapy based upon it such as Mindfulness-Based Cognitive Therapy (MBCT).

But all the elements of mindfulness are to be found in the Western tradition as well. Plato and his teacher, Socrates, could probably be described as the West's first cognitive therapists and highly refined the dialectic approach. Take, for example the metaphor of Plato's underground den described at the beginning of book 7 of the classic text, *The Republic*. In it, prisoners live chained, only ever being able to see passing shadows on the wall of the cave in front of them. They do not see the realities behind the shadows or the source of the light itself, that source being equated with being, consciousness, or pure existence. In that text, every key issue associated with mindfulness is discussed; being, transience and intransience, reality, attachment, reason, and the dis-integration of the "soul" or psyche.

Following the revival of Platonic philosophy and classical mythology in the Renaissance, authors like Shakespeare were well known for taking up many Platonic philosophical and classical mythological themes in their books and plays. A whole course in mindfulness could easily be taught framed around quotes from Shakespeare. The observing self, being, unawareness, self-regulation, living in the present moment—it's all there.

For the eye sees not itself, but by reflection by some other thing.—*Julius Caesar* (Shakespeare, 1952a, 1.2.52–53)

To be, or not to be: that is the question.—*Hamlet* (Shakespeare, 1952b, 3.1.56)

We are such stuff as dreams are made on, and our little life is rounded in a sleep.—*The Tempest* (Shakespeare, 1952c, 4.1.156–158)

Give me that man that is not passion's slave, and I will wear him in my heart's core, ay, in my heart of heart, as I do thee.—*Hamlet* (Shakespeare, 1952d, 3.2.76–79)

To-morrow, and to-morrow, and to-morrow, creeps in this petty pace from day to day, to the last syllable of recorded time; and all our yesterdays have lighted fools the way to dusty death. Out, out, brief candle! Life's but a walking shadow, a poor player, that struts and frets his hour upon the stage, and then is heard no more. It is a tale told by an idiot, full of sound and fury, signifying nothing.—*Macbeth* (Shakespeare, 1952e, 5.5.19–28)

In many ways, having mindfulness characterized as a Buddhist practice is a barrier for many people who might otherwise avail themselves of it having specific health needs or simply an interest in it. Just having meditation associated with being a spiritual practice is enough to turn many people away from it and so the secularization of mindfulness-based practices and therapies has meant that it has had far greater reach than it would have otherwise had. Instrumental in this secularization and wide respect for mindfulness has been its investigation through science and the growing evidence base. The risk is, of course, that in the process of mindfulness becoming secularized, it loses touch with the wisdom and principles that underlie it.

If the principles of mindfulness are universal, they are not limited to time and place; they can be discovered here and now by anyone who cares to look. The laboratory of the ancient sage was their own minds and bodies. Their method is to look from the inside out and their form of knowledge we call wisdom. The same discoveries can equally be made in the modern context through psychological and biological research

if we have enough insight to interpret them well. The laboratory is full of minds and bodies, but the researcher is looking from the outside in and their form of knowledge we call science. Of course, if the scientist doesn't have a practical experience of mindfulness, they won't really know how to investigate it or how to interpret their experimental findings. Analogously, it's one thing to know the theory of hydration; it's another to experience the joy of drinking water on a hot day.

The language may also be different, but any differences in the motivation of the contemplative and scientist are probably more often superficial than essential. The contemplative wishes to transcend the suffering or misery that they call ignorance; the scientist wants to relieve the suffering that they call depression or anxiety. The motivation for both is self-knowledge and the relief of suffering.

Are the sage and the scientist on a different journey? Probably not, but they may be taking different paths. It is likely that, if each path is followed to its final destination, the sage and scientist will eventually meet and shake hands, complimenting each other on their beautiful and insightful elaboration that each brings to the understanding of mindfulness, self, and the world, and for having provided such practical and necessary help to those they met along the way.

Introducing Mindfulness Principles and Practices in Healthcare

The Stress Release Program (SRP), outlined in the book *Know Thyself* (Hassed, 2002), was written in 1991 as a mindfulness-based program originally developed for use in general practice but is now used in a wide variety of clinical, educational, and community settings. It is now also core curriculum for the training of all medical and physiotherapy students at Monash University and is being integrated into other medical schools including Deakin and Notre Dame Universities in Australia and Auckland University in New Zealand.

Importantly, before the students commence the practical and experiential parts of the program, they have had a series of lectures outlining basics of the mind–body relationship and the evidence and rationale for mindfulness. The SRP is based on a series of meditation practices, framed as training attention, and a series of cognitive topics. The meditative practices are spoken of as “punctuating” the day starting with “full stops” of 5 min twice a day at the beginning and end of the working day, and “commas” of 15–60 s during the day as required. There is also the informal practice of paying attention to the present moment in day-to-day life to discover how much of the time we are mindful and what are the effects of unmindfulness. Over the program, participants are invited to increase the formal practice to 10 or 15 min twice a day according to their motivation. This is a much lower level of formal practice than is found in Mindfulness-Based Stress Reduction (MBSR) or MBCT programs, but the SRP was developed independently of these and in an educational and primary care setting where the level of severity of problems, and therefore the level of motivation, may be significantly lower than those for whom MBSR and MBCT were originally targeted.

In the SRP, the understanding of what it means to be mindful is deepened through the weekly exploration of a series of cognitive tasks or strategies. These are introduced as topics of inquiry for practical life and not as principles that are merely to be intellectually understood and accepted.

Participants use the formal mindfulness practices as a way of investigating what is going on within themselves and around them. It helps them to question and go beyond the assumptions upon which they live their lives and investigate things freshly without preconceived ideas. They are invited to entertain the possibility that much of the time, we may not be as aware as we think we are and that this unawareness comes at a cost such as being less happy, productive, and effective.

The thing that really drives learning is what the individual and group discover for themselves, not what the teacher tries to convince them of. Participants are asked not to accept, without question and inquiry, anything that the teacher says—in fact the teacher is really only there to introduce the practices and principles, and then, through questioning, to facilitate the uncovering of participants' insights born of direct experience.

One of the eight cognitive tasks is introduced each week, and the following week participants are invited to share practical experiences and insights that taught them something about the task under question. The eight tasks and some of the kinds of questions that are explored are as follows:

- 1 Perception: What is the relationship between stress and perception? Do we often unknowingly project ideas onto people, situations, and ourselves? Do we sometimes perceive stressors that actually only exist in our imaginations? Do we sometimes perceive situations to be bigger or more threatening than they really are? Do we cause ourselves problems by not perceiving things that we need to be paying attention to? When stressed, agitated, angry, or afraid, what is the effect of stopping and having a mindful, objective, and conscious look at the so-called “stressor”? What does that show us?
- 2 Letting go/acceptance: Do we often get mentally attached to thoughts, opinions, desires, ideas, emotions, and sensations? What effect does this have on our state of mind, behavior, relationships, or level of performance? When “stressed,” what is the effect of remembering letting go? What does it mean for the thought, feeling, or sensation to still be there but not be so caught up in it or attached to it? When presented with a situation or experience, what is the effect of an attitude of nonacceptance? What is the effect on ourselves and our experience of a situation of remembering acceptance? How does acceptance affect our ability to cope or respond? In what way is letting go different to dissociation, and acceptance different to resignation?
- 3 Presence of mind: How much of the time are we paying attention to the present moment? How much of the time are we mentally living in a past that has already gone, or a future that has not yet come? Do we often take our imaginings about the past and future to be more real than the actuality of the present moment? When stressed, anxious, depressed, angry, or afraid, where is the mind then? What is the effect of using the senses as a contact point for coming back into the present moment? When we remember to be present and just deal with what is in front of

- us in this moment now, what is the effect on our state of being and our capacity to function? Do we see people and events in a new way?
- 4 Limitations: Do we often function under the effect of unconscious, unexamined, and limiting ideas about ourselves and the world such as, “I can’t...,” “I’m no good at...,” “I hate...,” “I never ...”? What are the effects of these limitations on our experience, learning, growth, and capacity to respond? What is the effect of noticing them in a nonjudgmental way when they arise? What is the effect of choosing to unhook the attention from them and give attention instead to the situation that has presented itself?
 - 5 Listening: What are we listening to most of the time? Do we have a commentary running in the background as we go about daily life? What are the nature and effect of this commentary? When stressed, down, angry, or afraid, what are we listening to then? In conversation, do we really hear what is being said, or are we really listening to our ideas of what people are saying, or our reactions to what we think they are saying, or rehearsing what we are going to say next? What is the effect of reconnecting the listening to what is going on around us rather than the internal dialogue?
 - 6 Self-discipline: Do we ever procrastinate? When we are procrastinating, what is the attention on? How much of the time do we put off until later what we need to do now? What is the effect of putting things off on our state of mind, focus, or stress? What is the effect of getting on with the very thing that needs to be done but which we have been putting off? Does it take more energy to put something off than to do it? Do we know when to stop working and have some leisure or rest? What is the effect of going too far or working too long? What is the effect of stopping when we need to? What effect does paying attention have on our capacity to choose more wisely what to do and when to do it?
 - 7 Emotions: Can we be nonattached to emotions in the same way as we can be to thoughts? What is the effect of being reactive to or judgmental of emotions? What is the effect of trying not to experience an emotion we would rather not be experiencing such as depression, anxiety, fear, or anger? What is the effect of being able to notice the emotion with less reactivity and judgmentality? What is the difference between trying to control an emotion and not being controlled by it? What is the effect of gently unhooking the attention from the emotion, without trying to get rid of it, and engaging the attention with whatever presents itself in the present moment?
 - 8 Expanding self-interest: When stressed, anxious, angry, or depressed, do we become more self-preoccupied? What effect does it have on our capacity to notice or respond to the needs of those around us? What is the effect on ourselves and the situations we are in when we respond more to the needs of those around us? What effect does this have on our bodies and minds?

As was said in relation to the five facets of mindfulness mentioned above, these eight cognitive tasks are all interrelated. For example:

- Letting go or nonattachment is a state of mind equally relevant for thoughts, feelings, or sensations.

- We discover that when we're listening to the mental chatter, we are not truly present. That having been said, we can be mindful even in the presence of such internal dialogue if we are able to self-monitor, but we cannot adequately self-monitor without nonattachment.
- When we start to perceive more clearly the unfolding of events around us from a less biased or prejudicial position we will notice that our emotions begin to change by themselves, not necessarily because we have gone through an exhaustive cognitive process in order to rationalize them.

The changes associated with mindfulness are a natural result of "waking up" as illustrated by another ancient but well-known teaching story. Two men were walking through the forest on a journey as the sun was going down. Some way along they noticed something long coiled on the path. "It's a snake!" one said to the other. They could not go back, and they were afraid to walk around it because there were probably others lurking in the forest. They froze with fear, unable to respond, until a park ranger came along the same path. The ranger asked them what the problem was, and the men pointed ahead to the snake. Luckily, the ranger had a lantern and shone it on the feared object. To their relief, they discovered it was actually a rope coiled on the path.

So where was the snake? It was only ever in the men's minds and was projected onto what they saw. Despite the fact that the imaginary snake could not harm them, the fear, physiological response, and resulting behavior were based upon what they thought was there, not what was really there. The light is attention, and the change in experience and response is a natural result of paying attention. To this extent, mindfulness is a nonelaborative cognitive process. The change in thoughts, emotions, and responses is an instantaneous and natural side-effect of seeing, of waking up. Of course if it was really a snake, it would have needed an appropriate and respectful response.

The Cost of Unmindfulness

Waking up is a good metaphor for mindfulness. While asleep, in a lower state of awareness, the dreams and nightmares seem real, but when we wake up they vanish, and it doesn't much matter whether we mindfully woke up through a contemplative practice or decided just to look anew at the present moment. The common belief is that we are truly awake as we go about our daily lives, but it only takes a little bit of mindfulness practice to see that most of the time, we are living in our heads, reacting at work and home to imaginary stressors and prejudicing events before they ever happen. This constitutes much, if not all, the burden we experience.

Many people find it hard to garner the motivation to practice mindfulness meditation, perhaps viewing it as being onerous or time-consuming, thus making the informal practice of mindfulness a more attractive option. This can be frustrating for the mindfulness teacher trying to encourage their client to practice meditation, and rather than trying to convince the client to practice, it can be helpful for them to convince themselves. A mindfulness facilitator is therefore better advised to ask questions

rather than make statements about the importance of mindfulness. For example, rather than stating, “You should practice mindfulness,” it can be far better to ask, “What is the cost of being unmindful in your life?” and then see what they come up with. With further inquiry, they are likely to come up with things such as unmindfulness leads to:

- more stress;
- proneness to anger;
- fear;
- less productivity;
- less creativity;
- less self-control;
- feeling overwhelmed;
- poor communication;
- poor memory;
- fixed mindset;
- repetition of errors;
- lack of learning and insight.

Attention and Default Mental Activity

So why is unmindfulness associated with a poorer capacity to function and reduced well-being in any way we care to measure it? Well, if we are not paying attention to what is going on, how could we hope to understand it or respond effectively to it?

We know from common experience that when not paying attention, our minds are somewhere else, generally in the past or future. We are, as some would say, absent minded, and to become mindful, rational, and responsive again is, literally and metaphorically, to “come to our senses.”

Improved methods of studying the brain’s structure and function have opened many new doors to understanding how it works. One topic of study relates to the “default mode network.” When daydreaming, ruminating, and distracted, the brain slips into a default mode, generally without the awareness of the person themselves. It is based on imagination but with the important distinction that the unmindful imaginer has temporarily lost the capacity to distinguish between imagination and reality.

Also interesting is the observation that the areas of the brain associated with the default network in young adults are also the ones that are later associated with amyloid deposition in Alzheimer’s disease (AD). This may be part of the reason that a predominance of leisure activities that require no attention—such as television watching—are associated with a far greater risk of AD, whereas leisure activities that demand attention are protective against AD (Friedland et al., 2001; Scarmeas, Levy, Tang, Manly, & Stern, 2001). We also know that mindfulness meditation training is associated with increased cortical thickness through slowing the age-related decline in neurons and possibly stimulating neurogenesis (new neuronal growth) in the prefrontal cortex and hippocampus, both important in AD.

Sarah Lazar and her team first demonstrated that there are long-term effects on brain structure among mindfulness meditators including increased cortical thickness (Lazar et al., 2005). This and other work have demonstrated that these and other changes take place particularly in areas related to executive functioning, attentional control, self-regulation, sensory processing, memory, and regulation of the stress response (Hölzel et al., 2010, 2011; Kilpatrick et al., 2011). In the future, we may well come to see AD as primarily a disorder of attention, which is not to undervalue the important role that diet, exercise, and social engagement also have. It is not yet known whether only training mindfulness through meditation produces these effects, but taking the data into account regarding attention-demanding leisure activities, there is every reason to believe that any method for increasing mindfulness will have a similar effect.

When paying attention, the brain is in an entirely different mode of activity where proprioceptive input is being better processed, and the executive functioning areas of the brain associated with working memory, self-regulation and decision-making are working well. The lack of sensory and tactile engagement associated with screen-related activities may be one of the reasons why there is such a steep increase in the amount of attention deficit and hyperactivity disorder in younger generations. It is likely that one day soon, mindfulness will be seen as a core life skill that all children need.

The subject of default mental activity is self-referential—it's about “me,” sometimes also called the “multifaceted self” (Gusnard, Akbudak, Shulman, & Raichle, 2001). It tends to be repetitive, purposeless, distorted, fixed, and disconnected from context and environment. Default mental activity flourishes in various forms of psychopathology, including depression, anxiety, schizophrenia, and autism (Brewer et al., 2011) and is decreased or deactivated when paying attention such as is found in experienced meditators. In experienced meditators but not novices, even when the default mode network is active, brain regions associated with self-monitoring and cognitive control are coactivated.

Thus, we may also come to understand various forms of psychopathology including anxiety and depression as disorders of attention where imaginary stressors are taken to be real, and the capacity to see the flourishing but self-centered mental activity supporting it as illusory and self-deceptive is impaired: The treatment is to increase mindfulness. It may also explain why we are far less capable, flexible, and insightful when inattentive: The solution is to increase mindfulness.

Attention Can Be Trained

When the cost of unmindfulness is added up, the case for cultivating it is rather obvious, so the only reasonable question to ask then is, “So how do I become more mindful?” Quite simply, what we practice we will become good at, for better or for worse. If we practice ruminating, we become good at it—it becomes habitual and literally etches itself into the neural circuitry of the brain. If we practice paying attention, we become good at that. Having objective measures of brain function and physiological measures to correlate with self-report measures are important in providing greater validity to assertions about the outcome of mindfulness training.

For the purposes of the following discussion, formal and informal mindfulness practice will be defined in the following way:

- formal practice: contemplative practice including varieties of sitting and walking meditation;
- informal practice: bringing present moment attention to daily activities.

Is it necessary to practice formal mindfulness meditation in order to cultivate greater awareness? The answer to that question is not fully known from a research perspective, just as it is not known whether a particular level of meditation practice, or one particular variety of practice, provides greater benefits over a lesser level or a different form of practice. Until proven otherwise, it would be reasonable to expect that the more practice one does, the deeper and quicker the benefits of mindfulness ensue. But is informal practice in some essential way different from formal practice, or are they essentially the same thing?

The model of mindfulness largely based upon the work of Jon Kabat-Zinn has stimulated an enormous amount of clinical and research activity, and has grown exponentially in the last decade. The approach has been much enriched by the Buddhist contemplative tradition and heavily emphasizes the formal practice of mindfulness meditation using practices such as the body scan, breath, and mindful yoga for 40 min a day.

Explicit in the formal practice is using the senses as a touchstone for present-moment awareness. Also central are acknowledging the inherent transience of phenomena, and nonattachment to passing experience in the form of thoughts, feelings, and sensations. The formal practice is then a springboard for being more consistently and effectively mindful in daily life. The aim is not necessarily to have some kind of peak spiritual experience on the meditation cushion, whatever that may be, but rather to use the formal practice to foster a deep and profound change in being and attitude informing the whole of our lives. Implicit in, or consequent of, the formal practice is discovering greater creativity, happiness, and improved performance. As preoccupation about future results, whether it be relaxation, freedom from pain, or overcoming depression, is a potential obstacle to cultivating present-moment awareness, acceptance, and nonstriving, being concerned about such secondary goals is not encouraged in this approach. These outcomes will come in their own time in the natural course of practice.

The approach taken by Ellen Langer and coworkers, and also emphasized in Acceptance Commitment Therapy, is characterized as being more Western and psychologically orientated. It has far more focus on the informal cultivation of mindfulness and de-emphasizes formal practice. Informal practice can be done in various ways such as paying attention to daily life, taking an attitude of openness and inquiry, treating each moment as unique, doing daily tasks in a novel way, looking at context, and drawing distinctions between things we think we are familiar with. The goals, for example, of increased insight, creativity, and performance through a more flexible mindset are also natural side-effects of this approach to mindfulness.

The aspects of informal mindfulness mentioned above are made explicit, and, it might be said, implicit are training attention through the portal of the senses, nonattachment, acceptance, and acknowledging the inherent transience of phenomena.

There is no essential difference or conflict between these two approaches, in fact it would be more accurate to argue that it is difficult to cultivate a mindful mindset without formal and informal practice. A momentary coming back to the present moment and out of a distracted dream, looking at the current situation as novel, remembering to be flexible and not fixed to any particular idea, is just as valid whether we are sitting on the meditation cushion in an upright and mountain-like pose or paying for the groceries at the supermarket. The difference is not in the nature of the approaches but in the emphasis according to which “part of the elephant” is being touched or described. The differences between various religious traditions could be seen in the same way. The differences in the message and how it is communicated are superficial, but the essential message is the same: Focus on the differences, and we have conflict and competition. Focus on the underlying similarity, and we have unity and cooperation where each tradition is enriched by the other.

There are differences in different approaches to mindfulness according to emphasis on which outcomes are important, what mechanisms are responsible for those outcomes, and the language that is used to describe them. Things can appear different when they are actually the same. So, for example, in the approach that has been characterized as Eastern, contemplative, and spiritual, one could emphasize:

- outcomes like transcendence, freedom, or wisdom;
- mechanisms like nonattachment, nondonoing and not judging;
- the language may use metaphor, poetry, and story.

In the approach characterized as Western and psychological:

- one might be more likely to emphasize outcomes like a flexible mindset, a reduction in anxiety or enhanced information processing;
- one might be more likely to emphasize mechanisms like metacognition
- one might be more likely to give neuroscientific explanations;
- the language may be more scientific in nature.

There are inherent differences between two approaches to cognitive therapy such as cognitive-behavioral therapy (CBT) versus MBCT, but even then they can complement each other. That one approach “is right” does not mean that the other is “wrong.” CBT elaborates on the thoughts, examines them, and assesses them, MBCT doesn’t—it is nonelaborative—although the nonattachment and awareness cultivated through mindfulness probably enhances one’s capacity for CBT. In fact, metacognition is implicit in CBT as one stands back, as it were, and examines or challenges thoughts. It may well be the most important aspect of CBT.

Although mindfulness is often said to be nonjudgmental and accepting of one’s moment-by-moment experience, that does not mean that mindfulness impairs discernment or one’s capacity to respond; on the contrary. A higher level of awareness improves discernment, and nonattachment results in a capacity to distinguish between which thoughts are relevant or useful and which are not. It follows that some are therefore worth giving attention to, and some are not. It also helps to distinguish between which emotions are worth expressing and how to express them, and it improves one’s capacity to know when to act and when not to. Nonattachment to thoughts and

emotions frees up the mindset, whereas nonacceptance and reactivity increase one's attachment to thoughts and emotions, especially those we like least, making them a magnet for the attention and increasing the chance of repeating unhelpful patterns of thought and behavior. Unmindfulness literally fixes the mindset.

Having made the case that there are no inherent conflicts in the Eastern and Western approaches to mindfulness described above, one with its emphasis on formal meditative practice and the other on informal mindfulness, does not mean to say that there is not value in the formal practice, even for those preferring the informal approach. Sitting still and paying attention might be thought to be the simplest and easiest mindfulness practice, but it's probably the hardest because we are still. Thoughts, feelings, and sensations, and our responses to them, become amplified because there is less going on. It makes more things seen. The difficulty many people experience during meditation practice itself, or even getting to do it in the first place, is a testament to that.

Some Essential Points in Teaching Mindfulness

For both approaches to mindfulness described above to be successful, the teacher must to hone in on the particular needs of the individual or group in front of them, and to make simple and practical what would otherwise be complex and abstract. Mindfulness is inherently a dialectic inquiry where the teacher asks questions, and the student provides answers. In the process, the teacher is modeling mindful inquiry and throwing light on the participant's experience as they respond to and reflect on the questions.

If, for example, a teacher tries to explain mindfulness using words such as metacognition, they may quickly lose the client. Inquiry and metaphor may be far more helpful. If, on the other hand, the teacher asks the client what they found in their experience, they say that they struggled in trying to get rid of passing unpleasant thoughts and emotions, then they were asked what was the effect of that, and they responded that it made the impact of the thoughts and emotions far greater resulting in a sense of despondency and frustration, then the client can be congratulated on having made an important discovery. The client can then be encouraged to experiment in such a way as to let the thoughts and emotions come and go without even thinking they shouldn't be there. Like "trains of thought," they don't need to get rid of the trains or stand in front of them, but just to practice letting them come and go by themselves without unconsciously getting on them.

The issue may be about not trying to get control of things we can't necessarily control—that is, our thoughts and emotions—but learning not to be controlled by them. The former approach leads to struggle, exhaustion, frustration, and despondency, the latter to freedom, rest, and calm, even in the presence of things we don't like.

Training Healthcare Professionals in Mindfulness

Mindfulness programs have been unfolding across the campuses of Monash University for a number of years, and now it is in a far more coordinated way through the

Mindfulness@Monash initiative, which is funded by the University. A suite of mindfulness seminars, workshops, and courses are offered for students and staff right across the university. Over 2012–2013, approximately 4,000 Monash University staff have attended such training.

At Monash, mindfulness has been integrated into the training of doctors since 1991 on a small scale with further electives offered for interested students. Since 2002, the mindfulness component has been integrated into the Health Enhancement Program (HEP), which is a part of the Personal and Professional Development theme. The HEP contains a 6-week version of the SRP, and the content is examinable in written and OSCE exams. A modified form of the HEP has subsequently been run for physiotherapists since 2009. Introductory mindfulness workshops have also been incorporated into core curriculum for occupational therapist, dietitian and nurse training at Monash since 2012. The author has been instrumental in introducing, delivering, and convening these courses since their inception supported by many open-minded, thoughtful, and progressive colleagues.

The whole HEP is underpinned by mindfulness but includes a range of other lifestyle issues framed around the “ESSENCE of Health” (Hassed, 2008) also developed by the author. ESSENCE is an acronym standing for:

- Education: includes a series of enabling and behavior change strategies;
- Stress management: includes the principles of mind–body medicine, mindfulness-based stress management, and enhanced sleep;
- Spirituality: exploring where we find meaning and purpose in our lives;
- Exercise: understanding the mental and physical health benefits of physical activity;
- Nutrition: understanding how to foster healthy eating patterns as well as the health benefits of a healthy diet;
- Connectedness: the importance of social support and relationships;
- Environment: the importance of a healthy social, educational, and physical environment.

The HEP is introduced in the first year of medical training and is aimed at:

- 1 deepening an understanding of the science and evidence-base around mindfulness, mind–body medicine, and core lifestyle issues;
- 2 understanding and being able to apply lifestyle change including enabling strategies and motivational interviewing;
- 3 enhancing student self-care, well-being, and resilience;
- 4 fostering greater peer connectedness and support;
- 5 providing a higher level of pastoral care particularly for vulnerable students;
- 6 enhancing student academic performance;
- 7 improving communication and clinical skills.

As one can see, the objectives of this mindfulness program are broad and fulfill many of the objectives aspired to by the different approaches to mindfulness training explored in this book. The HEP is structured in the following way:

- Lectures: Learning from the outside, in. There is a series of 13 lectures outlining the science and clinical applications of mindfulness and lifestyle change. Without this, students do not take the subject seriously, and many assume there is a “soft subject” without a valid evidence base.
- Tutorials: Learning from the inside, out. The 12 hr (2 hr × 6 weeks) of tutorial time is where students apply the mindfulness and lifestyle change strategies in their daily life and discuss their insights, challenges, and questions. Half of the tutorial time is dedicated to mindfulness and the other half to the other components of the ESSENCE model.
- Journal: Students keep a reflective journal and record their insights, challenges, discussion, and questions. This is handed to the tutor weekly, and the following week the tutor provides written encouragement and feedback.
- Exams: If the content is not examinable, the students do not fully engage with the material, and it becomes marginalized in their minds from the rest of the core curriculum. In the written exams, students are tested on their factual knowledge largely drawn from the lecture content, and in the OSCEs, students are tested on their capacity to understand and communicate the core concepts in mock clinical situations. So, for example, a student could find themselves in an OSCE station being required to help a patient presenting with stress or moderate depression to understand the principles of mindfulness and whether it would be an appropriate management strategy for their problem. The students are not expected to then deliver a mindfulness intervention as if they were highly skilled mindfulness practitioners.

The HEP is a practical and experiential course where students are encouraged to apply the strategies in their own lives, although tutors are strongly encouraged to let the students decide for themselves without coercion to what extent they will practice the various exercises. If students choose not to personally apply the mindfulness and lifestyle change activities to themselves, that is fine; they are simply encouraged to freely discuss the nature of ambivalence or resistance to change if it has arisen. This may help them to understand their patients better one day who may also be resistant to taking on healthy change in their lives. The principles of motivational interviewing are being modeled by the tutor, a vital component of introducing a deep learning and experientially based program to the whole cohort rather than a self-selected group who might be more engaged with the course from the outset. Mindfulness should never be imposed; it is a journey that one has to wish to take oneself. Strong coercion potentially creates strong resistance and even resentment and complaints. Students are encouraged to take a very open-minded, inquiring attitude and not accept anything that is put before them on face value but to test and question it.

As the whole student cohort of over 500 first-year medical students receive the HEP at the same time each year, there has never been an opportunity to perform a randomized controlled trial. A study of student well-being before and after the HEP showed that by the end of the program, over 90% of the students reported that they were applying the mindfulness-based cognitive strategies in their daily life and doing a formal mindfulness meditation practice on at least a weekly basis. Student well-being was followed using the Depression, Anxiety and Stress Scale, Symptom Checklist 90,

and WHO Psychological and Physical Quality of Life Scales, and improvement was found on all scales and subscales despite the fact that we should have seen the reverse due to the fact that the precourse evaluation was in a low-stress midsemester period, and the postcourse evaluation was in a high-stress preexam period (Hassed, de Lisle, Sullivan, & Pier, 2009).

Another more recent study comparing the Monash medical students with those from another university who have very little exposure to mindfulness showed that the Monash students were not only more informed, as one would expect, but highly likely to recognize the relevance of it and recommend it in their future medical practice (McKenzie, Hassed, & Gear, 2012).

The foundation in mindfulness foremost as a self-care strategy for the first-year students helps to give an experience of what it means to pay attention, be present, and be able to stand back from changing experience. The amount of formal practice suggested is full stops of 5–10 min twice a day and commas as often as remembered, along with the informal daily exploration of the cognitive tasks outlined previously.

In the second semester, the students also have lectures on improving performance. These lectures include topics such as the practical principles and neuroscience of how we process information, bias, executive functioning, attention, default mental activity, growth and fixed mindsets, errors, multitasking, the impact of stress and depression on performance, and learning styles. This content is presented to the students as being entirely complementary to what was learned in the first semester but extends their working understanding of what it means to be mindful so that it is seen as a vital and high-order clinical skill for all trainees, not just a self-care strategy for those who are struggling with stress.

In the third and fourth years of the Monash course, the students revisit the mindfulness principles and practices but in the context of high-level clinical and communication skills, for example, being more present with the patient, being self-aware during the consultation, and being able to pick up clinical, procedural, and diagnostic errors in real time and not after the event.

Although the author is well acquainted with various Eastern and Western wisdom traditions, the language used in this academic and scientific context is simple, pragmatic, and direct. It has been found to be most helpful to disentangle the teaching of mindfulness from jargon and mysticism, whether it be psychological, scientific, or philosophical, and to teach it in a practical and pragmatic way while trying to remain true to its philosophical, psychological, and scientific roots. The needs and interests of the client or group are paramount, and if mindfulness is not taught in a way that is relevant to them, and if it is communicated in a language with which they are familiar, then mindfulness will seem irrelevant or foreign, thus producing derision or suspicion.

There is a growing literature that mindfulness is the core skill in preventing clinical errors and ensuring patient safety (Sibinga & Wu, 2010). This complements other work demonstrating that mindfulness-based skills improves mental health and executive functioning (Zeidan, Johnson, Diamond, David, & Goolkasian, 2010). Ron Epstein, from Rochester University in the US, is the leader in the field of using mindfulness as a clinical skill in the training of healthcare practitioners. His work demonstrates that mindfulness can be taught to already-experienced practitioners and produce improvements in well-being, reduced burnout, and enhanced clinical skills

(Krasner et al., 2009) including increased empathy and responsiveness to psychosocial aspects of the patient's situation and personality changes (e.g., higher conscientiousness and emotional stability).

An 8-week workplace-based program for staff has been adapted from the Monash programs and is now run at the Australian National University in Canberra in conjunction with Paul Atkins. It has also produced various but interrelated outcomes. Key findings include:

- increased self-rated performance;
- improved well-being;
- improved eudaimonic well-being (meaningfulness);
- increase in work engagement (vigour and dedication);
- increased authenticity (self-awareness, authentic behavior, open relationships);
- increased satisfaction with life.

Improvements have been sustained at the 6-month follow-up (Atkins & Hassed, unpublished data). These findings again indicate that mindfulness-based strategies applied for one reason have a number of side-effects whether they are intended or not.

Conclusion

Mindfulness-based principles and skills are largely generic but have many particular applications. They can be trained in many formal and informal ways, and will produce many beneficial outcomes, both intended and unintended. The language of instruction need to suit the context and nature of the audience, and for it to be effective, the teacher needs to address the agenda and needs of the audience and not their own agenda.

It has been the author's experience that a seamless combination of knowledge base and practices characterized by the Eastern and Western approaches is far and away most effective, whether it be in educational, healthcare, or corporate settings. Differences between these approaches are in appearance, language, and emphasis only, and are not substantive in nature.

Like the blind men and the elephant, those who emphasize and identify with the surface differences between approaches at the expense of the deeper connections delude not only themselves but also others. This has the effect of diverting attention from what is most important, creates unnecessary conflict, and slows progress in the field. Until our eyes are fully opened, we will content ourselves with knowing only the parts and not the whole of what it means to be truly mindful.

A Few Mindfulness Aphorisms

- 1 Mindfulness is not Eastern or Western—it is universal.
- 2 Mindfulness is incredibly simple—but it's not easy.

- 3 That mindfulness practice is not always easy does not mean it's not always useful.
- 4 Mindfulness teaches us the most important lessons from our most challenging situations.
- 5 Mindfulness is like turning on a light making things both apparent and understandable.
- 6 Mindfulness teaches us that the problem is not with what we see but with our way of looking.
- 7 Mindfulness is not so much about trying to control the things happening within and around us, but rather about learning not to be controlled by them.
- 8 Everything only happens in the present moment, even thoughts about the past and future.
- 9 We are not the things we observe, we are the observer of them.
- 10 Experiences come and go; the observing self doesn't.
- 11 Whatever we practice we will get good at, for better or for worse.
- 12 The less we try for any particular result, the easier mindfulness is.
- 13 Results will come by themselves and in their own time.
- 14 The mind is a creature of habit and will resist conscious change.
- 15 The arising of resistance is a sign of useful work against habit taking place.
- 16 To be mindful means to work with resistance with care and kindness, not force and harshness.
- 17 Mindfulness is a way of life and a way of being, not just a timeout in an awful day.
- 18 The things we become reactive to and judgmental of become like a magnet for the attention.
- 19 The more attention something is given, the more it is enlivened.
- 20 Every moment is unique whether we are conscious of that fact or not.

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Mindfulness, Trauma, and Trance

A Mindfulness-Based Psychotherapeutic Approach

Ronald A. Alexander and Elisha Goldstein

Introduction

While there is a surging interest and need for integrating mindfulness in the fields of health and Western medicine, the understanding of how to bring it into psychotherapy is still in its infancy. Contrary to popular belief, mindfulness is not just an adjunct to therapy but an orientation to be held and applied within the relational healing process. Mindfulness has been defined in the West as a flexible cognitive state (Langer, 1989) that is cultivated by drawing fresh distinctions about the situations that present themselves. For the purpose of this chapter, mindfulness is defined as an unbiased experiential state of awareness that is used to develop insight (*sati* in Pali, the language of early Buddhist writings from India), compassion, wisdom, and essential truth. When employed in psychotherapy, mindfulness helps the therapist to look at and investigate both the therapist's and the client's mind–body and energy flows. This approach empowers the client to draw upon information in the conscious and unconscious mind, and remain present with thoughts, feelings, and sensations, experiencing and exploring them rather than avoiding them.

A patient who is guided by the therapist to use mindfulness-based practices within a session may experience a quality of trance similar to that induced by hypnotherapy. The patient's consciousness can shift out of the normal waking state into a very deep state of relaxation characterized by theta waves. Healing and transformation can then occur as a result of state-dependent learning. Guided by the therapist, the patient is able to feel emotions typically associated with trauma, such as fear or sadness, without becoming panicked or disassociating. Simultaneously, the client is able to perceive space between the self and what is being experienced, accessing what is called the observing or witnessing self. Awakening the observing self helps the patient to remain present when experiencing uncomfortable emotions rather than avoiding them.

or becoming engulfed by them. The patient feels a sense of control over the experience, no longer perceiving it as overwhelming. In this state, the patient begins to develop the ability to choose new responses to feelings and memories.

While mindfulness-based psychotherapy as described in this chapter has roots in Buddhist psychology, its applications can be secular with an integration of mindfulness, trance, and cognitive modalities. It is our intention to open an inquiry into its relevance and practical application in the field of trauma. We believe almost everyone has experienced trauma to some degree, whether that trauma is personal or cultural. The dictionary defines trauma as an experience that is deeply disturbing, shocking, and upsetting, so much so that it may continue to affect a person long after the traumatic event. The word “trauma” derives from a Greek root meaning “wound,” and just as with a wound, the effects of trauma are not healed instantly but healed via a healing process that requires time and repetition of healing modalities and actions. Until a trauma is healed, the shock, fear, anger, or grief continues to be experienced—although often unconsciously—in the four realms of a person’s experience: the body, the cognitive mind, the emotional mind, and the individual energy field (these realms and how they are interrelated will be explained later in the chapter).

The memory of a trauma can trigger emotional distress, but it’s important to note that the default mode of a traumatized nervous system is to experience pain, suffering, fear, and anxiety, and to anticipate catastrophe and disaster. This mode is referred to as posttraumatic stress disorder (PTSD). PTSD occurs when a trauma is not processed consciously and healed. It is exacerbated by the brain’s natural bias toward the negative, a phenomenon that may be due to the evolutionary need to be hyperalert to signs of danger (Ito, Larsen, Smith, & Cacioppo, 1998).

The feeling of being “stuck” after a trauma, unable to move past it and decouple it from strong emotions of fear, grief, shame, or anger is a result of the mind being locked in both the past (what happened) and the future (what will happen as a result of the past experience), not experiencing the present. This has also been called a state of being *mindless*, instead of *mindful* (Carson & Langer, 2006). The mind reaches into the past to reference a prior wound and then anticipates it reoccurring in some form at an indeterminate point. The result is an upsurge of overwhelming anxiety. The mind’s experience is reflected in the neural networks of the brain, the connections between neurons that are used habitually to process information about events and experiences. The mind’s activity reinforces established neural networks, which support the mind’s habitual responses. The result of this mindlessness is a continual dysregulation of the mind and body.

At the base of every trauma is emotional suffering. The mind is antagonized by the memory of the suffering and operates in a continual cycle of avoidance in order not to reexperience the trauma. Avoidance can also be thought of as aversion. Aversion is one of the primary hindrances to the states of well-being and equanimity: We tend to avoid and resist any experiences that will cause pain and suffering. If we can’t avoid the suffering, we will gravitate toward something that is pleasurable so as to distract ourselves.

In mindfulness-based psychotherapy, the cultivation of mindfulness starts with the therapist using awareness within the relational process as a basis for beginning the

process of healing. The cultivation of an intrapersonal and interpersonal awareness empowers the therapist to observe their own mind–body energy flows, attune to the experience of the client, and foster a resonance that leads to connection and trust, which is at the foundation of relational healing.

To heal from trauma, the client must cultivate a new relationship with the seemingly intolerable experience. Thirteenth-century Sufi poet, Rumi, said, “Don’t turn your gaze away. Look toward the bandaged place. That’s where the light enters.” In mindfulness-based psychotherapy, the client experiences a radical shift in perception due to a process called mindful inquiry. Mindful inquiry is a gentle investigation into each moment (that is, what is being experienced in the here and now) and into the thoughts, emotions, and sensations that arise and how they are experienced: somatically, emotionally, or perhaps energetically as an area in the mind–body that feels heavy, dense, or cold.

Traumatized patients may experience numbness, a deadening, or a feeling of being constricted, cut off, or shut off. If the client applies mindfulness to an absence of feeling, or a sense of emptiness, a feeling may then arise, which can be noted and witnessed with heightened concentration and reported to the therapist. The therapist can say, “What are you feeling in this moment?” and guide the client to bringing awareness to that feeling or sensation. From here, a memory or emotion or insight may emerge within the client, which can then be shared with the therapist. For example, a patient joined her therapist in mindfulness meditation for the purpose of potentially identifying trauma hidden from her subconscious mind with the instruction to calm her body with mindfulness and breathing. After practicing the mindfulness exercise, she reported remembering having been raped by a family member. She explained that this memory must have been repressed, as she genuinely had not recalled the incident when filling out an extensive intake form and doing an initial interview before beginning therapy.

Mindfulness-based psychotherapy sets a positive healing pathway for the client to be able to contain, tolerate, regulate, and redirect painful and unbearable affects. In fact, there has been an increase in neuroscientific research pointing to the efficacy of mindfulness in developing the areas of the brain responsible for learning, memory, empathy, compassion, affect tolerance, and regulation as seminal pathways to mind/body healing. For the therapist, mindfulness becomes both a foundation for inquiry and a useful lens through which to objectively view and observe the client’s experience of trauma and response to it. For the client, mindfulness offers a path toward greater self-awareness and healing as the client’s ability to tolerate traumatic stress as it arises improves.

In this chapter, we will briefly touch on the roots of mindfulness-based psychotherapy in Buddhist psychology and explore its philosophy and practice in relationship to trauma. We will also address why a mindfulness approach can facilitate state-dependent learning (which occurs within a hypnotic trance or other altered state of consciousness), experience-dependent learning, and relational-dependent learning as a result of neuronal shifts. These changes in brain functioning contribute to mental and emotional wellness as well as a reduction in emotional reactivity.

We’ll then consider the transformative paradoxical shift that occurs as the client moves from experiencing trauma as a pathological affliction to perceiving that the

trauma presents a wholesome/positive opportunity for deepening empathy, self-compassion, lovingkindness, and wisdom both individually and relationally. These qualities eventually become introjected and permanently internalized as character traits. Consequently, the client develops mindstrength: the ability to experience reduced emotional reactivity and more quickly calm a strong negative reaction. Ultimately, the experience of trauma may even lead a client to a deeper exploration of the meaning of suffering and the nature of the human experience. The client may not only heal the trauma but use it as an impetus for self-growth.

Finally, we will explore contraindications to bringing mindfulness practices into the psychotherapeutic encounter. First, however, it's important to lay out the foundation of Buddhist psychology, which is at the root of mindfulness-based psychotherapy.

Long-term benefits of mindfulness-based psychotherapy

The long-term benefits for the patient treated with mindfulness-based psychotherapy are multiple. The patient may:

- become aware of, and accepting of, new abilities, personas, and talents;
- become more ambitious, spurred on by a deepened sense of optimism and increased confidence, self-awareness, and self-esteem;
- acquire inner self-body wisdom;
- develop new perspectives and an enhanced sense of freedom and possibility as well as a greater awareness of opportunities (e.g., the client may feel empowered to leave a very unhealthy relationship and move across the country, or end a job with an abusive employer and go back to school as preparation for a new career);
- develop greater control over thought processes and emotions, and reduce reactivity;
- develop a greater capacity to be relationally sensitive, attuned to what others are experiencing as well as what the self is experiencing;
- develop a greater sense of safety, belonging, and support as the patient;
- develop healthier relationships and emotional boundaries, along with a balance between a self-oriented point of view and an other-focused point of view;
- heal from trauma.

The Fundamentals of Buddhist Psychology

While mindfulness is predominantly applied in psychotherapy as a secular and universal approach, it's important to give a brief overview of its foundations in Buddhist psychology to provide a deeper understanding of its applications. Although Buddhism is generally regarded as an organized religion, some see it as a philosophy that can be integrated into all walks of life. The fundamental teachings of the Buddha have been captured in what is known as the Abhidharma, or "higher teachings." For the remainder of the text, we will be referring to this as "dharma" for ease of reference. Buddhist psychology integrates the dharma into its approach to create a model of mind.

Mindfulness

Mindfulness, that is, remaining aware of what is happening in the present moment instead of diverting one's awareness elsewhere, is at the heart of Buddhism and Buddhist psychology. Regardless of how painful the present may be, we remain mindful, knowing that if we do so, circumstances will naturally change because transformation is the nature of reality. Thus, we remain fully present with whatever we are experiencing, confident that no suffering can last indefinitely.

The development of mindfulness practice has several benefits in psychotherapy:

- 1 Mindfulness makes it easier to call the mind back to focused attention when it is distracted.
- 2 Reactivity is minimized, and emotional responses of anger and fear become less frequent and less intense.
- 3 Avoiding, clinging to, and being attached to unwholesome thoughts are reduced, making it easier to bring about healing through the application of positive antidotes, that is, healing states of mind.
- 4 Concentration is improved. The brain learns to become quiet and needs less activity. The mindful brain learns to use less energy and effort in situations that require focused attention.
- 5 Self-awareness is increased as the self is awakened.
- 6 Compassion for self and others, as well as the desire to serve and help others, is amplified.
- 7 Awareness of and appreciation of the present moment are improved, as we experience a greater sense of vitality, enthusiasm, contentment, and fulfillment.
- 8 We become more open to and accepting of change.
- 9 We become more mindful of others' experiences, verbal cues, and nonverbal cues. Consequently, it is easier for us to be empathetic, sympathetic, and compassionate toward others.

Thus, both therapist and client benefit from the cultivation of mindfulness. Additionally, when the therapist cultivates mindfulness within the session and outside of it, and encourages the client to do the same, the intersubjective field starts to become a more fertile ground for healing.

Perception and reality

According to dharma, we can relieve suffering by training ourselves to exercise voluntary control over our perception and by training the brain to be less reactive and biased. This approach has been applied in Cognitive Behavioral Therapy (CBT; Carson & Langer, 2006; Langer, 1989), Dialectical Behavior Therapy (DBT; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991) and positive psychology (Seligman & Csikszentmihalyi, 2000). In the case of trauma, cultivating voluntary control over perception undercuts the brain's reactivity, eliminating the perception that a situation is dangerous when it is actually not a threat in the present moment.

It is especially important to remember that our thoughts may not be factual and do not determine reality. To do otherwise is to open ourselves to the possibility of developing an affliction. A mental affliction is a painful thought that reoccurs after a trauma, creating a distortion in perception or memory, causing us to focus our attention on the affliction and perpetuate it. Sorrow over a loss is not an affliction, but it can become one if it results in a low-grade feeling of sadness or hopelessness that is experienced chronically. Anger becomes an affliction when it results in continual frustration, hostility, and rage. Embarrassment can be a light experience, but it becomes an affliction when it leads to darker emotions like humiliation or shame. Other afflictions, such as anxiety, agitation, or restlessness, can also begin as short-lived emotions that become habitual.

This often happens after a trauma when the mind becomes rigid and fixed on a single perspective (Carson & Langer, 2006). The affliction may or may not have a theme or belief associated with it, such as “Things never seem to go my way” or “I have no control over my life.” Afflictions often lead to a chronic perception of emptiness or dissatisfaction that the afflicted person is likely to attempt to eradicate through addictions to work, food, sex, shopping, gambling, or alcohol and drugs. The client who suffers a mental affliction may feel that regardless of circumstances, happiness is impossible unless more of something can be attained. The theme or belief in happiness being elusive reoccurs. For example, if someone experienced the trauma of war, the thought “When I get back home, then I’ll be happy” may become “When I get back home and get a job, then I’ll be happy,” which may then become “When I get married, I’ll be happy” and later “When I get a divorce, then I’ll be happy.”

After a trauma, the brain responds to repetitive, afflictive thoughts by activating neuronal networks associated with them, reinforcing the thought pattern. Unless action is taken to alter the habitual response, the brain will avoid, repress, or deny afflictive states. The mind may respond with self-criticism, igniting deeper shame and exacerbating the trauma. All of these responses lead to suffering.

To recalibrate the perception of reality, we have to disidentify with this mindless state. As Buddhist teacher, Sharon Salzberg, says:

What we are observing is the process of thinking. When we see that a thought is not solid, that it has no substance, and that the meaning of the thought does not necessarily affect an association or reaction, it’s as if we have observed the very nature of change. If someone then has the thought “I am a very sick person,” the fact of the thought’s content does not seem so striking. The mind intuitively recognizes the nature of thought; that it simply comes and goes. With this particular approach, we don’t try to change a bad thought to a good thought, but rather to see the nature of the thought itself. (Goleman, 2003)

We can play with this disidentification of thoughts in using imagery. With imagery, we can see thoughts as clouds in the sky to illustrate how thoughts are continually passing by and are neither fixed nor concrete. This perception of impermanence helps us to recognize that often, we can receive relief from the afflictive mind states that come with trauma by remaining present with them rather than resisting and repressing.

At the heart of the Buddhist psychological view is the idea that there is no permanent self to be fixed, changed, or healed. Mindfulness allows us to be aware of what we are experiencing, accept it, gain insights and understanding, and feel compassion for ourselves and others. In Buddhist psychology, we do not attempt to change the self, only to liberate it from its unwholesome view of itself. We can look at the self as if it were an ocean: The waves are the everyday experiences of thoughts, emotions, and sensations, while the ocean is awareness itself, a combination of one's individual awareness and awareness shared by all. Like waves, painful, afflictive states arise, peak, and fall away, leaving the ocean itself unchanged. All pain and suffering are impermanent waves, and we can achieve healing through mindful attention and conscious action in the present.

The four realms of experience

Over the past number of years, there has been an agreement between Eastern and Western traditions that there are strong connections between the mind's experiences and the body's experiences (Levine, 1997; Ogden, Minton, & Pain, 2006; Porges, 2011; Siegel, 2012). We feel it's helpful to conceptualize the relationship as comprising four levels or realms in which we experience the pain of trauma: the emotional/feeling realm, the mental/cognitive realm, the physical realm, and the energy realm. Trauma can be experienced at more than one level simultaneously.

- *The emotional/feeling realm.* The emotional/feeling realm is where unwholesome, afflictive emotions such as anger, sadness, and grief arise. According to Buddhist psychology, emotions are actually energies that are either stagnant or in motion and constantly expanding or contracting.
- *The mental realm.* In the mental realm, we experience afflictive, unwholesome beliefs and thoughts. Often, the emotional/feeling realm and the mental realm experience a state of unwholesomeness simultaneously. The cognitive and psychological experiences are influenced by the beliefs and thoughts of others, including our parents, primary caregivers, teachers, religious and spiritual teachers, friends, and neighbors.
- *The physical realm.* The physical realm is the physical body. Often, we are unaware that afflictive sensations in the physical body, commonly perceived as pain, aching, or muscle tension, may originate in or be present in one or more of the other realms.
- *The energy realm.* Buddhist psychology recognizes a realm of experience that is made up of energy. In this realm, there may be blocks or constrictions in the flow of energy affecting the neuromuscular structure in the physical realm, the mental realm and its cognitions, and the emotional realm, where the blocks or constriction may cause afflictive emotions. The ideal state of the energy realm is vibrancy and radiance. The Dalai Lama has said that consciousness exists outside of the brain-mind-body, and thus, during meditation, it's possible to directly influence this energy body and, simultaneously, create a core sense of well-being and bring about direct and immediate changes in consciousness.

In postpsychoanalysis Western psychology, Wilhelm Reich identified the energy realm as being composed of bands of energy that circle the physical body and cause muscles, nerves, and arteries to contract, leading to physical ailments. Reich explains that where there's a painful, afflictive, unwholesome sensation, one or more of these energetic bands are restricting the flow of energy, blood, and lymph fluid. The result is a tightening of the muscles, constriction of blood vessels, and shallow breathing.

Bringing mindful attention to an affliction can make us aware of trauma we are holding on to, as all four realms are interconnected and influence each other. For example, emotional pain can turn to physical pain; if the chest is filled with grief, the diaphragm may contract, causing a feeling of tightness or difficulty breathing. This contraction may continue; for example, a patient (whose case will be explored more later in this chapter) was in a very serious accident in which a train struck her car and crushed it. Immediately afterward and for many months, she was afraid to take a deep breath because she feared it would cause her pain. She had tightened her diaphragm during the accident and, according to Reich's theory, had tightened the energy band around her diaphragm, causing the muscle to remain contracted. Another way to describe it is that she was holding on to the pain of the trauma in more than one realm of experience. The patient was, in a sense, waiting to exhale and let go of her fear. We say someone who is anxious is "tightly wound" or "frozen in fear." In such a case, the emotional and energy realms, and perhaps the physical realm also, are experiencing constriction.

According to Porges (2011), a researcher in the area of stress response, whenever we perceive danger, our nervous systems provide the mobilizing defenses of fight or flight. His research shows that we create a sense of safety by using the ventral vagal system, which involves eye contact, vocalization, and facial expression to engage others relationally. However, he also points out that we have an immobilizing defense system that allows us to freeze—a response that is experienced as part of the dorsal vagal system.

Patients who have suffered trauma often experience qualities of being split off, shut off, cut off, walled off, dissociated, or frozen in a state of numbness (Alexander & Rand, 2009). When a patient describes feeling constricted, tightly wound, disconnected, numb, or frozen, the therapist can suggest the use of mindfulness and trance combined with somatic experiencing. Somatic experiencing therapy is a method developed by Peter Levine, author of *Waking the Tiger* (1997), for the direct treatment of trauma using the breath as a method to help the patient learn how to unwind from a frozen sympathetic nervous state and to access a healing state that turns on the parasympathetic nervous system. The parasympathetic response allows the patient to disengage and discharge suppressed and constricted traumatic memories, feelings, sensations, and emotions that are being held in the mind–body, that is, in more than one of the four realms of experience (Levine, 1997).

First, the therapist can guide the patient into mindful awareness and trance. Next, the patient should breathe slowly and mindfully, filling the abdomen like a balloon before releasing the breath slowly. At first, breaths will be somewhat shallow due to the constriction of the abdomen, but they will deepen as the patient breathes mindfully. Ten or 15 such breaths will often be all that is needed. Afterward, the patient is likely

to feel an increased range of emotion in the diaphragm as well as feelings of calm and relaxation.

In mindfulness and psychotherapy, we are also guided by a four-step process that comes out of Buddhist psychology to heal these afflictive states:

- 1 Mindfully observe the afflictive or mindless state.
- 2 Continue to experience the affliction despite any discomfort. Do not shift the awareness away from the experience.
- 3 Accept what is, despite its intensity and the discomfort you are feeling. Do not try to push the pain away due to aversion, or cling to it, becoming overwhelmed by the experience and losing the ability to observe it.
- 4 Drop all negative judgment and continue to observe the experience moment to moment as it begins to transform naturally.

The wisdom behind this says that impermanence is the nature of reality, so all experiences will transform in time without our having to exert effort to change it.

Mindfulness-Based Psychotherapy (MBP)

MBP is an experiential therapy and process-oriented approach in which the therapist helps the client to observe, explore, contain, organize, and learn from their moment-to-moment experiences—including thoughts, feelings, emotions, and sensations. It can be used to heal trauma, change afflictive and unwholesome patterns, and open the patient's awareness to new choices and possibilities.

Trungpa Rinpoche sums up the birth of Buddhist psychology, which is the basis of mindfulness-based psychotherapy, in the introduction to his 1975 book *Glimpses of the Abhidharma*: “Many modern psychologists have found that the discoveries and explanations of the Abhidharma [the ancient classic textbook on the teaching of Buddhist psychology and meditation in which the Buddha details the observation and inquiry into the nature of the mind] coincide with their own recent discoveries and new ideas; as though the abhidharma, which was taught 2,500 years ago, had been redeveloped in the modern idiom.” One of the new idioms is The Now Effect, a reference to accessing a state of awareness in which we perceive choice, possibility, and opportunity, and break away from our habitual ways of thinking and behaving, opening up to new, consciously chosen responses. In this view, mindfulness-based psychotherapy strips away the spiritual and religious language of Buddhist psychology while holding on to the essence of the philosophy and practice. People who are averse to spiritual or religious approaches can nevertheless access the wisdom and techniques of Buddhist psychology.

Mindfulness-Based Psychotherapy (MBP) incorporates the best of Buddhist psychological principles and builds on it with methods taken from mindfulness-based stress reduction (MBSR), mindful cognitive modalities (Carson & Langer, 2006; Hayes & Smith, 2005; Linehan et al., 1991), and tools from other mind–body healing therapies (Levine, 1997; Ogden et al., 2006). In mindfulness-based psychotherapy, patients are encouraged to use mindfulness within the clinical session as well as at home as part of

a mindfulness practice. The home practice is essential because the patient finds that they can learn to navigate troubled terrain not just during sessions but also during daily life, even when recalling traumatic memories. MBP helps patients to self-regulate when experiencing stress because they are able to remain present in the moment, consciously choosing to calm the nervous system or to remain patient as it resets itself. Clients get access to a mindset more open to self-acceptance and personal change (Langer & Moldoveanu, 2000). Mindfulness practice breaks habits of thought that cause suffering, freeing the patient from the pain of the past as well as from the uncomfortable longings for different circumstances in the present. With mindfulness, we can choose more adaptive perspectives. For example, what once seemed like a fatal past mistake is now seen as a valuable lesson to be learned.

Mindfulness helps the patient to see through the pain of attachment and illusion, free the mind of its cravings, and return to a state of mindfulness, that is, the natural state of wisdom and well-being in which a diamond-like sense of clarity is experienced. One is able to become immersed into the process of observing the mind and seeing the cycles of what arises, abides, and then falls away.

In mindfulness-based psychotherapy, the therapist can guide the patient to use state-dependent learning techniques such as mindfulness meditation or hypnotic trance. With greater awareness and choice, there is also the possibility to integrate other hypnotic suggestions to induce antidotes or healthy induced mind states, allowing the patient to experience trauma in a new context of safety as they are able to observe the trauma objectively as it is being reexperienced. In applying the antidote, the patient retrains the brain to activate neural networks associated with calm, optimism, and a sense of possibility when the memory is brought back into consciousness. At the same time, the patient deactivates the neural networks associated with fear, anger, loss, and grief. We'll explore the integration of mindfulness and trance later in the chapter.

After the patient returns to an ordinary state of consciousness, CBT and gestalt therapy, as well as other psychodynamic modalities, can be used to explore what was experienced and what can be learned and integrated into their understanding of the self.

Mindfulness-based psychotherapy in the context of the history of psychology

In the past, many psychological historians have held that there were four formative forces in the field of psychology: Freudian-Psychodynamic, Behavioral, Humanistic-Existential, and Transpersonal. However, we identify 10 forces, which include Buddhist psychology as the first and Mindfulness-Based Psychotherapy as the latest.

- 1 the Teachings of the Buddha (Buddhist psychology);
- 2 Behavioral Psychology;
- 3 Freudian Psychoanalysis;
- 4 Humanistic-Existential Psychology;
- 5 Transpersonal Psychology;

- 6 Postmodern, Narrative, Object Relations;
- 7 Self-Psychology and Intersubjectivity;
- 8 Cognitive, including CBT and DBT;
- 9 Holistic, Behavioral, and Integrated Medicine (e.g., Ericksonian, EMDR, EFT, Sensorimotor Psychotherapy, Integrative Body Psychotherapy, Somatic Experiencing);
- 10 Mindfulness-Based Psychotherapy, an integrative, holistic, mind–body-energy approach that draws upon theory, methods, and skills from Buddhist psychology and any of these earlier forms of therapy.

Buddhist psychology provides a rich foundation for healing, but it is not necessary to subscribe to a Buddhist philosophy or worldview to practice mindfulness-based psychotherapy. In the past, psychologists have described how mindfulness can be applied to psychotherapy (Germer, 2005; Shapiro, Schwartz, & Bonner, 1998). We identify four specific ways the therapist can integrate mindfulness into their approach:

- 1 The *Mindful Therapist* practices mindfulness and tunes themself each day by using mindfulness practices, similarly to how musicians tune their instruments before they play.
- 2 The *Mindfulness-Oriented Therapist* implicitly or explicitly brings into the sessions attitudes and philosophy based on mindfulness. Mindful therapists implicitly bring mindfulness into the sessions, whereas mindfulness-oriented therapists may use a more cognitive approach to mindfulness within the session regardless of whether or not they have a formal mindfulness practice of their own.
- 3 The *Mindfulness-Based Therapist* has a personal mindfulness practice and guides the patient to use mindfulness practices at home and within the session.
- 4 The *Integrative Mindful Therapist* practices mindfulness on their own, brings dharma into the sessions, guides the patient into using mindfulness in session and at home, and incorporates an understanding of neuroscience: Whenever mindfulness is practiced regularly, a person can bring about changes in the brain that lead to greater self-awareness, empathy, learning, memory, and reduced emotional reactivity. This new application of mindfulness in psychotherapy is due to neuroplasticity and our ability to use the mind to change the brain.

In mindfulness-based psychotherapy, we study and observe the structure of the mind as well as its content, purpose, and function. The client initially learns to cultivate mindful awareness with the intention of gaining mastery over the ongoing difficulties in navigating painful life experiences. In time, mindfulness becomes habitual and assists in development of self-awareness and self-acceptance as well as offering other benefits (which will be explored later).

To practice mindful awareness, the client does an experiential inquiry of the mind–body to become conscious of what arises, exists, and then falls away. Initially, healing of the self may take place only within the intersubjective field during sessions. Over time, however, the client begins to change the relationship to whatever experiences are arising within the mind and responds to uncomfortable feelings, memories, thoughts,

and sensations by generating positive states such as self-compassion, gratitude, and forgiveness. In applying these wholesome states of mind to self-experience, the client ultimately begins to cultivate greater self-acceptance. As Arnold Beisser says, there is a paradox in that change occurs not when we try to become what we are not but when we accept what we are.

Developing the skill of observing and categorizing builds a stronger sense of self that carries over to the client's everyday life. Fostering mindfulness, the client becomes more aware not only of their own experiences but also that of others. Mindfulness improves intuitive abilities, helping the client to more easily recognize and interpret verbal and nonverbal cues from others. The client develops greater comfort while alone and, consequently, within relationships.

Mindful inquiry eventually leads to enlightened liberation or mindful insight and a decrease in pain and suffering. Symptoms of suffering are resolved, and the client arrives at core wisdom, the state of wise mind in which there is a sense of clarity and purpose. The client also develops greater mindstrength: flexibility, focus, and control over reactivity. Mindstrength is the ability to control one's thoughts, affect states, and emotions, and is cultivated through mindful inquiry.

However, prior to understanding the clinical applications of mindfulness in psychotherapy, we must establish the foundation of therapeutic and relational presence.

Client–patient relationship in mindfulness-based therapy

The postmodern psychotherapeutic approach emphasizes the exchange between therapist and patient in the intersubjective or relational field, focusing on transference and countertransference as they unfold over time. When both the patient and the therapist practice mindfulness alone and during sessions together, each experiences a heightened awareness of the field of interaction in addition to increased awareness of their own awareness. Having awareness of awareness causes us to cultivate a metacognitive view in which we have an experience but at the same time witness ourselves having the experience. When the practice of mindfulness is both employed as a daily discipline and used as a therapeutic tool to spotlight, highlight, and detail what is happening both inside the patient and between patient and therapist in the intersubjective field, the tool of mindfulness becomes like a powerful laser. Both patient and therapist gain access to information that has been repressed by the conscious mind.

Mindfulness can help a patient become aware of commonly repressed emotions such as anger, sadness, or grief. However, in addition, it can bring conscious awareness to the past event or events that are associated with these emotions, allowing both the patient and therapist to work with this information to bring about healing using the patient/client relationship (Lambert, 1992; Norcross 2011). Psychiatrist, Theodore Reich, said, "When therapists develop the ability to be fully present, they develop the capacity to listen therapeutically as if they were listening through a third ear." When the therapist can experience presence, it has an energetic impact on the client. Someone who truly feels listened to, cared about, and understood is more likely to feel safe, accepted, and loved. Therapeutic presence allows for trust to develop more quickly and opens the door for a greater effectiveness in psychotherapy.

A mindful therapist experiences presence. Remaining aware in the present moment allows access to feelings and information that are often outside of conscious awareness. Intuition and attunement are enhanced as the therapist becomes more aware of the experiences of the self and the client as well as more aware of what is happening in the intersubjective field. A mindful therapist is more apt to pick up on a client's nonverbal and verbal cues that there is territory to be explored, and to know when to encourage the client to continue experiencing unwholesome feelings, thoughts, and emotions, and when to take a break from them and generate a mind state of safety and calm that serves as a temporary emotional oasis.

Presence is a necessary foundation for change. Humanist psychologist, Carl Rogers, said, "It was not until I accepted myself exactly as I was that I was free to change." It is not until the therapist and client are fully present, accepting what is transpiring in the present, that change happens. Avoidance merely postpones the possibility of healing. One finds oneself, and accepts oneself, when fully present in the moment. As unresolved issues, emotions, and biases arise in the therapist's mind, they can be dealt with consciously so as not to unduly distort the intersubjective field and reduce therapeutic presence.

While reducing a client's stress, resolving the client's trauma, or cultivating positive states in both the client and ourselves may be goals, we also need to practice mindfulness. Mindfulness practice allows us to train the mind to temporarily let go of expectations for the future that can distract from presence and its healing powers. Healing happens in the present moment as we accept the experience of the self.

In Western psychotherapy, we acknowledge a personal self or ego that suffers with specific neurotic or traumatic character flaws. Oftentimes, people like to categorize themselves as a handsome person, a wealthy person, an athletic person, an old person. This narrow categorization of the self can lead to a narrowing of perspectives and possibilities, and ultimately opens us up to suffering. Buddhism would identify this self as the "small self" while identifying one's core consciousness as fluid, ever-changing, and the authentic self on which we should place most of our focus. Even so, Buddhism teaches that ultimately, even the authentic self is an illusion because when we are deep in a meditative state and able to experience the authentic self, we recognize that its essential nature is emptiness. In Buddhism, this state is called "no self."

However, in applying mindful psychotherapy for the treatment of afflictions, we can stay true to the Buddhist psychological view that there is no "self" to be changed or fixed if we accept that, as Jack Engler, said, "[Y]ou have to be somebody before you can be nobody" (Wilber, Engler, & Brown, 1986). We learn to recognize the impermanence of the experiences of the small self, that is, one's identity, and recognize the importance of the real self or authentic self. When we are able to experience the authentic self, our temporal experiences in everyday life seem insignificant, and achieving this experience can be a goal. Cultivating an authentic self is also seen in Western psychotherapy as a means toward the healing nature of self-acceptance (Carson & Langer, 2006). However, our primary task as psychotherapists is to assist our patients with positive self-development and the repair of the sense of self. They may then choose to be guided toward the path of ego dissolution, self-realization, and, eventually, the disidentification with the real self and identification with the authentic self, or "no self." In doing so, the client is opened up to a greater perspective and wisdom.

Mindful presence and healing

The therapist's mindful presence enhances the possibility of healing in four ways:

- 1 When the therapist cultivates mindfulness, it becomes easier to teach the client mindfulness and the process of self-inquiry. Most people traveling to a new land would rather have a guide who has traversed the territory, not just one who has studied the map.
- 2 The therapist can be aware of their own unhealed trauma arising into consciousness and have the psychological resources to choose to set it aside. As we practice relating to our own difficulties with mindfulness, the mind becomes better able to spot them more readily and remain present with them until the memory or feeling dissipates naturally.
- 3 The therapist's mindful presence fosters wholesome, healing attitudes or mind states, including compassion and acceptance. This allows the therapist to remain committed to observing his mistakes and being accountable so both therapist and client can work toward developing a wholesome intersubjective field where healing can occur.
- 4 The therapist experiences comfort with uncertainty and the state of not knowing, and accepts the client's behavior without becoming tempted to fix it. This is a major asset, as falling into the "fix it" trap shuts down curiosity and openness on the part of both therapist and client. Modeling comfort with uncertainty helps the client develop the same ability. As we become comfortable with uncertainty, we are more likely to break out of habitual avoidance, cultivate courage, develop patience and tolerance of distress, increase self-efficacy and hope, and foster trust within the relationship. The element of trust within the intersubjective field helps the client develop trust in themselves.

Three practices for developing therapeutic presence

Therapists can access moments of presence in the "in-between spaces" of their day between clients and working on their self-care and development of mindfulness, which will lead to cultivating therapeutic presence. The following are three practices that can help in this development: the mindful pause, the self-compassion pause, and remaining present with uncertainty.

The mindful pause Every hour, pause and ask:

- What's going on outside of myself and what is going on inside of my self?
- What are my feelings about what is occurring with my self and others?
- By bringing mindful attention to my experience, what choices do I need to make to attend to my feelings, thoughts, and behaviors?
- Now that I am mindful, what actions might I choose to take or not take to increase presence, attention, and self-care?

The mindful pause can be combined with other practices such as mindful breathing, mindful check-in, or STOP (Goldstein, 2012; Goldstein & Stahl, 2010).

Self-compassion pause As therapists, we all encounter moments of emotional pain and difficulty. At times, we could all use a self-compassion pause during which we acknowledge the difficulty in caring for ourselves when so much of our focus is in helping others. To make this self-compassion pause naturally arise as we go about the day, we need to practice it.

To take a self-compassion pause, rest your hand on your heart, and take a few deep breaths, tuning in to this area of your body. Then, say to yourself, “Breathing in, I acknowledge the pain and difficulty that are here. Breathing out, I fill my heart and mind with self-compassion.”

Remaining present with uncertainty Uncertainty is a given for the client and the therapist. Learning to be present with not knowing may be one of the foundations to good therapy but one that many of us have not been taught.

The following is a four-step practice called “ACE,” drawn from *The Now Effect* (Goldstein, 2012a, 2012b), that you can apply in therapy with yourself and with your clients in order to learn how to be present with not knowing.

Accept the reality that uncertainty or not knowing is present. Allow the uncertainty without trying to analyze it or figure it out. Acceptance will pop you out of the unconscious process of trying to avoid uncertainty.

Collect your attention and focus in on your breath. Just take a few deep breaths to help steady your mind and focus on being present.

Expand attention into the body. Inquire into this feeling of uncertainty by getting a sense for what this “not knowing” feels like physically. Is there heaviness to it? Do you experience it as a constriction in the chest, or maybe a flurry of energy throughout the body? What emotion is behind the not knowing? Is it fear, anxiousness, shame, or maybe excitement? What thoughts or images are you noticing appearing and disappearing in your mind as you explore what uncertainty feels like to you? Are you feeling pressured to resolve the uncertainty and fearful that something terrible will happen if you don’t know what to do, think, or say? Is there a memory from your childhood that causes you to feel fearful and threatened when you are uncertain? Does uncertainty form in your mind an image of a bleak future in your mind?

As you move through the ACE practice, you start to get some distance from the uncertainty, allowing you to observe it rather than be immersed in it. You can gain perspective, make the choice to remain curious, and begin to feel a sense that everything will be okay despite your uncertainty.

Nine clinical attitudes of mindful presence

There are nine attitudes to foster within mindful presence to create a trusting and healing environment that serves as a wholesome model for the client. These include acceptance, openness, beginner’s mind, and nonstriving.

Acceptance

This attitude involves acknowledging, understanding, and appreciating things as they are and feeling kind, friendly, and warm toward ourselves and others. An attitude of acceptance ensures that the client does not feel judged by the therapist.

Openness

An attitude of openness involves a deep understanding of the nature of change as impermanent and helps us to greet change with compassion for ourselves and others, and a willingness to discover new insights. In this space, we are more flexible, open to multiple perspectives.

Allowing

An attitude of allowing is related to acceptance and openness. With this attitude, we can simply allow things to be as they are, with no need to try to let go of whatever is present. This helps the therapist to remain present with the client's present feeling state and lead the client in mindful inquiry rather than trying to change or fix the feeling state.

Beginner's mind

An attitude of beginner's mind allows us to see things as new or fresh, as if for the first time. It awakens our curiosity so that we drop the assumption that we already know all there is to know about a familiar situation or set of circumstances. Kleinian psychoanalyst, Wilfred Bion, coined the phrase "thoughts without a thinker" to describe the experience of being fully present, free of inherent preconceptions. When we engage in beginner's mind, we enter a space that quantum physics refers to as to as a superpositional field. It is a space of pure potentiality where creativity is able to unfold.

Nonstriving

An attitude of non-striving is free of grasping to what one doesn't have and free of aversion to change or to what arises in the moment. Non-striving means being present rather than focused on what might be. A non-striving attitude allows the therapist to be present in the relationship yet maintain the potential for countertransference.

Nonjudging

An attitude of non-judging involves impartially observing any particular thought, feeling, or sensation rather than judging it as good or bad, right or wrong, fair or unfair. This is not to say that we never evaluate a situation; it's just to understand that there are

often multiple perspectives, and we can gain the freedom to consciously choose how to evaluate based on context rather than it being automatic (Langer, 1989, 2005).

Patience

An attitude of patience involves the capacity to listen deeply with kindness, acceptance, and respect. The therapist's patience creates space for the client and therapist to conduct a deeper inquiry that can lead to essential insights and, ultimately, transformation.

Empathy

Empathy was defined by psychologist, Carl Rogers, as the ability "to sense the [patient's] private world as if it were your own" (Rogers, 1962; Rogers & Stevens, 1967). The therapist is empathetic but can differentiate between the client's experience and the therapist's. Psychoanalyst, Heinz Kohut, said that empathy is a mode of scientific observation, a metacognitive view of both the patient's self and therapist's self-experience. Empathy has been shown to be increased through mindfulness practice (Shapiro et al., 1998).

Self-compassion

An attitude of self-compassion involves self-love without self-blame or self-criticism. The therapist's self-judgment, worries, or perception of failure when therapy is difficult can impede the ability to cultivate a healing presence.

The Seven Stages of Mindful Inquiry to Be Used Within Therapy or by the Client at Home

One of the core tools used to cultivate insight and healing states of mind in mindfulness-based psychotherapy is mindful inquiry. Mindful inquiry is a moment-by-moment noting of thoughts, feeling, emotions, and sensations. It is part of the practice of mindfulness and helps one to gain mastery over one's thoughts, feelings, emotions, and physical and energetic sensations. It includes a conscious scanning of the mind–body, "sweeping" through the entire mind–body field to discover what is being experienced in any particular spot within that field. For example, an emotion may be experienced as a constriction, heaviness, or coldness hovering over a specific area of the body. To conduct a mindful inquiry with a client, whether using a technique associated with state-dependent learning, experience-dependent learning, or relational-dependent learning, a therapist should encourage the client to remain present with whatever is experienced in the here and now, and focus attention on that experience. Then, the client can be guided through all seven stages of mindful inquiry

sequentially or to focus on any one of these stages: Concentration Training, Cultivation of the Witnessing Mind, Investigate, Categorize, Open Mind, Wise Mind, and Equanimity.

Concentration training

Concentration training is the development of the skill of awareness via focusing on whatever is the object of attention, whether it is the breath, body, emotion, sound, or thought. Concentration training is also known as Satipatanna training (*Sati* is the Pali word for insight).

Cultivating the witnessing mind

The witnessing mind is the observing ego, that aspect of consciousness that, with increased awareness training, can mindfully observe what is occurring moment to moment before reacting to external or internal stimuli. Cultivating the witness or observing ego empowers the self to be active and not reactive.

Categorization

Once noted, experiences are categorized, and the individual becomes aware of reoccurring patterns of thoughts, feelings, and sensations, and observes cycles and waves of mind–body activity, including affective flow. Emotions are recognized as having three components: sensation, thought, and reactive feeling. Categorization is especially helpful for discovering hindrances of the mind such as anger, lust, jealousy, and so on. It's important to be aware of these patterns and hindrances, and observe them.

Investigation

Investigation is looking deeper into what is being experienced in the moment. To investigate requires curiosity and a willingness to explore an experience no matter how uncomfortable. When investigating, we bring awareness to the sensation of the feeling that arises in us, note it, and observe it with fresh eyes. We find the courage to investigate because we trust that the unconscious is ultimately leading us toward healing, creativity, and self-awakening, even if the path to those goals involves discomfort.

Open mind

Open mind is the state of expanded awareness in which thoughts, feelings, and sensations have space to appear and disappear without our being pulled into generating feelings and thoughts about them. In open mind, we do not identify with anything that begins to arise during the process of mindful inquiry. We are able to access our core of creativity and tap into a deep internal reservoir of creativity for healing, resiliency, growth, and transformation.

Wise mind (wisdom)

Wise mind, or wisdom, is a stage of mindful inquiry in which the mind is empowered to observe before reacting. In wise mind, it is easier to make choices that are in sync with *bramaviharas*, Sanskrit for “sublime attitudes” of lovingkindness, compassion, empathetic joy, and equanimity. In wise mind, we experience a sense of order, and harmony with all actions and reactions. We act as a Bodhisattva, an awakened being who does no harm and brings compassion, healing, and transformation. Wise mind is also the essence of the mindful therapist. According to positive psychology, we can attain enhanced creativity and optimism, as well as a greater sense of possibility; both therapist and client are able to access these once in the state of wise mind.

Equanimity

Equanimity is a balanced state of mind in which we do not identify with the small self, and we experience a sense of interconnection with nature and all that exists.

Mindstrength in psychotherapy

By practicing mindful inquiry, we begin to develop something called mindstrength: the ability to very quickly and easily shift out of a reactive mode and become completely present in the moment, experiencing the full force of one’s emotions while simultaneously recognizing that they are temporary and will soon dissipate. Mindstrength is mastery over thoughts and feelings, and involves recognition of whether the products of the mind are useful tools for self-discovery or merely distractions. The more we cultivate mindfulness, the easier it is to stop running away from difficult feelings; to make the choice to break out of denial, stagnation, and suffering; and to act with mindful intention. Cultivating mindfulness is similar to working out in a gym, but instead of building muscle, we build mindstrength (Alexander & Rand, 2009).

An adult patient was sexually molested as a child. She began therapy to heal persistent states of emotional dysregulation and the maladaptive coping pattern of binge eating, as she wanted to be free from the constant traumatic hijacking of her mind and body. The patient was instructed to focus on her breath and to allow internal phenomena to unfold and simply to become a witness.

After a few sessions, the patient began to recount her story of trauma. A flood of anxiety and sensations of tightness and constriction arose along with the thought, “I can’t handle this.” As the sessions continued, the therapy integrated a mindful pairing: noting the triggered response and bringing compassionate attention to it so that it could be investigated without the patient feeling a powerful need to distract herself from it. This type of mindful pairing creates new learning because reactivity can arise within a new context of acceptance and curiosity.

In time, the patient experienced a state of open mind: She recognized the impermanence of her mind and body’s reactivity. She had discovered the space between the stimulus and her mind’s response to it, and chose to gently calm her neural reaction and strengthen her self-compassion, leading her into a state of wise mind. Her

posttraumatic stress began to transform into posttraumatic growth. Now, when her anxiety about the trauma arose, a natural sense of curiosity and gentleness arose with it as she focused her attention on sensations of fear. It was as if the “mindful pairing” of the traumatic arousal state with the states of mindfulness and self-compassion had now been classically conditioned. She was developing mindstrength.

Mindfulness and Trance: Clinical Applications for State-Dependent, Experience-Dependent, and Relational-Dependent Learning

While the applications of mindfulness into psychotherapy have been discussed in many forums, the integration of mindfulness and trance in psychotherapy is unique. Mindfulness and trance can be applied clinically together to allow a traumatic reaction to arise within new contexts or states of mind. To explain how mindfulness and trance are applied to psychotherapy, we must first provide an overview of state-dependent learning, experience-dependent learning, and relational-dependent learning.

State-dependent learning

State-dependent learning is learning that occurs when the unconscious mind is directly engaged via altered states of consciousness, such as a hypnotic trance or a state of relaxation and awareness achieved through mindfulness meditation. Unlike the waking state, trance and deeply focused meditation states can be—but are not necessarily—inwardly focused. In deep states of both absorption and trance, a neuronal shift occurs as the person moves from an alpha wave brain state to a theta wave brain state via a structured induction or a guided meditation. Whatever learning, healing, or shifting that takes place in an altered state of consciousness is profound because the unconscious mind becomes engaged in the inner learning process, resulting in new neuronal connections. Memories of trauma can be brought back into the conscious mind, recontextualized, and reexperienced without pain as the conscious mind mines them for helpful information. As Sigmund Freud said, the unconscious mind comprises 80% of our awareness. The conscious mind is the mere tip of an iceberg, unable to make sense of our experiences without help from the rich resources of the unconscious mind.

According to transpersonal philosopher, Ken Wilber, there are four states of consciousness recognized within the field of integral psychology: the waking state, sleep state, dream state, and deep sleep state (Wilber, 2007). However, there are many other states of consciousness, including peak states, meditative bliss states, and states in which we experience oneness or cosmic unity. These particular states can be triggered by mindfulness, hypnosis, yoga practice, intense prayer, or other forms of meditation that facilitate altered states of consciousness. All of them can be used to access the unconscious and to induce state-dependent learning.

Having directed the patient to enter an altered consciousness or trance state, the therapist can guide someone for whom trauma has caused the nervous system to

become deregulated, resulting in severe PTSD, to retrain the brain and form new neural networks supportive of well-being, safety, and integration of the self.

In one case study, a woman in her midtwenties, who had been an incest victim and suffered from severe PTSD as well as periodic panic attacks, disordered eating (overeating), sleep disturbances, and a chronic low-level depression, was treated using mindfulness meditation and hypnotherapy. Over a period of 6–9 months, she was able to restructure and reregulate her unhealthy, dysfunctional pattern of hyper arousal. Initially, she was constantly bombarded with sympathetic nervous system activity and thus in a perpetual state of fight or flight.

She received ongoing hypnotic therapy sessions that integrated mindful inquiry as part of meditation (a technique we will explore later in this chapter), and practiced meditation outside of her sessions as well, totaling 20 min twice a day in mindfulness meditation. In sessions, the therapist was able to guide the patient in engaging the unconscious mind in state-dependent learning. The therapist would instruct the patient first to enter mindfulness and then to go into hypnotic trance to access internal unconscious healing. They worked together in this manner for over 36 sessions. Trance and mindfulness helped her reduce sympathetic nervous activity while simultaneously activating new neural networks in the brain responsible for experiencing relaxation. She relearned how to regulate her nervous system, which freed her of painful symptoms of panic and immobilization, and allowed her to develop a new core sense of well-being and the capacity to self-sooth. She was able to move out of a chronic deregulated state of constricted and frozen emotional experience, and into a wider and more wholesome range of emotional affective expression.

In both mindfulness and therapeutic hypnosis, as the patient shifts from a waking state into a relaxation or trance state, the brain waves shift from alpha to theta. This shift causes an opening to neuronal pathways in the brain that were once closed off by traumatic experience. Memories and emotions that have been suppressed can be accessed.

In Figure 33.1, each mind state listed here can help provide entry into a state of mindful relaxation or safety that can then develop into a deep-level trance. Once the patient has accessed one, two, or three of these access states, the therapist can instruct them to gain entry into any of the healing, transformative mind states in the resources of the core self (see Figure 33.2). Accessed through the core self and open-mind consciousness, these resources are available to serve as antidotes to afflictive states and can lead to healing, learning, and transformation (Figure 33.2).

In another case, a 45-year-old executive female working in the design business came into treatment suffering from severe migraines, headaches, and irritable bowel syndrome. She said the headaches began around the age of her 16th birthday. She said she had exhausted all Western medical treatment approaches and was at a dead end, living in chronic pain. Her employment was in jeopardy, so her internist referred her for hypnosis. In the first session, she was instructed in a basic concentration relaxation mindfulness meditation practice, and it was suggested that she practice at home each day for 20 min until the next session. In the second session, she practiced mindfulness for 15 min, and when she was in a state of deep relaxation, the therapist made a transition to induce a hypnotic trance. In the trance, she was instructed to ask her unconscious mind to assist her in finding an internal healing resolution for her symptoms

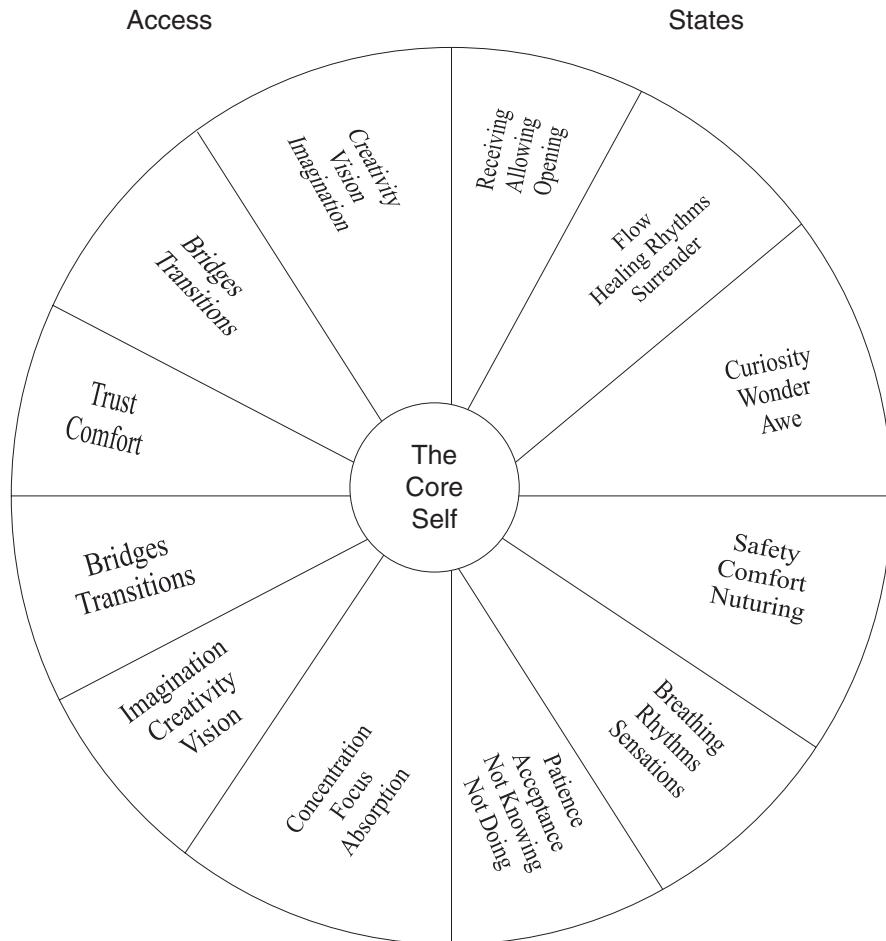


Figure 33.1 Contacting the core self. Alexander 2008 © Ronald M. Alexander.

but to utilize the hypnotic trance to primarily relax, let go, and enjoy the experience of learning to go deeper. During this hypnotic trance while she was deeply relaxed, her upper body, head, arms, and hands began to twitch and shake. She was instructed to go with it and pay attention to what was unfolding in her mind's eye.

She began to twitch, shake, and sob deeply as the therapist listened and observed patiently allowing her internal process to unfold moment by moment and trusting that her unconscious was up to something really important. After a while, she started to speak and said that she had been powerfully reliving an experience of a boating accident that she and her best friend had had at age 15 the summer shortly before turning 16. She remembered they went out in a canoe on a lake in Michigan, and a storm came up and knocked them both out of the boat. It rained so hard that they both quickly developed hypothermia, and as hard as she tried to keep her friend holding on, she watched her friend slip away under the water. She recalled being washed to shore by huge waves, and when the rescue workers arrived, her friend was pronounced dead.



Figure 33.2 Resources of the core. Alexander 2008 © Ronald M. Alexander.

After being released from the hospital and interviewed by the police, she was sternly told by her parents never to speak of this accident again.

The painful and traumatic event then became suppressed and stored in somatic cellular memory experience as a retroflection of unprocessed neuroaffective experience lying dormant to manifest shortly after in the form of migraine headaches and irritable bowel syndrome. Therapy continued for another 3 months, utilizing hypnotic trance as well as daily mindfulness meditation practice, and during month 4, she became symptom-free of both issues. This is an example of how both methods of mindfulness meditation and hypnosis can work together to create state-dependent learning by enabling the patient to access internal resources and to turn on the parasympathetic nervous system for both memory retrieval and emotional reregulation. Thus, a traumatic event that long went unresolved, once brought to awareness and worked through by paying attention to symptom and utilization of the unconscious for healing resolution, was most effective for her healing.

Using mindfulness as a primer to train presence and then using hypnotic imagery to induce state-dependent learning can have profound effects on trauma recovery. A

35-year-old male entered treatment requesting meditation training and self-hypnosis to find out why he was still afraid of the dark and had had insomnia since early adolescence. He was also referred by his general practitioner for mindfulness training and hypnotic treatment. He explained that he felt something really terrible had happened to him while he was traveling with a priest who was a close friend of the family, but he had no memory, only a vague association. What prompted his association was that he was visiting a physician for a yearly physical, and he looked up on the ceiling and noticed the color of the ceiling, and then needed to run to the bathroom and relieve himself.

During the first several months of the treatment, the initial approach was to teach mindfulness meditation and to instruct him to practice at home and to focus on the experience of receiving comfort and safety. During the third month of work, he was instructed to go into a hypnotic trance by first using guided meditations that consisted of stories where children were protected from harm and kept safe by sacred temple dogs and lions of protection at the temple gates. He enjoyed the imagery of these animals, and he would report that knowing they were present, he could relax and let go into a deeper trance. He reported remembering that he was traveling with a priest who was a close member of the family. They were in a hotel room, and the priest was molesting him. He opened his eyes and noticed the ceiling was painted sky blue with clouds. He then dissociated and could only recall singing a childhood song to himself, a lullaby to fall asleep by.

He never spoke to anyone about this painfully traumatic experience, as he felt so much shame and guilt that somehow he was responsible for this event, and shortly after developed fear of the dark as well as insomnia. After several more months of hypnotic treatment where core effects of rage, anger, hatred, sorrow, grief, guilt, and shame were released, he reported that he was no longer afraid of the dark. He was able to sleep shortly after entering his bed and that the lullaby he sang the evening of his molestation he no longer found to be a comfort.

The power of both mindfulness meditation and hypnosis to uncover and assist this patient in bringing a healing resolution for both fear of the dark and a lifelong sleep disorder was a powerful demonstration of the integration of these methods. Again, the use of state-dependent learning to access unconscious material once repressed and once brought to consciousness and worked through can enable the healing resolution of past trauma.

Experience-dependent learning

Experience-dependent learning occurs in the waking state in an ordinary state of consciousness. It involves the somatic self, breath, and movement. As with state-dependent learning, it provides a new context for reexperiencing trauma, which allows for healing and learning. In experience-dependent learning, the therapist can draw from a plethora of methods to engage the patient to shift out of the familiar pattern of talking as the primary modality for healing in therapy and into new actions that can reactivate dormant neural networks or even create new ones.

A client who was a young female executive reported being intimidated by her boss's angry abusive outbursts. She had developed a stomach ulcer, and when he would yell at her, she would freeze up and lose her voice. The therapist asked her then to speak loudly and assertively to her boss. She described her father as a raging tyrant who had bullied and verbally abused her. She was able to connect to the fear she was experiencing in her body and recognize that she was disconnecting from her own power. The experience-dependent learning, guided by her therapist who took her from verbal therapy to a somatic experiential modality, helped her reconnect with her power and recover her voice.

In another example of experience-dependent learning using a somatic experiential modality, a patient had been jumping from one topic to another. The therapist suggested the client pause and put her left hand on her chest over her heart and begin to breathe slowly and consciously for several minutes. In less than a minute, however, the patient began to cry as she began to release her affect. The jumping around in topics was her brain's way of avoiding the feeling of sadness. Shifting the experience into a somatic one allowed her to have the insight that she could feel her emotion without trying to distract herself.

The therapist can also guide the patient into using a body scan, in which the patient's attention is drawn to each area of the body, from head to toe, to observe what is being experienced. A patient reported that she had been traumatized years previously by being beaten and raped on a first date after being drugged by the attacker. For many years afterward, she experienced what she described as numbness throughout her entire body. "It's as if I'd been given anesthesia," she explained. After several months, she was able to let go of the "under anesthesia" feeling and regain a sense of body awareness.

Relational-dependent learning

Relational-dependent learning is used in couples or group therapy. It combines state-dependent and experience-dependent learning as the patients shift from an alert, waking state to an altered state of consciousness and back. It can be used to engage both the conscious and unconscious mind for the purpose of mind-body healing. Whether working with a couple, family, or a group, the therapist can suggest that the patients explore the inner world of the unconscious mind.

One effective way to bring about relational-dependent learning is to instruct a couple to look into each other's eyes. A dynamic connection occurs and causes shifts in the unconscious as each partner begins to engage internal resources that assist in the healing process. We refer to this as the relational dependent response (RDR). We have discovered while conducting couples therapy that when the therapist suggests to the couple that they stop talking, close their eyes, and engage their unconscious minds, there's a dramatic increase in both patients' receptivity to guidance and new information and insights. Dan Siegel and others have posited that this deeper level of change is brought forth by engaging the mirror neurons in the brain that are responsible for empathy, which allows us to become attuned to others and make deeper connections.

The RDR is strongest when a patient or couple are in a state of mindful inquiry, and the parasympathetic nervous system is engaged, relaxing the stress response and reducing reactivity, fear, and anger. Mindfulness and trance are both effective therapeutic methods for bringing forth the RDR.

Ericksonian hypnosis

Therapeutic hypnotic trance has been categorized as either authoritarian or permissive, also known as Ericksonian. The authoritarian approach originated in the early French school of hypnotic therapy developed by Charcot and involves therapeutic directives and posthypnotic suggestions. When inducing a trance, the therapist guides the patient into a suggestive state to facilitate exploration of the unconscious and restructuring of the patient's thought processes. The therapist gives specific, formal directives such as, "You feel your eyelids getting heavier" and "The difficulty you have sleeping will go away." Despite the suggestible mind state of the patient, the therapist may encounter resistance.

Conversely, in an Ericksonian or permissive approach to hypnotherapy, developed by Milton Erickson, the cooperation principle is central. Rather than use authoritarian directives, the therapist guides the patient in a less formal or rigid way and embraces all therapeutic resistance as if the patient were attempting to cooperate with the healing process. So, for example, if the therapist suggests that the patient's eyelids are getting heavier, but the patient does not shut their eyes, the therapist might respond by saying, "You can also go into a trance with your eyes open." Thus, the therapist acknowledges the patient's autonomy and recognizes that despite the resistance, the unconscious is, nevertheless, participating in the mind/body healing process. Traumatized patients often are heavily defended and need to be in control of the therapy process to compensate for when control and self-autonomy were stolen or taken from them in the traumatized situation. Whatever choices the patient makes, the therapist responds with acceptance. Resistance becomes redefined as cooperative, creative, autonomous action. Learning, healing, transforming, and changing occur as the patient cooperates in opening up to a suggestible mind state. Both mindfulness and trance create the possibility for a patient to relax, let go, and turn on the parasympathetic nervous system, thus creating an optimal state of positive healing through arousal and then deep-level relaxation. The therapist's directives allow for a patient's need to move more slowly into an altered state of consciousness in which the patient is vulnerable yet safe, secure, and mindfully aware.

Ericksonian hypnotherapy is particularly helpful when a patient's ability to trust has been damaged as a result of a prior trauma, as it offers a chance to heal, transform, and reregulate the nervous system instead of confrontations, interpretation, or authoritatively demanding it of the patient, which can trigger resistance and impede the healing process.

The permissive approach is characterized by indirect language involving embedded suggestions for how the unconscious might respond. Central to the approach is expressing to the patient that he or she "may or may not" have a particular experience, whether it is the breath slowing down as relaxation increases or a reduced frequency

of pain during sex after the session is completed. “You might have this experience—or not,” suggests the therapist, allowing the patient to feel they have choices in the process of healing.

In Ericksonian hypnotherapy, the therapist can also use metaphor as a tool for guiding the patient into reframing experiences in a more wholesome way. One therapist created a guided visualization of rock climbing in working with a victim of sexual trauma. The guided hypnotic visualization incorporated a story about a woman who was climbing mountains, and fell and was deeply injured. In his narration, he explained to the victim that the rock climber was bruised but that her injuries were mainly internal. The clinical and therapeutic use of metaphor access the creative healing unconscious. In this way, the therapist subtly signaled the patient’s unconscious to further identify this person as someone who has been “internally injured” as a result of a mishap that occurred when “climbing” in preparation to “ascend a peak.” The specific references to ever-higher peaks helped the client to imagine herself overcoming her trauma and ascending to whatever heights she chose, metaphorically and literally.

Using antidotes to heal dissatisfaction, longing, self-judgment, and loss

Intentionally suggesting certain mind states can create a healing conditioning between the wholesome and unwholesome emotion. We do this by intentionally recalling and recreating a specific wholesome emotion or feeling such as satisfaction, gratitude, or joy.

A therapist can guide a patient into applying an antidote to difficult states of mind using the following steps, which incorporate mindfulness, trance, and somatic experiencing:

- Instruct the patient to focus on the sensation of inhaling and exhaling with the breath until the mind is calm enough to begin the process of mindful inquiry.
- Instruct the patient to report what the inquiry reveals.
- If the patient reports feeling discomfort in the form of an emotion, memory, or sensation, instruct the patient to focus attention on that experience and simply observe it. Allow the patient to remain in this state of observation for no more than 60–90 s, closely monitoring their response.
- If the patient does not report that the unwholesome mind state is naturally shifting, suggest the application of a specific antidote.
- Instruct the patient to generate this positive mind state. Consider, too, asking the patient to anchor the positive antidote in the body. For example, you might ask, “Can you show where in your body you feel this positive antidote, and place your hand on the spot?”
- If the patient is unable to generate a mind state that serves as an antidote, repeat the process until they are able to do so.

Application of an antidote can be used again and again for the healing of trauma. In time, the patient’s unwholesome feelings, sensations, and thoughts will be less intense and will arise less quickly within the mind. The patient will be better able to maintain

a space between the stimuli and the response, and will be better able to tolerate the experience before applying an antidote or waiting for the unwholesome mind state to transform on its own.

There are several healthy mind states that serve as antidotes to mental afflictions, including:

- *equanimity*, a state of feeling calm, relaxed, and at peace with whatever is being experienced;
- *optimism*, an outlook that inspires us to make meaning out of negative events and perceive them as learning opportunities that are part of a spiritual curriculum;
- *confidence*, a sense of being able to handle situations by balancing the need for control with a sense of surrender;
- *joy or happiness*, a state that produces beta-endorphins (neurotransmitters that serve as the body's natural opiate) and lower cortisol levels, which leads to emotional and physical healing as well as improvements in immune response (Davidson et al., 2003);
- *lovingkindness*, a state of feeling friendliness and love for ourselves and others as we recognize our interdependence with them;
- *acceptance*, a state in which we have surrendered to the reality of what is.

Additional wholesome mind states include enthusiasm, vitality, energy, faith, intelligence, self-respect, considerateness, conscientiousness, nonviolence, satisfaction, gratitude, and compassion.

To apply an antidote to an unwholesome state, the patient can be guided to recall a memory of feeling the wholesome state and holding on to that emotional experience. For example, a patient who feels fearful can recall a memory of feeling safe and secure. If the patient can't identify a memory that would evoke the wholesome state, suggest the patient create an imaginary scenario that would evoke it. Imagining oneself in a beautiful, lush flower garden or by the clear, still waters of a tropical lagoon might elicit a feeling of peacefulness. Similarly, a mental picture of one's desk with all papers neatly arranged in folders marked "completed" might evoke a sense of order when one is feeling anxious about work-related issues. Table 33.1 lists several common antidotes that can be induced as mind states to counteract specific unwholesome states.

The antidote of compassion

While many therapists would agree that compassion is at the heart of psychotherapy, Eastern traditions have found step-by-step practical ways to build the compassionate muscle. In fact, thanks to Western science, we now know that compassion is not simply a mindset, view, or emotional experience; it is reflected in the brain's wiring. Matthieu Ricard is a Buddhist monk and author who, along with 150 other monks, had practiced meditation for thousands and thousands of hours before volunteering to be hooked up to fMRI machines by Dr. Richard Davidson, a Harvard-trained neuroscientist at the University of Wisconsin (Davidson et al., 2003), as part of a research study on meditation. As Richard began to practice a compassion meditation, he found

Table 33.1 Common antidotes for mind states to counteract specific unwholesome states.

<i>Unwholesome state</i>	<i>Wholesome antidote</i>
Fear	Safety
Feeling split into pieces	Cohesion
Abandonment	Acceptance, belonging
Isolation	Unity, oneness
Revenge	Forgiveness
Holding on	Letting go
Confusion	Clarity
Contraction	Expansion
Pain	Joy
Trauma	Bliss
Anger	Equanimity, tranquility
Hate	Love, embracing, acceptance, tenderness, forgiveness
Desire	Satisfaction, contentment, equanimity
Envy	Inspiration, admiration, appreciation
Greed	Generosity, expansion, abundance
Frustration	Patience, forgiveness, tolerance
Emptiness	Fullness, satiety, wholeness
Sadness	Happiness, joyfulness, freedom
Grief	Acceptance, vitality, completion
Unworthiness	Worthiness, actualization
Self-criticism	Compassion, acceptance

a substantial shift in brain activity to the left prefrontal cortex, an area associated with mediating stress responses and resiliency.

The clinical applications of compassion and other healthy mind states deserve a little more attention here because of their effect of mediating the stress response associated with trauma. Self-compassion may be considered the primary antidote to the fear response that is part of the stress cycle. It's not only a form of radical acceptance of the here and now, but a 180° shift from the brain's avoidance strategy that keeps us stuck. Compassion can be defined as a state of empathy with the intention to help in some way. While compassion may naturally arise in the practice of mindfulness, often times it can be suggested and induced through certain practices. As we intentionally cultivate self-compassion, we begin to neutralize the nervous system's reactivity to the trauma response.

In one case, a female patient had suffered a severe accident that left her permanently disabled, with one leg shorter than the other. For years, she had not looked at her mangled ankle and felt pervasive anxiety as well as anger, and often judged herself harshly. In their sixth session together, her therapist had the client close her eyes, put her hand on her heart, and visualize the accident while silently repeating self-compassionate phrases such as, "May I be free from suffering, may I be healthy in body and mind, may I be free from fear, may I be at peace."

At one point, she opened her eyes and looked at her ankle for the first time. She acknowledged the difficulty that she had been through and how hard it has been. That

was experiential state of self-compassion in action. The client continued to acknowledge that this was the first time she experienced self-compassion since the accident. The therapist continued, "What would the days, weeks and months ahead look like for you if you experienced self-compassion more often?"

Trauma causes a dramatic loss of balance and trust. By approaching what she was afraid of, the client was able to experience growth and insights. She continued to use this technique for generating self-compassion and self-trust whenever she began to react to the past trauma in the present, and ultimately developed wise mind and mindstrength. This is the miracle of mindfulness and is something that is available to everyone, but just like riding a bike, mindfulness takes intentional practice and repetition. The patient can then begin to foster other positive mind states that mediate the stress response and bolster resiliency, including self-trust, gratitude, hope, altruism, equanimity, and connection.

We help clients focus on positive and wholesome experiences, and support them in developing qualities that initially help them flip the switch when the trauma reactivity arises. Eventually, the client adopts these qualities as personal characteristics and is able on their own to mediate the stress response naturally.

Antidote exercises

The following exercises are designed to replace an unwholesome mind state with a more wholesome one. The therapist can lead the client through these exercises within the session; the client can then repeat them at home as needed.

Satisfaction meditation (Alexander, 2008) Sit in a meditative posture, focusing on your breathing and silently thinking "in" and "out" for each respiration. Continue focusing on your breathing for several minutes until you are in a state of calm mindfulness.

Visualize yourself sitting at a table with a large glass of clear, sparkling water before you. Feel your thirst, your sense of lack, and your wanting. Then, reach for the glass and begin to drink from it. As you drink, this magic glass never empties. You feel the sensation of cool, satisfying water quenching your thirst as you drink. Drink with deep, satisfying gulps until you feel sated.

Now, become aware of a beam of warm, energizing light, a light of infinite knowledge and wisdom, shining all around you and infusing you with all you will ever need to know. Radiate in this light of wisdom, becoming one with it.

As you experience the sensation of being satisfied, feel yourself glowing with white light. Know that you are an illuminating beacon, shining brilliantly with the light of wisdom, love, and acceptance. Feel this light inside of you, radiating outward. You have more than enough light inside of you. Experience it. Notice what it feels like to be satisfied, to be so filled with light that it flows forth from you, giving you a deep sense of satisfaction.

Remain present with this feeling of satisfaction.

Gratitude practice (Goldstein, 2012a, 2012b) Think of a moment today or in the last week when you received something, such as a meal, the beauty of the sun, a smile,

support from a coworker, or help from a stranger. It could be something you normally consider mundane. Picture where you are and whom you are with, pausing the video in the moment of receiving. As you recall the memory, have awareness of the feeling of receiving. Begin to feel a sense of gratitude. Notice how you feel in your body. Allow your feelings of receiving and gratitude to increase and become as big as they can get. As one client of Elisha Goldstein's said, "Allow the glow to grow."

Discard an unwholesome self-judgment (Alexander, 2008) Work through these five steps to discard an unwholesome self-judgment.

- 1 *Identify and label the judgment.* Give it a simple name or theme, such as "inadequate provider," "insincere," or "people pleaser."
- 2 *Discover the quality of the judgment.* Ask yourself, "What is this self-judgment causing me to think or feel about myself in this moment?" Does it make you feel ashamed, angry, or guilty, for example? Notice whether the feeling is wholesome and supportive of your well-being, or unwholesome, making it difficult for you to enter a state of spaciousness, openness, and trust.
- 3 *Find a remedy for the unwholesome thought or feeling.* Ask yourself, "Would I like to think or feel something different? What thought or feeling could I generate to shift myself out of this unwholesome state?"
- 4 *Formulate a new thought, image, or feeling, and begin to hold on to it firmly.* Experience it in your mind's eye and in your body. Feel a wholesome sensation, such as relaxation, excitement, or expansiveness.
- 5 *Assess whether you've shifted.* Ask yourself, "Have I shifted out of the feeling, state, or thought that was unwholesome and let go of my negative self-judgment?" If you have, then enjoy the new sensations, feelings, and thoughts you've generated as a remedy. If not, go back and repeat steps 1–4.

River-of-time meditation (Alexander, 2008) Begin the process of mindful meditation, and after a time, envision yourself standing alongside a river, the river of your life. The moving waters are your own vitality, or life force, moving forward continually despite all that happens on the riverbank.

Pick a point along the riverbank and walk upstream toward it, moving into the past. This is a place in your life where you experienced a regret, loss, crisis, or trauma. Take a seat on the riverbank, and as you gaze at the passing waters, breathe deeply. Watch yourself go through this past painful event as if you were watching an old home movie. Breathe out the constricted energy that has long held the pain, regret, or trauma inside of your body. Observe as it begins to flow out of you. When this life event has finished unfolding, look into the eyes of your younger self and say, "It's okay. Everything will be healed downstream, I promise." Reassure your younger self until you feel that the turbulent feelings have calmed. Bid your younger self good-bye, and then turn and walk the other way, downstream, feeling the vital power of the river alongside you.

Experience yourself opening to the future with a fresh and renewed sense of hope and possibility as you move forward, releasing and healing your past. If your internal movie held an old regret, such as never finishing a project that meant a lot to you or

dropping out of college in your very last semester, now see yourself picking up where you left off, taking action and finally completing this task. Experience the exhilaration and the wonderful sense of renewal that arises in you as a result.

Observe your healed, future self. Look into the eyes of this future self and ask, "What wisdom can you share with me?" Listen closely to the answer. Listen as your future self reassures you that you're in the process of healing even now. Feel this self imbue you with courage, strength, and love.

The miracle of mindfulness and trance when healing trauma

Over time, what comes from using mindfulness-based psychology to address trauma may be best described by the Vietnamese Buddhist Monk, Thich Nhat Hanh, in his book *Miracle of Being Awake*:

The sadness or anxiety, hatred, or passion, under the gaze of our concentration and meditation, reveals its own nature. That revelation leads naturally to healing and emancipation. The sadness, or whatever, having been the cause of pain, can be used as a means of liberation from torment and suffering. We call this using a thorn to remove a thorn. We should treat our anxiety, our pain, our hatred and passion gently, respectfully, not resisting it, but living with it, making peace with it, penetrating into its nature by the meditation on interdependence. (Hanh, 1976)

The experience of undergoing any form of traumatic event poses the unique opportunity to become crushed by the severity of the event or to develop a new view of it as a result of undergoing the process of therapeutic mind/body healing. In our view, mindfulness brings a new lens to a dark event. It allows the patient to adopt and cultivate an attitude that trauma offers an opportunity for spiritual growth, presenting lessons that are part of a spiritual curriculum. It is not our view that trauma happens for a purpose. Rather, it holds the potential for rapidly changing a person's worldview. A patient was in a freak accident that caused her to lie in a coma for months. Afterward, she underwent a total change in perspective. After her emotional and physical recovery from the trauma, she left her high-powered job in Los Angeles and set off to live a quieter and more meditative life in the mountains.

Although the trauma may be unwanted and out of our control, we retain the choice to use it as the basis of transformation. After a trauma, we cannot turn back the clock to a past before the event, but we can move forward with forgiveness and for all who were involved, including ourselves.

Building a Healthier Brain and Creating Neural Payoffs Through Mindfulness Practice

In the past 10 years, there has been an exponential increase in research on mindfulness and neuroscience, and how they intersect. Studies have shown there are neural payoffs to mindfulness, and this has implications for the understanding and treatment of stress,

anxiety, depression, addiction, and trauma. Dr. Richard J. Davidson ignited interest as a result of his 2003 study that put people through an MBSR program and found they experienced a shift to greater activity in the left prefrontal cortex, which is associated with positive emotions (Davidson et al., 2003). His other studies with monks who had been practicing mindfulness meditation for thousands of hours confirmed that they, too, experienced a significant shift in activity in the left prefrontal cortex (Begley, 2004). During mindfulness and compassion meditation practices, the monks had elevated activity in the insula, considered to be the central switchboard of the brain that helps us coordinate our thoughts and emotions (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008).

"Meditation can have a serious impact on your brain long beyond the time when you're actually sitting and meditating, and this may have a positive impact on your day-to-day living," according to research by Sara Lazar and her team (Lazar et al., 2005). Using MRI brain scans, Lazar provided a glimpse into the possibility of mindfulness affecting neuroplasticity and perhaps even the process of neurogenesis throughout the lifespan. In her study, she discovered that meditators with a consistent mindfulness practice had thicker regions of frontal cortex, regions responsible for reasoning and decision-making, than those who did not. Additionally, she found that the regular meditators had a thicker insula. Lazar suggested that because our cortex and insula normally start deteriorating after age 20, mindfulness meditation might help us make up for some losses as we age.

In 2010, Norman Farb and colleagues published a study of a randomized control trial where participants were split up into a group training in mindfulness and another training in cognitive therapy (Farb et al., 2010). Both groups viewed clips of sad movies while their brains were monitored. Both groups reported the same amount of sadness, but the mindfulness group scored lower on the depression inventory administered afterward. When the researchers looked at the brain scans, they found the control group showed heightened activity in the cortical midline, an area of the brain associated with self-awareness, while the mindfulness group showed heightened activity in the somatosensory cortex, which lights up when we're paying attention to the body. The implication here is that the mindfulness group saw the sad scene but cut off their rumination by focusing on the feeling they were experiencing, not the story. While this was a study concerning depression and, in particular, relapse into depression, it's easy to see the implications it holds for the mindfulness meditation's effect on processing trauma reactions.

Sara Lazar and colleagues (2005) measured the brains of participants who participated in an 8-week MBSR course and found significant growth in two critical areas, the hippocampus and the tempo-parietal junction. The hippocampus is involved in learning and memory, and the tempo-parietal junction lights up when we experience empathy. Learning, as well as accessing memory and empathy, is a critical element to healing from trauma.

In a recent study, Tang, Lu, Fan, Yang, and Posner (2012) used an advanced form of brain imaging, called diffusion tensor imaging, to illuminate how mindfulness can result in a rapid change in neural networks as a result of neuroplasticity. The researchers measured participants' brains at just 2 weeks and again at 4 weeks of practice. The results showed that training led to changes in the efficiency of the white-matter, which

conducts neural impulses throughout the brain. Changes were noted in the anterior cingulate cortex, a part of the brain responsible for self-regulation of mood and emotional state.

If we think of the brain as a reactive organ that is constantly processing stimulation and making quick decisions about what is safe or dangerous, the ability to influence its functionality has tremendous implications for treating trauma. If we can bring about neurogenesis in areas of the brain associated with greater compassion, awareness, and self-regulation, we can actually retrain our brains to react to stimuli in a healthier way.

Neural networks

Neural networks are the connections between neurons, or brain cells, that allow our brains to process information efficiently. Also called neuronal pathways, they are formed by initial experiences and reinforced when those experiences are repeated whether in reality (e.g., when lifting a cup to the mouth to drink) or in our minds (imagining the motion of lifting a cup to the mouth to drink). Learning requires creating new neural networks, activating dormant ones that have gone unused for a long time, and deactivating active ones that are associated with experiencing trauma, fear, anger, and sadness.

In the old scientific model, it was believed that the production of new neural networks was not possible, and therefore, the potential for learning, transforming, and healing was very limited. Breakthroughs in neuroscience have revealed that the brain is far more malleable or plastic than previously believed, and that state-dependent learning allows us to actually retrain the brain. The areas of the brain responsible for state-dependent learning include the midinsular cortex, the anterior cingulate cortex, and the hippocampus, which works with the amygdala.

The *anterior cingulate cortex* coordinates communication between the prefrontal cortex, where we experience executive function (decision-making, impulse control, and planning), with the amygdala, the emotional center of the brain. Mindfulness meditation thickens the right anterior insula, the part of the brain associated with self-awareness. The same study showed that mindfulness meditation affects activity in, and appears to “grow,” the left inferior temporal gyrus, the part of the brain associated with visual processing and perhaps with face recognition (Hözel et al., 2008).

The *midinsular* region of the brain’s cortex is associated with subjective emotional experiences, the perception of the intensity of physical and emotional pain, and the emotional processing of bodily experiences and states such as feeling tense, constricted, angry, and so on. Researcher, Richard Davidson, says that mindfulness meditation stimulates a feeling of positivity, optimism, and creative thinking.

The *hippocampus* is responsible for the storage and retrieval of long- and short-term memory, and its integration with emotion. It also plays a role in the processing of sensory information and spatial memory (where things are in relationship to each other). The *amygdala* is key to processing emotions such as anger and fear, working with the hippocampus to incorporate them into memory and learning. Mindfulness meditation has been shown to reduce the size of the amygdala while creating a perception of reduced stress (Hözel et al., 2010).

Contraindications and Cautions for Mindfulness-Based Psychotherapy and Trance in the Treatment of Trauma

In using mindfulness for healing trauma, it is important to avoid a “one size fits all” approach. Depending on the severity of the symptoms, different rules of engagement are needed. The patient’s egoic stability must be assessed. A patient revealed the following traumatic experience when approaching a railroad crossing one day the guard rails were not in place to alert her to stop at the tracks. Instead of stopping, she began to drive across the tracks but was hit full force by an oncoming train. The train picked up her large vehicle, turned it upside down, and pushed it for over a quarter of a mile before the car became almost completely crushed by a wall adjacent to the tracks. The therapist suggested she stop relaying the story of the trauma and that they practice mindfulness meditation together. During the meditation, he instructed her to access a positive image or memory of feeling totally safe and comfortable. Then, he suggested that while in this mindful state, breathing slowly, she return to the memory of the trauma. He suggested that she go back and forth, in a process called trauma pendulation.

In trauma pendulation, the therapist mindfully observes the patient’s experience, then guides the patient in creating a positive state of safety and comfort. Doing so resets the nervous system and provides an oasis from emotional stress. Then, when the patient is ready, the therapist returns to the work of guiding the patient into allowing feelings, memories, and sensations to arise and be experienced despite the discomfort. The therapist may or may not draw the patient into a memory of a specific trauma; the goal may simply be to allow the patient’s unconscious mind to bring up feelings, images, memories, or sensations that need to be experienced and released.

The more severe the trauma, the more deeply the suppressed affect is stored in the nervous system and the more the patient experiences constriction in the pain body of self. The suppressed affect needs to be brought to the surface and reexperienced so that it can be contained and reintegrated into the patient’s life experience. Most trauma survivors are unlikely to be in touch with all the varied layers of pain and emotional dysregulation. The process of traumatic suppression or dissociation is actually protective, allowing the sufferer both to survive the trauma and to function in the world after the experience. The therapist’s use of mindfulness and trauma pendulation can help the patient to continue participating in the process of healing without disassociating. It establishes trust, honesty, authenticity, and compassion as central to the patient-therapist relationship. The process of both client and therapist practicing mindfulness together with the therapist providing guidance and support not only creates in the client a sense of trust and safety but also allows the therapist to be laser-like in focus, guiding the client in safely uncovering deeply repressed material. For example, when a client presents with numbness and fragmentation or dissociation, the therapist can suggest mindful inquiry to help the patient hold on to the painful affect and experience it more deeply, which allows for discovery, identification and categorization, containment, and possible discharge.

If the client reports feeling numb, detached, or disconnected, or is observed disassociating from the pain or trauma, the therapist should guide the client into experiencing safety and comfort so as to develop a positive baseline for further exploration of the

trauma. Once the client is emotionally reregulated and connected with the self and a sense of well-being, he or she can begin exploring the trauma state. In using mindfulness to determine when to bring the client back to a mind state of safety and comfort, the therapist is respecting the client's nervous-system response.

Conclusion

After the experience of trauma, the question "Why did this happen to me?" often arises. It is not our view that trauma happens for a purpose. Rather, trauma is a painful and often unwanted experience that suddenly and rapidly changes one's entire worldview—sometimes in an instant. Undergoing a traumatic event may cause a person to develop PTSD, but it may also eventually lead that individual to adopt and cultivate a perspective that the trauma offers them the ability to enroll in a mindful curriculum that guides them to cultivating the internal resources to heal themselves. We don't have control over the occurrence of trauma, but as we cultivate mindfulness, we begin to see that we do have the choice to use the experience as an opportunity to transform our lives. From this space of awareness, we can deepen the experience with mindful inquiry or use hypnotic trance to help clients access insight and internal wisdom they may not have thought existed before. We can never go back to the time before that trauma, and there may be things that we lose that are irretrievable. However, the very existence of this pain allows us to match it with mindfulness, which inspires invaluable states of forgiveness, compassion, and lovingkindness toward ourselves and others. These in turn allow us to take huge leaps forward in healing. As people learn to let go of states of blame and remorse, they can transform painful affliction into compassionate self-acceptance and forgiveness of others.

As Western psychologists, we have a mission and responsibility to help our patients and students to develop a positive sense of self so they can experience personal growth and improve their relationships, including their communication within those relationships. However, we also have the potential to guide patients into entering a doorway of discovery and experiencing a state of being where the ego drops away, and an awareness of the interconnected nature of life arises. This is a place where trauma drops away, where we find peace in a warm and loving ground of being.

How
Did the rose
Ever open its heart
And give to this world
All its
Beauty?
It felt the encouragement of light
Against its
Being,
Otherwise,
We all remain
Too
Frightened.—Hafiz (Ladinsky, 1999)

Mindfulness enables us to assist our patients and students, as well as ourselves as therapists, to drop painful attachments to the small stories of our lives and be free to develop a new, wider view known in Buddhist psychology as Prajna, or “no self.” This wider view includes a deeper understanding of the process of the ego dying and being reborn as well as recognition of the interconnected nature of life.

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34

From Cushions to Couches, Shramanas to Shrinks

*What Is Lost and What Is Gained When
Mindfulness Becomes a Tool of Medicine
and Psychotherapy*

Jason Clower and Tracy Peng

Introduction

As adapted for the modern clinic, Buddhist mindfulness meditation has helped treat a range of disorders from chronic pain to hypertension and depression. Using the example of Jon Kabat-Zinn's pioneering approach, we aim to describe the problems that must be navigated as clinicians uproot mindfulness practices from the soil of Southeast Asian Buddhism and transplant them into the radically different context of American health care. Until a few decades ago, mindfulness meditation was mostly the preserve of celibate, mostly rural, male Buddhist clerics in majority-Buddhist countries, often subsisting on alms from donors, in a uniquely Buddhist cultural context and belief-system. Then, beginning in the 1980s, it was tried in a therapeutic setting, taught by medical and psychological professionals to a patient population that was overwhelmingly female and white and mostly middle class, unaccompanied by monastic rules and independent of Buddhist beliefs about rebirth, merit, the supernatural, and enlightenment (Hickey, 2008).¹ This transplantation is "problematic" in the precise sense: that is, it has necessitated choices about what is essential and inessential, what is culturally variable, and what trade-offs are or are not desirable. In this chapter, we attempt to explain what those problems are and how they have been settled, as well as pointing out the roads that have not been taken but may later be revisited.

Background

In 1979, when molecular biologist, Jon Kabat-Zinn, had already been practicing Buddhist meditation for years, he was attending a two-week retreat practicing *vipassanā*, a Theravāda Buddhist form of "insight" or "mindfulness" meditation.² One afternoon during the retreat, Kabat-Zinn had what he describes as a "vision" for combining his vocation as a meditator with his job as a medical researcher in a way that "would

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spark new fields of scientific and clinical investigation, ... spread [meditation] to hospitals and medical centers and clinics ... and provide right livelihood for thousands of practitioners" (Kabat-Zinn, 2011, p. 287).

Kabat-Zinn's model would innovate on traditional³ Buddhist *vipassanā* meditation in two momentous ways. First, it would medicalize *vipassana*, taking it from its traditional setting in Buddhist monasteries and meditation centers to "recontextualize it within the frameworks of science, medicine ... and healthcare." What Kabat-Zinn's model did was to transplant it into the entirely new setting of the "hospitals and medical centres and clinics," places that functioned in modern America as "magnets" for suffering (Kabat-Zinn, 2011, p. 287). In traditional Buddhist literature, Buddhist teachings are often likened to medicines, but Kabat-Zinn turned the simile into a literal reality by moving one particular Buddhist teaching into a context that did not exist in premodern Asia, the modern healthcare system.

To make that move into the healthcare system possible, Kabat-Zinn judged it prudent also to camouflage *vipassanā*'s Buddhistness. To begin with, he had to change its distinctly Buddhist vocabulary and free it from "the cultural, religious, and ideological factors associated with the Buddhist origins of mindfulness" (Kabat-Zinn, 2003, p. 149). "From the beginning," he later wrote, "... I bent over backward to ... find ways to speak about it that avoided as much as possible the risk of it being seen as Buddhist, 'New Age,' 'Eastern Mysticism' or just plain flakey" (Kabat-Zinn, 2011, p. 282). This was necessary not only for purposes of public perception and academic credibility but also to avoid church-state problems, since he was offering the program at a state-run teaching hospital,⁴ and also for practical business reasons, in order to be able to charge insurance companies for the classes (Kabat-Zinn, 1998, p. 505). What he needed was a way to separate Buddhist meditation from its religious baggage and teach the dharma "without ever mentioning the word 'dharma'" (Kabat-Zinn, 2011, p. 288).

At the same time, Kabat-Zinn's construction maintains a close and special relationship with the living tradition of Buddhism proper. A great many Mindfulness-Based Stress Reduction (MBSR) teachers come to the Center for Mindfulness through a formal Buddhist lineage (Kabat-Zinn, 2011, p. 296) and retain an "abiding interest in Buddhist philosophy and psychology, if not in Buddhist ritual practice" (McCown & Reibel, 2009, p. 315), and entry-level MBSR instructors are directed to have undergone at least two 5- to 10-day "cloistered, silent ... meditation retreats ... in the Theravadan [sic] or Zen traditions" (Santorelli, 2002). Kabat-Zinn's proviso is simply that, despite the absolute need for "a strong personal grounding in the Buddhadharma," the teacher must leave this background outside the clinic, for "little or none of it can be brought into the classroom *except in essence*" (Kabat-Zinn, 2011, p. 299).

Under this "Trojan horse approach," as one of his associates calls it, Kabat-Zinn's first step was to rebrand instruction in *vipassanā* meditation as a course in "stress reduction," reasoning that the general American public could relate comfortably to the idea of stress, as could their doctors and insurance companies (Kabat-Zinn, 2000, pp. 228–229). The syllabus has evolved over time, but its format has stayed quite stable. Patients enroll in a class that typically meets once a week for eight weeks and commit to 30–45 min of daily mindfulness practice, supplemented by auxiliary techniques and homework assignments.

Now known as MBSR, Kabat-Zinn's creation has enjoyed great scientific and institutional success. Mindfulness-based interventions in health care have yielded positive and well-documented effects in a wide range of physical and mental disorders, ranging from hypertension and psoriasis to chronic pain and depression, and thanks to Kabat-Zinn's efforts and those of his associate Saki Santorelli, they have had an institutional home in the University of Massachusetts, in the Center for Mindfulness, and now are taught in MBSR courses in hospitals and other clinical settings across the country.

Kabat-Zinn's approach has spread into other disciplines, too. Most notably, psychologists Zindel Segal, Mark Williams, and John Teasdale combined it with elements of Cognitive Behavioral Therapy specifically to treat depression, a modality now called Mindfulness-Based Cognitive Therapy (MBCT) which attempts to dissolve the underlying "lens" of mental negativity through which depressed persons see the world. MBCT has been demonstrated to decrease relapses for patients with depression (Teasdale et al. 2000), and studies are now under way investigating whether it can actually be used successfully as a primary treatment for an acute depressive episode.⁵ Although not specifically designed to treat anxiety, MBCT and MBSR also show early signs of benefit for patients with panic disorder, generalized anxiety disorder, and subsyndromal anxiety symptoms. Patients can use mindfulness of breath, yoga, and other such exercises to calm anxieties, in author Peng's experience, and sometimes reduce the use of as-needed benzodiazepines and even taper off of antidepressant medications used for anxiety disorders.⁶ The Kabat-Zinn template has also been used to create programs in mindfulness-based relapse prevention, childbirth and parenting, eating awareness, and elder care (Kabat-Zinn, 2011, pp. 284, 301).⁷

Buddhism ... without the Buddhism

Despite his success in medicine, Kabat-Zinn (1998, p. 481) thinks of his work in a much different perspective, as part of "the emergence of what we might call American Dharma." "I teach Buddhist meditation," Kabat-Zinn (1998, p. 481) has written famously, "... 'without the Buddhism'." And indeed, in many respects, Buddhism has been the loser in this reinvention, inasmuch as mindfulness meditation has been deracinated—that is, excised from the rest of the Buddhist tradition—and commodified. But in return, the MBSR model has tackled a pair of major problems that American Buddhism has not been able to solve for itself, namely how to fund itself and what kind of leadership it can accept.

On the one hand, Buddhism itself loses from this transformation in several respects. Because Americans tend to reduce Buddhism to meditation anyway, it is easy to lose sight of just how many elements Kabat-Zinn's model discards, which, in Buddhist countries, are considered central and defining features. These include Buddhist institutions, such as monasteries, temples, and a tightly regulated celibate clergy; cultural systems for providing the clergy with a livelihood; political systems that establish Buddhism in many countries as an official state religion; the voluminous canons of scriptures in Pali, Chinese, Tibetan, and other languages, and living traditions of memorizing, reciting, and researching those scriptures; distinctive supernatural beliefs in rebirth, deities, hells, hungry ghosts, karmic retribution, and supernatural powers;

rituals of healing, exorcism, vow-taking, merit-making, initiation, ordination, death and cremation, asceticism, repentance and expiation, devotion, and more, using mandalas, mantras, yantras, dharanis, visualizations, body modifications, incense and other offerings, special vestments, and so on. Also gone is the ultimate goal of enlightenment attained once and for all by more or less supernaturally endowed buddhas, bodhisattvas, pratyekabuddhas, or arhants.⁸ All that MBSR retains explicitly is a single one of the dozens of forms of Buddhist meditation, assuming

[f]irst, that meditation is the essence of Buddhism [and] other practices are merely cultural accretions [and second], that those alleged accretions may be jettisoned: mindfulness is ‘a way of life, not a technique,’ but it is also separable from the Buddhist communities, practices, doctrines, ethics, and cultures within which it was developed and promoted. (Hickey, 2008, pp. 138–139)

Keenly aware of this drastic truncation, some Buddhists and scholars of Buddhism feel protective of the tradition and fearful about therapists strip-mining it for a few profitable techniques that they cart off to their clinics and leaving the rest of the tradition—customs, communities, beliefs, ethics, and its dozens of other practices—as slag. One question they have is whether meditation can really be separated from all of the rest of Buddhism so neatly, without losing something essential. A Burmese-born Buddhist teacher comments in *Tricycle* magazine, a flagship medium for the dissemination of Buddhism in American popular culture, “When asked what I think of Theravada Buddhism in America, I often say, ‘Americans brought the cream but left the cake behind... I feel that without firsthand experience of what makes Buddhism tick in the lay community, it would be impossible to feel the essence of Buddhism...’” (Thynn, 2007). In a piece entitled “Losing Our Religion,” Buddhist scholar-practitioner Robert Sharf notes with apprehension:

So much of what was once considered integral to the [Buddhist] tradition has been abandoned in this rush to celebrate meditation or mindfulness ... as the *sine qua non* of Buddhism It’s a question of what gets lost. (Cooper, 2007, p. 46)

There is also the question about whether MBSR has really emancipated itself from further reliance on the living Buddhist religion as Kabat-Zinn claims. Buddhist priest and historian, Wakoh Shannon Hickey, catalogs Buddhist borrowings in MBSR organization and practice and in Kabat-Zinn’s vocabulary, and concludes that his “frequent assertions that MBSR employs Buddhist meditation, but is somehow unrelated to Buddhism, seem a little disingenuous” (Hickey, 2008, p. 132).⁹

For Kabat-Zinn’s part, despite attempts to show respect for the Buddhist tradition, he sometimes talk dismissively about Buddhism in a way that ruffles traditional Buddhist feathers, remarking, for example that the emerging “American Dharma” is probably “not going to be Buddhist, in the small-minded idea of Buddhism” (Kabat-Zinn, 1998, p. 481). In confidently distinguishing between a parochial Buddhism and a universal dharma that Americans may excise and make their own, Kabat-Zinn seems to say that the rest of Buddhism is not just an *impediment* to insurance companies’ paying for meditation classes, but also a betrayal of what the Buddha taught, an accretion

and misunderstanding. This would mean that Kabat-Zinn and other American appropriators have rescued the Buddha's true teaching from the hands of Asians. Buddhist critics hear an implied American ethnocentrism here, a "rhetorical erasure of the past, and the assumption that one's own social, cultural, and historical perspective applies universally" (Hickey, 2010, p. 172).

To Kabat-Zinn's great credit, in recent years he has grown responsive to these sorts of concerns. He is now more apt to frame his adaptation of Buddhism as an act of cultural translation and innovative dharma propagation rather than of separating the wheat from the chaff. Thus, in a recent article, he reassures critics that MBSR was

never meant to exploit, fragment, or decontextualize the dharma, but rather to *recontextualize* it within the frameworks of science, medicine ..., and healthcare so that it would be maximally useful to people who could not hear it or enter into it through the more traditional dharma gates. (Kabat-Zinn, 2011, p. 288)

Indeed, he has shown his sensitivity to criticisms about the dangers and potential losses of deracination by articulating them very plainly himself:

Are there intrinsic dangers that need to be kept in mind? Is there the potential for something priceless to be lost through secular applications of aspects of a larger culture which has a long and venerable, dare we say sacred tradition of its own? ... Can it be exploited or misappropriated in ways that might lead to harm of some kind, either by omission or commission? (Williams & Kabat-Zinn, 2011, p. 4)

Perhaps ironically, as MBSR comes to interest mainstream colleagues who lack Kabat-Zinn's Buddhist training, he has even had to caution against mindfulness meditation's being pulled even farther from its historical roots and context, and denatured by its very success in the wider field. It is "critically important," he writes

that those persons coming to the field ... recognize the unique qualities and characteristics of mindfulness as a meditative practice, with all that implies, so that mindfulness is not simply seized upon as the next promising cognitive behavioral technique or exercise, decontextualized, and "plugged" into a behaviorist paradigm with the aim of driving desirable change, or of fixing what is broken. (Kabat-Zinn, 2003, p. 145)¹⁰

Buddhists also have criticized MBSR and programs like it for commodifying meditation, arguing that the "tendency to turn [it] into a commodity for sale ... risks fostering the very attitudes—greed and individualism—that both Buddhist and yogic traditions assert are inimical to liberation" (Hickey, 2010, p. 178). American Theravada Buddhist scholar-monk, Thanissaro Bhikkhu, maintains that dharma teachers' asking for "payment for services rendered" squarely thwarts the intentions of the Buddha:

[T]he Buddha insisted that the Dharma be taught without expectation of material reward. When he was once offered a "teacher's fee" for his teaching, he refused to accept it and told the donor to throw it away.... The origin stories to the monastic discipline ... often tell of monastics whose gift of Dharma came with strings attached, and of lay people who gladly pulled those strings to get what they wanted out of the monastics: personal

favors served with an ingratiating smile. The Buddha's steady persistence in formulating rules to cut these strings shows how determined he was that the principle of Dharma as a genuinely free gift not be an idle ideal. (Thanissaro Bhikkhu, n.d.)¹¹

Gains for Buddhism

Say what one will of these criticisms, however, but Buddhism has also gained from the success of the MBSR model. Not only has it exposed more people to Buddhist meditation (see below), but also the MBSR model has helped tackle a pair of major problems that Buddhism in America has not been able to solve definitively on its own, namely funding and authority.

American Buddhism is still experimenting with finding ways to pay for its activities. John Welwood notes that, here in the Western appropriation of “the traditional paths of Asia,” we have had to experiment and adapt—with some messy results along the way—because our society differs from Asian ones in having few traditions and institutions that support people, financially and culturally, who drop out of mundane life. “In Asia,” he points out, “yogis and sadhus could live an otherworldly life, have little personal contact with people, or engage in highly eccentric behavior, and still be accepted, supported, and venerated by the community at large” (Welwood, 2000, p. 140).

Whenever Buddhism has traveled to a new country, finance has always been a knotty problem, and Buddhists in the new homeland have had to be creative. Though the traditional ideal has been one of an abstemious clergy with little personal or collective property subsisting on alms, this appears never to have been enough. In Asia, royal or state patronage has been critically important and still is in many countries, and so have holdings of land, sometimes gigantic virtual fiefdoms. Absent that, the solution has sometimes been to charge for ritual services such as funerals or even to lend out money at interest (Gernet, 1995). In the West, Buddhism has had to be particularly attentive to its finances, since it lacks a large following with an ingrained tradition of donating to Buddhist organizations or state funding of Buddhism, both of which are present in a country such as Thailand or Sri Lanka.¹²

Lacking such institutional support, other Western Buddhist groups have had to experiment with trying to generate revenue by selling books and CDs, operating restaurants or tea shops, offering fee-based retreats or training programs, or renting lodgings to live-in students. MBSR's own colossally successful experiment has been to mate a form of meditation that retains ongoing links to the Buddhist tradition with an extremely well-established network of indigenous American institutions which are willing, even eager, to fund it. Probably nothing else in American Buddhism can compare with its results.

By piggybacking on the American medical system, MBSR also deftly finds its own solution to the ticklish problem of authority. Among American Buddhists outside of Asian immigrant congregations that try to preserve the leadership patterns of the old country, there is little agreement about what kind of religious authorities they are willing to accept. Few have embraced the traditional model of a celibate clergy, and indeed many feel allergic to the very idea of religious authority. In the 1950s and 1960s,

when Buddhism deepened its foothold in American culture, it was portrayed as a philosophy of nonconformism, antinomianism, and antiauthoritarianism, and even today “...American preferences or commitments to possessive individualism, sexual freedom, or psychologies of personal growth are precisely what motivates many elites to seek out Buddhism in the first place, believing it to be a free-floating, nondisciplinary, and personalized tradition” (Bivins, 2007, p. 64). (This can be baffling to Buddhists from Asia, where Buddhism is a religion of “the establishment,” in many cases as an actual state-sponsored religion, and in many political contexts, the Buddhist establishment leans conservative, even hawkish.) Historically, then, Americans who are attracted to Buddhism have been the ones disinclined to affirm religious authority of an institutional or bureaucratic kind. And experiences with personally charismatic Buddhist leaders have often ended in disillusionment, hurt, and bitterness, and allegations of abuses, of money, alcohol, and sexual access to students. In one infamous example, Lama Osel Tendzin had unprotected sex with various students for more than two years, knowing that he was suffering from AIDS but not informing his partners, all with the knowledge and complicity of his organization’s board of directors (Butterfield, 1994, pp. 3–6).

One of the virtues of the MBSR model is that it takes advantage of an existing form of cultural authority with which many Americans find familiar and trustworthy: the doctor or therapist. As a clinical professional, the MBSR teacher derives their credibility with the patient not only from their personal qualities and experience as a meditation teacher but also from their professional credentials and expertise (McCown & Reibel, 2009, p. 318). This not only makes the teacher an *acceptable* authority to the patient but also serves to make the teacher a *tractable* authority. As clinical professionals, teachers are already held in check by well-developed systems of professional ethics, licensing regulations, and malpractice law. They are also bound by the expectations of the patients, who hold widely shared cultural understandings of the boundaries that apply to therapists and patients in the clinical world. This availability of instinctively understood social norms removes the ambiguity about the limits of authority that is often identified as a contributor to scandals in American Buddhist congregations:

Many of the problems that have surfaced in the West can be traced to the lack of the cultural background necessary to provide Buddhist centers and their students and teachers a framework to guide and evaluate their endeavors ... In Asia, everyone knows how Buddhist teachers are supposed to behave, and someone who violates those expectations is likely to be viewed with a skeptical eye. (Coleman, 2001, pp. 182, 181)

At the San Francisco Zen Center, following its colorful scandals in the 1980s, the response to this need for shared norms was to spell out ethical tenets in a far more particular form than before (e.g., forbidding teachers from having sexual relations with a person who has been their student in the last six months), to disseminate them throughout the group both as a formal code and more diffusely through a greater emphasis on ethics and precepts, and also to devise multistep procedures for conflict resolution and arbitration (Bivins, 2007). In contrast, the MBSR model is able to fill the same need more simply and economically. Rather than invent its own ethical norms and institutions, its own training teacher training materials are able to do little

more than mention the importance of ethics (Kabat-Zinn & Santorelli, 2002). It need not have the same anxiety about reinventing and articulating a system of ethics for teachers of Buddhist meditation in America because those concerns are already being addressed effectively by the clinical professionals' own professional associations and licensing bodies.

The Clinician

A clinician (whether a physician, a psychotherapist, or both) who takes up the practice of mindfulness meditation can benefit anywhere on a continuum from occasional practice after participating in an MBSR or derivative program all the way to becoming qualified as a teacher of mindfulness. In the latter case, the clinician is expected to commit to what Kabat-Zinn, using T.S. Eliot's words, calls "a condition of complete simplicity / (Costing not less than everything)" (Kabat-Zinn, 2003, p. 149). That is, the clinician-teacher has to commit to meditation practice as a way of life. The benefit to the clinician is that, as a mindfulness practitioner, they work more effectively to some degree and are less vulnerable to burn out (Irving, Dobkin, & Park, 2009).

Meditation for clinicians

Among teachers of mindfulness-based therapies, there is a widespread consensus that, although mindfulness is simple and accessible, it must be taught by people who regularly practice mindfulness in their daily lives. Kabat-Zinn believes that teachers can learn to translate the authentic dharma into a

relevant and compelling [form]... only through exposure and personal engagement in practice—learned or deepened either through meditation retreats at Buddhist centers or through professional training programs in MBSR with teachers who have themselves trained in that way, or, ideally, both. (Kabat-Zinn, 2003, p. 149)

The most powerful mindfulness teachers seem to be those who have developed a deep and sustained daily personal mindfulness practice most often reinforced by regular silent meditation retreats over a number of years. This sustained practice leads to familiarity with silence as well as habits of mindfulness, of questioning the validity of thoughts, of direct engagement with experience, of nonjudgment and openness, and of pauses within automatic patterns of reactivity.

For even if Kabat-Zinn and other MBSR researchers obscure the person of the teacher and thus minimize the importance of the teacher and maximize the importance of the protocol when they write for scientific publications, within the mindfulness community itself they do not (McCown & Reibel, 2009). On the contrary, much like the Zen tradition in which Kabat-Zinn began his own formation as a meditation teacher, MBSR places huge importance on the person of the teacher. Kabat-Zinn writes, "Mindfulness can only be understood from the inside out ... Without

that living foundation, none of what really matters is available to us in ways that are maximally healing, transformative, compassionate, and wise" (Kabat-Zinn, 2011, p. 284).

However, the norm within the health-care system is to ignore the state of being of the practitioner and emphasize the health-care intervention or protocol itself as a mechanical tool that may be used by anyone with an equal level of credentialing. In this way, the wider health-care system overlooks consequential subtleties and sensitivities to the clinician's state of being within a given situation that are, however, noticed by the mindfulness practice community but neglected by the health-care system as a whole. (There are notable exceptions within health care, of course, including those who emphasize "the art of medicine" and attention to clinician well-being and healing interactions within physical and mental health care.) Mindfulness is one of the many avenues by which fallout from the biological and mechanistic reductionism of modern medicine has been ameliorated through the emphasis on paying attention in the present moment, on purpose, nonjudgmentally (cf. Kabat-Zinn, 1994, p. 4) to not only the physical but also the psychological, emotional, relational, spiritual, and energetic realms of human experience.

Mindfulness in psychotherapy

In the world of mental health care and psychotherapy, it is debatable whether mindfulness-based psychotherapies are more accurately regarded as a subtype of psychotherapy, as relaxation/stress management, as supportive relationship, or as a para-religious activity, and one review notes a continuing "confusion as to whether mindfulness is a practice, a process, an outcome, a transient state to be exploited, or a way of life to be cultivated" (McCown & Reibel, 2009, p. 297). In practice, it seems to include elements of all of these. Mindfulness-based psychotherapy seems to hinge upon the mindfulness of the clinician and patient in their own lives, that is, moments of mindfulness during the psychotherapy process while discussing areas in which either the clinician *or* the patient has explored and developed clarity, as well as moments of mindlessness or reactivity in areas where the clinician or the patient has fallen into conditioned patterns of reactivity, or "blind spots" of sorts. Interestingly, only one member of the psychotherapeutic dyad needs to maintain mindfulness during any given moment in order for mindfulness to prevail—and it does not necessarily even need to be the clinician (although of course it behooves the clinician to cultivate mindfulness with great dedication in order to continue ethically to be able to guide and serve the patient)! It can also include moments of mindfulness in the psychotherapeutic dyad in which there is very little content other than silence and a sense of intimacy with the moment. Mindfulness-based psychotherapy includes a deep attention to ethical boundaries and respect for the therapeutic roles. It seems to involve a commitment to and love of a way of life that is nonjudgmental and values deep seeing, and often includes practices that illuminate and catalyze processes of growing insight and wisdom. Mindfulness practices can result in transient states that come and go, but they are not the goal; rather the clear seeing itself is the ground, the bedrock from which states of mind, heart, and body arise and subside. Devotion to the awareness itself

seems to gently heal, soften, harmonize, and enliven the consciousness by which psychotherapy is able to do its powerful work, and to loosen any sense of identification with conditioned patterns of maladaptive thoughts, emotions, ways of relating, and self-definitions from the past.

Mindfulness as a way of life

Kabat-Zinn resists the tendency to scientific reductionism where mindfulness is concerned, explaining that it “is not one more cognitive-behavioural technique to be deployed in a behaviour change paradigm, but a way of being and a way of seeing that has profound implications” (Kabat-Zinn, 2011, p. 284) and criticizes pressure to “reduce [it] to a clinical algorithm” (Kabat-Zinn, 2003, p. 145). In this way, he demonstrates awareness of the special problem within health care of maintaining the quality of consciousness of both the mindfulness teacher and the student, given the lack of emphasis on cultivation of state of being of the practitioner within the culture of medicine and mental health. In one mindfulness training session for end-of-life health-care professionals, Dr. Charles Garfield addressed this issue by proclaiming, “This program is not about adding on new skills to the same old unchanged ‘me’!” Also important is the question of whether the intention of the student (towards liberation in the Buddhist context or towards relief of symptoms in the health-care setting) affects the degree of benefits conferred by mindfulness practice, and how much the underlying intention of the student can be shifted over time by contact with mindfulness teachers in the health-care setting and beyond.

Improvements in the clinician’s life and work

One of the possible benefits to the clinician of adopting this new way of life is a better quality of life and more effectiveness at work. Despite a dearth of well-powered studies with active controls, available data from a recent review article do seem to suggest that health-care professionals may benefit from mindfulness training in the domains of increased positive affect, increased self-compassion, decreased rumination, and decreased perceived stress (Irving et al., 2009). These changes in turn may lead to less clinician burnout in the work setting.

When mindfulness, as Kabat-Zinn defines it, is turned outward to the external world, it then becomes psychologist Ellen Langer’s “process of drawing novel distinctions.” When mindfulness is practiced by an individual psychiatrist, for example, and then is turned outward to the psychiatric knowledge base, psychotherapeutic skills, and treatment planning, it can then illuminate the art of choosing a specific psychiatric intervention and knowing when to implement it. As Ellen Langer suggests, turning mindfulness “outward” allows the psychiatrist to draw novel distinctions, connect the validated, tried-and-true treatment options available from the integrative psychiatric literature with the unique needs and stories of the individual patient, do so in the correct timing to best impact that particular patient, and then be open and responsive to feedback from the patient. In short, a mindful psychiatrist has a better sense for how to apply their psychiatric learning to a particular case.

A more qualitative way that a psychiatrist can benefit in their own work by practicing mindfulness is in ameliorating the coldness and lack of attention to subtlety inherent in the reductionistic medical model of seeing the psychiatric encounter as occurring between an invulnerable expert and a damaged patient. (Many patients have come to author, Peng, for psychiatric evaluation with a main concern being the lack of basic human connection and courtesy from their previous psychiatrist!) Mindfulness includes a warm sense of shared humanity and the universality of suffering and, when practiced, will naturally lead to a shedding of numbness and the cold habit of efficiency that sees each new patient as just one more psychiatric symptom constellation coming down the conveyor belt to be medicated and patched. Rather, we come to see these symptoms as part of a greater tapestry, and to recognize them as being of the same essence as any human suffering, including our own. Wholeness peeks through the chinks in our habitual categorizations, and the psychiatrist can find themselves connected with the patient no longer as a detached expert to a defective patient but now as a wounded healer. The helper/helpee dichotomy then softens into an eye-level equality of the wholeness of the psychiatrist serving the wholeness of the patient and vice versa. Even further, when mindfulness is directed outwards not just toward individual patients but also toward the health-care system within which the psychiatrist is practicing, they may even come to feel that the mainstream health-care system lacks conscious alignment with their deepest values and embark upon a much different professional journey.

The Patient

Patients, too, benefit from meditation in myriad ways, reducing hypertension, anxiety, insomnia, depressive relapses, and self-injurious behaviors, and the MBSR model has increased the accessibility of meditation training for patients and also boosted its quality, adapting it to patients' various conditions¹³ and delivering it in a tested format.

Benefits of meditation for patients

In more recent years, integrative psychiatrists¹⁴ have begun to emphasize the importance of therapeutic lifestyle changes such as exercise, diet, time in nature, relationships, recreation, relaxation/stress management, religious or spiritual involvement, service to others (Walsh, 2011), as well as supplements and herbs (Lake, 2009). Mindfulness meditation can most likely be categorized as relaxation/stress management or possibly as a secular type of religious or spiritual involvement, and also relationship (with the teacher and other students) may also be an element in the way it works. Interestingly, even in a population of meditators, antidepressants have been suggested to confer benefit in terms of emotional, motivational, and cognitive effects (Bitner, Hillman, Victor, & Walsh, 2003), suggesting that perhaps meditation and antidepressants (as well as the remainder of the full range of integrative interventions for depression and anxiety) may produce synergistic benefits.

The difference between mindfulness-based psychotherapies in general and other types of psychotherapy is in the metacognitive questioning of the underlying assumption that there is a separate self apart from the rest of the world as a whole. At best, this is intended to guide the patient to a growing ability to experience oneself as something more formless than a solid individual identified with maladaptive thought patterns. Awareness of the breath is often used as the anchor in times of distress, helping the patient to interpret automatic negative thoughts as mental events rather than as truth.

In mindfulness-based cognitive therapy for depression (MBCT), for example, many patients learn to befriend their depression without becoming overly identified with it and discover that thoughts are not necessarily facts (Kabat-Zinn, 2011, p. 299). In addition, patients learn to recognize in themselves signals of impending relapse, which may include sleep changes, increased negative thoughts, social withdrawal, or lack of motivation, and plan for how to respond when these “red flags” occur. They are taught to cultivate behaviors that minimize likelihood of relapse or recurrence of depression, for example, increasing positive activities such as exercise, socializing with supportive friends or family, getting enough exposure to sunlight, attending spiritual or religious gatherings that they enjoy, or simply refraining from indulging in ruminative downward spirals of self-critical thoughts, and instead adopting nurturing attitudes and behaviors towards oneself. One common example would be seeing the thought “I’m a failure” as the first symptom of an impending depressive episode rather than believing it to be true, resulting in self-caring actions such as pushing oneself to engage in activities that one does not feel like doing but one knows will be beneficial to mood, scheduling extra therapy appointments, inquiring about supplements or increasing antidepressant dose, and regulating the sleep schedule.

This shift from a common culturally reinforced pattern of habitually berating oneself and failing to appreciate one’s contributions is one of the great gifts of mindfulness practice. With that negativity and harshness diffused, what emerges is a larger, more affectionate perspective that not only tolerates all our human foibles, but actually holds them dear. The contracted worldview that identifies one with perceived failings and mistakes softens and gives way to a gentler, more balanced, and more generous way of being. The arising and cultivation of a sense of trust, well-being, and lack of resistance to the flow of life is the eventual hallmark of any mindfulness-based treatment, and patients and clinicians alike are thirsty for the experience of marinating in our own joyous depths.

Accessibility and availability of training

Perhaps the greatest boon of the MBSR model for patients is availability of training. Twenty years ago, mindfulness meditation was something exotic and hard to approach except through a Buddhist temple or dharma center, from the hand of an Asian Buddhist missionary or a close disciple. Such opportunities were seldom met with in the Midwest, where both authors grew up, and one of us (Clower) eventually had to learn Chinese to make it possible! In the early 21st century, now that mindfulness has been picked up by our country’s giant health-care industry, such training is accessible

in places and to degrees unimaginable before. Indeed, in 2011, when author Clower encountered a family tragedy one morning, within an hour he located an MBSR course beginning that evening three miles from his rural home!

Mindfulness meditation became more available by borrowing the channels of distribution of the healthcare industry. Buddhist congregations are a rarity in our country, but healthcare providers are everywhere. The health industry already has mature systems for (1) training providers in promising new methods of care, (2) making those methods available in every city and county, and (3) financing it.¹⁵

Such Buddhist congregations as do exist in the US are not widespread. Ninety percent of American Buddhist congregations are located within 50 miles of an international airport, and two-thirds of American counties have not a single Buddhist congregation in them (Jones & Melton, 2012). Buddhist missionary work has gone on in this country for over a century, and Buddhist ideas have great cultural cache, but the peopling of the American landscape with actual Buddhists has moved very slowly.

Quality and uniformity

A concomitant effect is high quality. Persons offering MBSR and related courses are typically highly trained members of the caring professions, and thus people who know how to talk to people effectively about how they might wish to change, who have been through a long course of training and an even longer commitment to meditation. Few have trained as Buddhist monastics, among whom the meditation specialists may regularly undergo marathon periods of training measured, not in hours but weeks. But they know whereof they speak, and as a group, they have devoted years of time, attention, and collective experience to constructing their evolving teaching and reaching their chosen audience. The student receives a relatively uniform high-quality product. She (or, less often, he) will learn a particular family of meditation techniques, derived in the main from a certain interpretation of Buddhist *vipassanā* meditation with a recognizable 20th-century American flavor, which unfolds according to a fairly uniform syllabus with deep detail and articulation, relative to the landscape of American Buddhist meditation as a whole, and with frequent personal direction from the teacher. Most importantly, it will be “vernacularized,” presented very deliberately in “language that is accurate, precise, welcoming, and American” (Freedman, 2001, pp. 11–8.5), using “a vernacular idiom, vocabulary, methods, and forms which are relevant and compelling … yet without denaturing the dharma dimension” (Kabat-Zinn, 2003, p. 149).

Conclusion

Mindfulness practice in Western society has trod a colorful yet bumpy road in being transplanted away from the soil of traditionally structured Asian Buddhism. There have been some losses along the way, including potential diversion of resources away from Buddhist denominations in the West, diminution of the goal of practice from liberation to disease mitigation, and mixing of the vulgarities of financial compensation with the propagation of the practice. However, by partnering with Western health-care

systems, mindfulness has also greatly enhanced the therapeutic potential and depth of healing available for both clinicians and patients by ameliorating the reductionism that prevails in medicine and mental health. It has also reached many more people by using the existing distribution network of health care and perhaps brought new adherents to mindfulness who might not have come to it through religious avenues. For all its stumbling blocks and difficulties, this marriage of innovation and tradition, sacred and secular, has unleashed a cascade of creative possibilities for the relief of suffering and the cultivation of deep healing for growing segments of Western society. Challenges for the future appear to be in maintaining the depth of mindfulness practice in a Western setting without succumbing to an easy, “just-add-water” approach, carefully negotiating boundaries and roles within health-care settings, and nurturing creative collaborative partnerships between health-care networks and organizations that specialize in mindfulness training.

Notes

1. It should be noted that the Center for Mindfulness has made efforts to offer the program in inner cities, and its literature reports that “poor, inner city, minority individuals ... are also willing to undergo such training and respond enthusiastically” if it is offered “free of charge, with on-site day care and free transportation when necessary” (Kabat-Zinn, 1996, p. 8).
2. The retreat took place at the Insight Meditation Society in Barre, Massachusetts, where the type of *vipassanā* practiced can be traced back to the Burmese tradition. In the 20th century, this form was popularized among laypeople by the writings of Ledi Sayadaw and others, and was exported so successfully to other parts of Asia and to the West that it has become virtually synonymous with Theravada meditation (see Cousins, 1996).
3. On close examination, most religious traditions turn out to be much newer than they claim to be, and in this case, too, “traditional” is a relative term. In the Theravada tradition, the notion that laypeople could jump into *vipassanā* without difficult and specialized preparation only became widespread in the twentieth century (Braun, 2009). Some revisionist scholars claim that *vipassanā* as we know it today is an invention of modern times (Sharf, 1995). Such a point is all too easily overstated, but in his balanced study of the antiquity and ubiquity of various Theravada forms of meditation, Lance Cousins concludes, “On the whole, it seems that it is not possible, at present, to trace the lineage of the present-day insight meditation tradition beyond the nineteenth century (in Burma)” (Cousins, 1996, p. 41). Also see Bond (2003).
4. Saki Santorelli jokes that the program’s embeddedness there “bears a very close resemblance to Jonah residing in the belly of the whale” (Santorelli, 2011, p. 215).
5. Conducted by Stuart Eisendrath, MD, and others at UCSF Langley Porter Psychiatric Institute.
6. For an excellent book of brief guided meditations targeting anxiety, see Brantley and Millstine (2008).
7. Though outside of Kabat-Zinn’s lineage and the scope of this chapter, other forms of therapy incorporate some similar techniques as well, such as Dialectical Behavioral Therapy (DBT), a system developed for aiding those with borderline personality disorder by teaching distress tolerance, affect regulation, and cultivation of “wise mind,” as well as Acceptance and Commitment Therapy (ACT), a mindfulness-based psychotherapy that

- emphasizes decision-making based on deep core values rather than momentary emotional vicissitudes, and cultivation of a wider, kinder perspective.
8. In this respect, MBSR is actually quite a bit more *conservative* than the modern, South- and Southeast Asian *vipassanā* movement whence it emerged, which takes the idea of a complete and final liberation from rebirth (*nibbāna*) as something very serious and immediate. “The central idea or belief that distinguishes the lay meditation movement in general [in Sri Lanka] ... from traditionalist Theravada is a belief in the plausibility of arahantship today,” writes Bond (2003, pp. 136–137).
 9. Reporting on the MBSR program in her area, at the Duke Center for Integrative Medicine, Hickey notes that “the class workbook provided to MBSR participants lists numerous Buddhist resources for follow-up support. Identifiably Buddhist teachers authored 26 of the 38 recommended books on stress reduction, mindfulness, meditation, and spirituality. The list of local organizations offering ongoing meditation support includes 13 Buddhist groups in the Raleigh-Durham area. Half of the eight national organizations listed are also Buddhist” (Hickey, 2008, p. 192).
 10. This describes a way in which the behaviorist paradigm can also be reductionistic, but in a different way from the reductionism of medicine. It is the breadth of attention to a wide array of life experience and lack of collapsing certain areas into unexamined “black boxes” that distinguishes mindful awareness and is its strength and contribution to both physical and mental health care. Mindfulness truly brings the perspective of the whole into play in a way that makes available greater resources, and also does not ignore the consequences of the “black boxes,” which, although examined, are nonetheless wreaking havoc and causing consequences that then need to be addressed.
 11. Thanissaro’s Pali spelling, “Dhamma,” has been changed to agree with the Sanskrit spelling, “dharma,” used elsewhere in this chapter.
 12. The exceptions, those organizations that have managed to build a reliable donor base in the West, tend to have been local branches of an Asia-based organization and enjoyed strong financial backing from the old country. An example is the massive Hsi Lai Temple in Hacienda Heights, California, which was built by Taiwan’s Foguang Buddhist Order in 1986 and now is generously supported by the Los Angeles area’s overseas Chinese community.
 13. Teasdale et al. (2000) stress the importance of not trying to apply mindfulness “as a generic technique across a range of disorders without formulating how the approach addresses the factors maintaining the disorder in question.”
 14. Integrative psychiatrists are those who draw from the best of mainstream psychiatry (medications, psychotherapies, ECT, light therapy, TMS, structured programs) and complementary modalities (Ayurveda, homeopathy, Chinese medicine, naturopathy, massage/bodywork, biofeedback, energy medicine, supplements, mindfulness).
 15. Even piggy-backing on all these systems, MBSR still must struggle to keep its place in budget-consciousness hospitals. Kabat-Zinn’s successor as Executive Director for the Center for Mindfulness writes about budget convulsions that he faced in the University of Massachusetts system that would have stressed even a buddha (Santorelli, 2011).

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Acceptance and Commitment Therapy and Mindfulness

Specific Processes, Evidence, and Methods

Lance M. McCracken

Mindfulness-based approaches to human-behavior problems can claim a very long history. This history is in fact considerably longer than the history of clinical psychology or current cognitive behavioral therapy (CBT) approaches within clinical psychology. Yet both mindfulness approaches and cognitive behavioral approaches find themselves in a very similar place in present time. This is especially true for newer variants of CBT, including Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). In fact, both mindfulness and ACT seem to offer surprisingly fresh, often counterintuitive, and sometimes quite radical approaches to human behavior and suffering, in a remarkably similar spirit. The purpose of this chapter is to look at ACT and mindfulness, and particularly to look at what the much newer therapy approach has to say about the longer standing tradition.

One of the earliest areas of research where mindfulness-based treatments were applied is in people with chronic pain (Kabat-Zinn, 1982; Kabat-Zinn, Lipworth, & Burney, 1985). Coincidentally, chronic pain is also one of the areas of physical health where CBT demonstrated some of its earliest success (Turk, Meichenbaum, & Genest, 1983). Those involved in the early developments of mindfulness for chronic pain clearly saw themselves as working within the scope of what was just starting to be called “behavioral medicine.” The term appeared in the title of the first paper published (Kabat-Zinn, 1982) and was in the journal title of the second (Kabat-Zinn et al., 1985). On the other hand, it seems those developing a CBT-based approach for pain within behavioral medicine, in the late 1970s and early 1980s, did not yet register mindfulness as a part of their enterprise. There was no sign of the term “mindfulness” in the contents or index of the first, widely disseminated, full-length book on this topic (Turk et al., 1983). That situation, however, has now shifted (McCracken, 2011). It is now common to see mindfulness included when psychological approaches to chronic pain treatment are reviewed (e.g., Jensen, 2011). In any case, the present chapter will

include chronic pain as the primary research area examined. As mentioned, it is a well-developed area for mindfulness, for CBT in general, and for ACT, and thus provides a relatively rich context of evidence to review.

ACT

ACT is a form of CBT that has been in development since the 1980s, although most of this development has emerged in published form during just the past 12 or 15 years. The key defining feature of ACT is that it focuses principally on enhancing *psychological flexibility*. Psychological flexibility is the capacity to continue with a behavior pattern or change a behavior pattern, within a context of interacting direct and cognitive or verbal influences on behavior, guided by one's goals and desires, and by what is available to do in the situation where one finds oneself (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). This definition acknowledges two sets of influences on behavior: those called "direct" are available in sensory experience, such as in what we can see, hear, and feel; and those called verbal or cognitive depend on relations with verbal or cognitive processes and content, such as in the thoughts, beliefs, interpretations, and judgments of the mind. One of the primary roots of psychological problems in this model is the ways that cognitive content can overwhelm other potential influences on behavior, in a sense insulating behavior from influences outside of cognitive content, and thereby narrowing the range of available behavior. Hence, as an example, when frightened and stuck in frightening thoughts, a person may find they can only do what their thoughts allow, such as avoid, retreat, or disengage. Distressing thoughts in particular have this kind of overwhelming quality that can create stuck patterns of behavior and it is this quality, in part, that ACT aims to neutralize.

ACT includes six processes of behavior pathology: experiential avoidance, cognitive fusion, attachment to the conceptualized self, preoccupation with the future or past, absence of values-based action, and inaction or impulsive persistence. It also includes six related therapeutic processes: acceptance, cognitive defusion, flexible awareness of the present moment, self-as-observer, values-based action, and committed action (Hayes et al., 1999; Hayes, Strosahl, & Wilson, 2012).

Some of the ACT therapeutic processes may be more familiar than others. *Acceptance* is as it sounds: a quality of behavior that entails an opening up to experiences that arise in doing what one chooses to do, and a refraining from attempts to control or block what one feels. *Cognitive defusion* is a process of experiencing thoughts and images not merely as what they contain but as an ongoing process of construction and evaluation in the mind. Defusion means reducing the all-encompassing, overwhelming, entangling, and restricting qualities of cognitive content. *Flexible present-focused awareness* is the moment-to-moment direct contact with sensory experience that is so familiar within mindfulness. *Self-as-observer* is the capacity to take a particular stance or point of view, a sense of self that is aware of one's experiences but not attached to, or defined by, those experiences. *Values* are freely chosen directions or purposes in life that reflect honest desires and can be reflected in ongoing action but are never achieved once and for all. *Committed action* refers to the capacity to act on one's values in a way that can meet barriers and continue, as is reflected in patterns like "choose, fail,

choose again" or "make a commitment, break a commitment, make a commitment" (Hayes et al., 1999, 2012).

ACT is also a form of behavior therapy. As such, the focus in ACT, in terms of outcome, is primarily on behavior change, and not so much on changing feelings and symptoms. The methods used in ACT are largely experience based rather than didactic or instruction based, and include the use of metaphor, paradox, and confusion. They also are action oriented such as "exposure," behavioral activation, direct rehearsal, and the like. The basis for the focus on experiential and action-oriented methods is the notion that if one intends to reduce the dominance of logical, cognitive, or mental influence, one must work outside of these experiences some of the time and enhance the behavior coordinating influences of direct nonverbal experiences. ACT also includes a particular therapeutic relationship, one that is equal, respectful, and compassionate, and can be emotionally intensive (Hayes et al., 2012). When ACT is working effectively, both patient and clinician are bringing openness, awareness, a connection to values, and an active posture to the treatment interactions.

ACT has a growing evidence base of randomized clinical trials in a very wide array of clinical and nonclinical conditions (Hayes et al., 2012; Ruiz, 2010), including chronic pain (e.g., Dahl, Wilson, Nilsson, 2004; Wetherell et al., 2011; Wicksell, Ahlqvist, Bring, Melin, & Olsson, 2008). There is particularly consistent support that treatment results from ACT emerge from changes in ACT-related therapeutic processes (Vowles & McCracken, 2008, 2010; Wicksell, Olsson, & Hayes, 2010) and ACT regarded as an evidence-based approach to chronic pain (American Psychological Association, 2011).

Mindfulness, Outcome, and Process in Chronic Pain

It has become somewhat of a habit to lump acceptance and mindfulness-based treatment for pain together such as in recent meta-analyses (Veehof, Oskam, Schreurs, & Bohlmeijer, 2011) that combined studies of ACT with studies of Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990). Yet combining treatment approaches in this way may lose important distinctions and may mix or blur treatment processes when it is useful to separate them.

The treatment outcome literature on mindfulness and chronic pain is reasonably well populated and growing, even if there remains a relative lack of high-quality RCTs. The consistent findings from reviews of the literature say that mindfulness-based methods appear promising, particularly for improving anxiety and mood, with effect sizes (differences between means expressed in units of standard deviation) around Cohen's $d = .50$ or higher (Baer, 2003; Grossman, Niemann, Schmidt, & Walach, 2004; Hofmann, Sawyer, Witt, & Oh, 2010). The recent review by Hofmann et al. (2010) in particular included five studies primarily focused on pain. In another review of mindfulness approaches in adults with chronic medical conditions, based on eight RCTs, smaller effect sizes were seen, generally around $d = .25$, particularly when relatively higher quality studies were examined (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010). In each of the reviews currently available, it is consistently concluded that additional higher quality studies are needed.

There has been significant interest in understanding the specific mechanisms or processes responsible for the effects of mindfulness-based treatments (Keng, Smoski, & Robins, 2011; Shapiro, Carlson, Astin, & Freedman, 2006). The examination of specific process within mindfulness, it is assumed, may yield ways to enhance the effectiveness of these treatments. There are many potential processes in contention, such as present-centered attention and acceptance of experience (Bishop et al., 2004; Coffey, Hartman, & Fredrickson, 2010), or changes in awareness, metacognitive awareness, attentional control, memory, or behavioral self-regulation (Keng et al., 2011). It is not yet clear which one or ones carry the beneficial impact of mindfulness.

Given the relatively large number of outcome studies of mindfulness-based approaches for chronic pain, there have been surprisingly few that have directly addressed mindfulness per se as a process of change and even fewer that have attempted to separate component process within mindfulness. One example is a study of 174 participants with a range of problems with stress, chronic pain, or anxiety attending a program of MBSR (Carmody & Baer, 2008). In this study, self-monitoring data on home practice showed that the time spent in home practice of mindfulness correlated with improvements in facets of mindfulness, psychological well-being, and psychological symptoms. Also, increases in mindfulness mediated the relationship between home practice and improvements in outcome (Carmody & Baer, 2008). A similar result was demonstrated in another study of MBSR specifically focused on treatment for chronic pain (Rosenzweig et al., 2010). Here, home practice correlated with improvements in psychological distress, somatization, and ratings of general health. Nonetheless, neither of these studies was able to show a specific causal role for any particular subprocess of mindfulness, and the evidence for any particular subprocess is not consistent. It also remains the case that studies like these are relatively rare.

Measuring, disintegrating, and examining the component processes inside mindfulness may be useful and may yield benefits, as we say, in terms of better design of treatment methods, or better assignment of methods based on specific patient behavior problems. It has been suggested that there could be two lines of inquiry for understanding the active process within treatments such as MBSR, one line dismantling the interactive elements in the wider treatment experience, such as social support, relaxation, and other behavior change methods, and the other line looking more closely at mindfulness itself to determine what specific psychological processes of change yield the changes observed in outcome measures (Shapiro et al., 2006). This latter approach seems a promising strategy; however, an earlier attempt to follow this had limited success. It yielded component parts of mindfulness called "intention," "attention," and "attitude," which are indeed consistent with common definitions of mindfulness (Kabat-Zinn, 1990). It also yielded what was referred to as a "meta-mechanism of action," "re-perceiving," also referred to as a "shift in perspective" (Shapiro et al., 2006). This process in turn was likened to processes referred to as "decentering," "intimate detachment," and finally the process within ACT that was already mentioned, cognitive defusion. The only difficulty with this attempt to identify key processes within mindfulness is that it generates additional processes. In turn, some of these subprocesses appear no more precise, accessible, or directly manipulable than mindfulness itself. More to the point, with the exception of cognitive defusion, these subprocesses lack an evidence base, a link with a theoretical framework, or with a

comprehensive set of behavior changes principles. So, even though it is possible to generate a list of subprocesses within mindfulness, these do not necessarily promise significant utility for the design or refinement of treatment methods.

Another way to examine component processes within mindfulness is to examine the components within measures of mindfulness and then to determine which relate most closely to outcomes of interest for people with chronic pain. In a study that did this, based on a sample of 150 people seeking treatment for chronic pain, a 15-item measure called the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) was examined. It was shown that among four components identified, two significantly predicted patients' functioning. These reflected qualities of (1) acting with awareness and (2) keeping contact with the present moment. Of the two, keeping contact with the present had the strongest relations with measures of psychosocial and physical disability, depression, anxiety, and healthcare use (McCracken & Thompson, 2009). This is similar to other general studies of mindfulness where "present-centered attention" and qualities like "acceptance of experience," or processes substantially similar to these, tend to emerge consistently as key components inside mindfulness measures (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Coffey et al., 2010).

In addition to the need to decompose mindfulness into precise active ingredients, there is another challenge for these methods. This challenge is in the breadth or generality of the outcomes they impact. Studies of mindfulness-based treatment methods for chronic pain, and for other conditions, have mainly focused on mental-health outcomes, such as symptoms of anxiety and depression, more so than on activity-related outcomes, such as physical activity and social role performance (Bohlmeijer et al., 2010; Chiesa & Serretti, 2011; Hofmann et al., 2010; Keng et al., 2011). As a result, there is currently a lack of evidence in studies of chronic pain for whether mindfulness-based approaches can change behavior patterns in ways that translate into improved physical and social functioning.

In a study by Schmidt and colleagues (2011), including randomization of 177 women with fibromyalgia to one of three conditions, there was an effect of MBSR observed on a measure of mindfulness itself but no effect on the impact of fibromyalgia on physical activity. Absent or inconsistent effects of mindfulness on physical and social functioning are present in a number of studies (e.g., Astin, Berman, Bausell, Lee, & Hochberg, 2003; Morone, Greco, & Weiner, 2008). Hence, there is generally no strong evidence that mindfulness methods can improve active participation in daily life, such as in general physical activity, work attendance and performance, decreased health care use, and so forth.

It may strengthen and generalize the overall effect of mindfulness methods and improve the practical significance of results to combine these methods more consistently with other methods designed to change and integrate patterns of overt daily activities. There are examples of treatment approaches that are better designed to achieve this in that they consciously combine mindfulness methods with activation and behavior-change methods. One example is Dialectical Behavior Therapy (DBT; Linehan, 1993). Of course, DBT was designed specifically to address borderline personality disorder, although it has been adapted for use with other problems, such as eating disorders and depression (Öst, 2008). It appears there are no published trials of DBT for chronic pain, even though it would seem appropriate and feasible to conduct

a trial (Linton, 2010). Another treatment approach that combines mindfulness-related processes and direct behavior change methods is ACT.

Mindfulness From a Scientific Point of View

As may already appear obvious, one feature of mindfulness today is that it can be defined and applied in many ways, and these ways are not the same. Mindfulness includes, variously, a process of purposeful, present-focused, nonjudgmental awareness (Kabat-Zinn, 1990), “drawing novel distinctions” (Langer, 1989; Langer & Moldoveanu, 2000), self-regulation of attention in the present, acceptance, and openness (Bishop et al., 2004), among other features. Mindfulness-based treatment approaches also differ considerably in the methods used and in the processes proposed to underlie them (Baer, 2003). There is even confusion over whether “mindfulness” is a method, a collection of methods, a process, or a collection of processes (Hayes & Wilson, 2003). Clearly, the word is used interchangeably.

Where definitions of mindfulness converge, the general processes include an open and flexible connection to situations as they are and a relative freedom from judgmental and evaluative influences in language and thoughts. Yet a degree of confusion prevails. Some of the confusion around mindfulness may emerge from its link with meditation practices, and a habit of essentially equating the two (Hayes & Shenk, 2004). If meditation practices represent *the* method for producing mindfulness processes, then mindfulness is limited to only those processes that can be generated within meditation, and meditation becomes the sole access point to mindfulness. If we decouple mindfulness from meditation and define mindfulness in terms of core processes unconstrained by method, then a wider set of methods may be developed to enhance mindfulness. Langer (1989; Langer & Moldoveanu, 2000) did this with her focus on developing greater sensitivity to one’s environment, seeking flexibility in perspective, involving all the senses, creating enhanced capacity for new choices of action, and a nonautomatic quality in action. Of course, these are qualities sought in most other mindfulness approaches except that here, there is a greater focus on external experiences, which is distinct from the relative emphasis on inner sensations, thoughts, and feelings in other approaches to mindfulness, such as those described by Kabat-Zinn (1990; see also Baer, 2003). In ACT, the basic strategy is the same, and meditation is not the primary access point for mindfulness; instead, processes like mindfulness emerge from many varied methods aimed at enhancing processes of psychological flexibility.

It has been pointed out that, in the ideal, new treatment techniques ought to emerge from theoretical principles derived from basic scientific research (Hayes, 2005). With mindfulness, however, this is difficult, as mindfulness and its long tradition of meditation practice existed before modern science itself (Hayes & Shenk, 2004). In fact, with mindfulness, the development strategy appears to be the reverse of this, the methods existed first, and the data follow. The predominant focus on standard methods, such as MBSR, and on the impact of those methods, may not represent the best means to progress the field.

Better progress from across approaches that touch on mindfulness may emerge from studies that examine whether (1) methods impact on theoretically derived processes,

(2) optimal outcomes are produced by these methods, and (3) optimal outcomes are produced based on changes in targeted processes (Hayes & Plumb, 2007; Hayes & Shenk, 2004; McCracken & Vowles, 2013). If the points raised here are valid, and if the field of mindfulness is to progress, what is needed is theoretical integration and a process-focused framework to guide further research and treatment development.

Mindfulness From an ACT Point of View

ACT is said to include a therapeutic model with two sides that together constitute the focus on psychological flexibility. One side is the acceptance and mindfulness side, and the other is the commitment and values-based action side. This integration is useful, as it coordinates and organizes research and treatment delivery around a complete set of influences, those that can present barriers and require loosening, and those that can provide direction and movement and require clarity and application.

On the acceptance and mindfulness side of psychological flexibility are four processes: acceptance, cognitive defusion, flexible awareness of the present, and self-as-observer. In turn, these processes imply capacities to open up to experiences and actively face them with willingness and not defense, to notice the processes of thinking and sit outside the content of thinking, to flexibly remain in contact with the present situation, and to be able to adopt a perspective of nonattachment to verbal constructions of who we are or to other elements of psychological content as a matter of personal identity. Hence, from an ACT point of view, mindfulness is a capacity in behavior that is open to experience, in the present, having thought content and unconstrained by this content, from a conscious point of view. Another way to say this might be to say an open and cognitively defused connection to “I, here, now” (McHugh & Stewart, 2012).

One of the key emphases in ACT is on altering contextually determined influences exerted in language, thoughts, and feelings. Our ordinary day-to-day experience is that our mind is detecting or, in a sense, showing us reality. What we fail to notice most of the time is that our mind is constructing our experience of “reality.” That is, we live most of the time in a world where we, the people around us, and the world around us are fashioned in meaning and influence by our thoughts, judgments, and interpretations. This is sometimes called the illusion of literal language (Hayes et al., 1999). The methods and processes of ACT then are designed to disintegrate this illusion.

Mindfulness methods in general, like methods within ACT, focus on contextual change. They focus on altering the historical and situational frame around psychological events, the frame that gives rise to the influences they exert. In a context of fusion or literality, thoughts overwhelm other experience and “mean” what they say. In a context of experiential control, emotional experiences determine actions and must be changed to guide behavior as one might wish. A way to view mindfulness therefore is as a process of contextual change that alters the influences of psychological events. In mindfulness, viewed this way, literal functions of words are reduced, and words are neither believed nor necessarily followed; they are simply contacted or observed. Likewise, feelings do not occasion the actions they might sometimes occasion, particularly

suppression or avoidance (but also grasping or clinging); they are simply contacted openly, observed, allowed. From this point of view, mindfulness is a way to contact events that reduces the literal and avoidant functions of thoughts and feelings, and enhances the behavior-guiding influences of direct sensory experience.

An advantage of psychological flexibility as a process through which to address mindfulness is that it arises from just the sort of inductive scientific process expected to yield progress for understanding complex human behavior (Hayes & Plumb, 2007; Hayes & Shenk, 2004). This approach has led to the emergence of Relational Frame Theory, for instance (Hayes, Barnes-Holmes, & Roche, 2001). Although a complete account of RFT is well beyond the scope of this chapter, suffice it to say that it is a framework for understanding how thoughts, such as the judgmental and evaluative ones targeted in mindfulness, acquire and transfer psychological influence. The basic concept within RFT is based on the simpler process of operant conditioning extended to verbal behavior. In turn, RFT helps us to understand such things as the inflexible qualities that emerge in instruction-based learning and rules-governed behavior, and the underlying basis for the many ultimately destructive ways humans struggle for control over their thoughts and feelings, a process called *experiential avoidance* (Hayes, Wilson, Strosahl, Gifford, & Follette, 1996). Essentially words and thoughts carry psychological influence, including painful influence, where they do not otherwise exist. Thus, pain and suffering can emerge anywhere—that's one problem. The other problem is that we tend to apply behavior patterns that work in the physical world, such as patterns of control and avoidance, in contexts where they do not work so well, the world of our own memories, thoughts, urges, and feelings.

The wider functional contextual approach encompassing psychological flexibility and its basic science base in RFT is entirely consistent with the de facto emphasis within mindfulness, an emphasis on contextual change, or a change in how events are experienced, not what is experienced per se. Within the science behind ACT and RFT, the assumption of a pragmatic truth criterion and a goal of both prediction and influence of behavior means that it will always look to context for its “explanations” and “causes,” and its means of influence, as it is only in context where influence is possible. Hence, it is not only the de-literalizing approach to thoughts and the openness to experience that are essentially the same within ACT and within the mindfulness tradition; it is this basic philosophical notion, too, this focus on context.

Processes of Psychological Flexibility and Mindfulness in Chronic Pain

It seems that the first published study of an explicitly ACT-related process of psychological flexibility in chronic pain was in 1998 (McCracken, 1998). This was a study of acceptance. The study showed clearly that people with chronic pain who are more open and willing to have the experience are more physically and socially active, and less distressed. By 2009, there were at least 19 published questionnaire-based studies of acceptance of pain (Reneman, Dijkstra, Geertzen, & Dijkstra, 2010) and many laboratory-based studies of the similar processes, all based on ACT.

In a study of 105 consecutive people seeking specialty treatment for chronic pain employing the MAAS, it was shown that mindfulness significantly correlated, as predicted, with pain intensity, depression, anxiety, physical and psychosocial disability, alertness, and pain medication use. It was also shown that mindfulness was correlated with acceptance of pain, $r = .28$, but clearly the magnitude of this relationship suggested that these variables are not entirely overlapping. In regression analyses, it was shown that mindfulness remained a significant predictor of depression, anxiety, and physical and psychosocial disability, independent of the contribution of acceptance of pain (McCracken, Gauntlett-Gilbert, & Vowles, 2007). In a subsequent study, conducted in a separate specialty treatment sample, mindfulness as measured with the MAAS once again correlated with acceptance of pain, $r = .29$, but correlated at a higher level with a measure of general psychological acceptance, the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011), $r = .53$ (McCracken & Zhao-O'Brien, 2010). In this study, once again, mindfulness contributed significantly to the prediction of depression, anxiety, and physical and psychosocial disability, even after acceptance of pain was taken into account, and interestingly, general psychological acceptance also remained a significant predictor after both acceptance of pain and mindfulness were taken into account. What is clear from these analyses is that mindfulness as measured by the MAAS is consistently correlated with acceptance and is not entirely overlapping with it.

In a study of 239 adults with chronic pain seen in general practice in the UK, mindfulness as measured with the MAAS was once again significantly correlated with pain and with emotional and social functioning, with its highest correlation clearly with emotional functioning, $r = .48$, but it was not significantly correlated with physical functioning, $r = .04$ (McCracken & Velleman, 2010). In nine separate regression analyses that included a set of four measures of aspects of psychological flexibility, including mindfulness, mindfulness showed a significant predictive relationship in just three, while acceptance of pain, for example, showed a significant relationship in eight.

Psychological flexibility is more than just acceptance. In later study of 168 patients receiving an interdisciplinary ACT-based treatment for chronic pain, medium to large effect sizes were observed in key outcomes such as depression, anxiety, and physical and psychosocial disability, and in mindfulness, both at post treatment and at a three-month follow-up (McCracken & Gutiérrez-Martínez, 2011). Changes in mindfulness between pretreatment and posttreatment also correlated with changes from pretreatment to follow-up in anxiety, physical disability, and psychosocial disability, but not depression. In subsequent regression analyses, including four measures of psychological flexibility, this time including values-based action as well, change in mindfulness did not make a significant contribution to changes observed at follow-up in any of the five analyses of outcome variables. General psychological acceptance emerged here as the most consistent and strongest predictor of improvements during treatment.

It is clear that mindfulness relates to and appears to interact with cognitive variables like pain-related catastrophizing. For instance, it appears that higher mindfulness may weaken the relationship between pain and pain-related catastrophizing (Schütze, Rees, Preece, & Schütze, 2010). Another study showed that during cognitive behavioral treatment, the relationship between mindfulness and disability, which both change in

a healthier direction during treatment, is mediated by catastrophizing (Cassidy, Atherton, Robertson, Walsh, & Gillett, 2012). This result is similar to that found in cross-sectional analyses where pain-related anxiety was shown to mediate the relationship of mindfulness to physical and psychosocial functioning (Cho, Heiby, McCracken, Lee, & Moon, 2010). As the measure of pain-related anxiety in this study included both avoidance-related and cognitive components, it was suggested that effects of mindfulness may derive from the ways it interacts with and lessens the impact of both of these processes.

So, what is being learned so far in studies of chronic pain, and how might we interpret these findings? For one thing, scores on one particular measure of mindfulness consistently correlate with measures that reflect psychological flexibility, suggesting that they are tapping into similar psychological processes. Yet when we combine measures of different facets of psychological flexibility together, they tend to overwhelm the role of mindfulness as such in relation to health and functioning. They also do this in a way that yields information about processes that are more specific than those typically reflected in measures of mindfulness. Mindfulness-related processes interact with, and seem to alter, the impact of catastrophizing and anxious thoughts and emotional experiences, for example. Within ACT, we refer to the processes that do this as acceptance, cognitive defusion, present-focused awareness, and self-as-observer.

Conclusion

This chapter looked at relations between mindfulness and a form of CBT called ACT. Remarkably, by very different paths, these two approaches arrive at a similar place, a place where effective action is connected to the present, where the context and not only the content of experience are key, and, where there are choices to make, what to control and what to simply watch or allow. There are also differences between these approaches.

Modern science is beginning to dismantle mindfulness methods and experiences into their key component parts. This is being done as a way to understand its active ingredients or processes of treatment. Mindfulness already existed before modern science, so this is the way it goes. ACT, on the other hand, began as an enterprise based on evidence and theory and has progressed as such, building from the bottom up. ACT began with a scientific goal to create a model for the prediction and influence of behavior with precision, scope, and depth, based on direct observations leading to abstracted basic principles (Vilardaga, Hayes, Levin, & Muto, 2009). ACT has a defined overarching therapeutic process, psychological flexibility, and defined subprocesses, each associated with numerous methods already known to target them with relative specificity.

The distinction between mindfulness and ACT in research is important because it is not just different words to say the same thing—it is a strategic difference. In ACT, it is first to understand the processes of verbal regulation of behavior and emotional avoidance, and then create the technology to impact these. In mindfulness, it is to recognize a vast tradition of meditation methods and to attempt to identify what it is they do.

The distinction between mindfulness and ACT in treatment is important, too. As a set of treatment methods based on behavior therapy and CBT, ACT includes an emphasis on behavior change and will naturally integrate methods that produce this change. In a sense, targeting change in patterns of physical and socially situated action is already built into the design of ACT, and skills for doing this are expected within the competencies of those who deliver ACT. In mindfulness-based methods, this type of emphasis on change in behavior is less clear. Based on evidence so far, a greater integration of mindfulness-based methods with methods for change in broader patterns of behavior may yield dividends.

In a way, there is no such thing as mindfulness, and attachment to mindfulness is probably not useful, just as attachment to ACT as it exists today would not be useful. We might view mindfulness and ACT, and their associated “principles” and methods, as potential guiding frameworks or paths for our behavior as researcher and treatment providers. There is a great deal of human suffering and what we might call failures to live life to the fullest. This seems to be a product, in part, of how easy it is to suffer or get stuck when one is equipped with words and thoughts. The question is how to connect with a path for addressing this that guides us best from here.

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Mindfulness Meditation and Relapse Prophylaxis in Unipolar Mood Disorder

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Writing at the end of the 19th century, William James recognized what is taken as a given today, namely that the deployment of attention was fundamental to emotion regulation. James wrote, “the faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will” (James, 1890). Empirical research on attention has succeeded in both characterizing the deleterious effects of wandering attention and documenting the beneficial outcomes associated with specific regimens of attentional training. One area where these insights have been taken quite seriously is psychological models of risk for affective disorder, specifically unipolar depression. In the present chapter, we describe the role of mind wandering and rumination in depression along with the development of Mindfulness-Based Cognitive Therapy (MBCT), an 8-week program that emphasizes attentional training for the purpose of preventing depressive relapse, developed by Zindel Segal, John Teasdale, and Mark Williams. We summarize the empirical support for MBCT and offer preliminary evidence of benefit in novel populations. We conclude by discussing Eastern-derived and social-psychological perspectives on mindfulness training in addressing challenges in health and well-being.

Development of MBCT Against the Backdrop of Recurrent Depression

Major depressive disorder (MDD) remains a daunting mental-health challenge, with lifetime prevalence rates estimated at 2.9–12.6% and lifetime risk estimated at 16.2% (Kessler et al., 2003). MDD is estimated to be the fourth leading cause of premature mortality and disability worldwide and projected to be the second leading cause by 2020 (Murray & Lopez, 1997). MDD was associated with an economic burden of \$83.1 billion in 2000 (Greenberg et al., 2003). A major reason for the scale of the

burden caused by MDD is that, in addition to high prevalence, it is also characterized by relapse, recurrence, and chronicity. Recent estimates project that patients will experience an average of four lifetime major depressive episodes of 20 weeks' duration each (Judd, 1997). Within these projections, however, it appears that not all patients are at equal risk. Prognosis varies significantly between patients with no past history of depression and those who have had multiple recurrences. Those with at least three prior episodes have relapse rates of 70–80% within 3 years, while those patients in their first episode relapse at a rate of 20–30% over a comparable interval (Judd, 1997; Solomon et al., 2000).

With respect to depression management, the American Psychiatric Association (APA) recommends antidepressant medication for a minimum of 6 months and that patients who achieve remission are maintained on a therapeutic dose for 4–9 months beyond the point at which their acute symptoms have subsided in order to prevent a relapse or recurrence (Fournier et al., 2010). Psychotherapeutic alternatives to maintenance ADM are also a critical resource for managing depression, particularly since many individuals experience adverse effects, lose drug potency, or have complex considerations of risk and benefit (e.g., during pregnancy or while nursing; Bockting et al., 2008).

It is against this backdrop that the creators of MBCT initially aimed to develop a prevention-oriented form of cognitive therapy that could reduce relapse risk among those with a history of depression, regardless of whether they improved as a function of taking medication or receiving psychotherapy.

Clues From Traditional Models of Cognitive Therapy: Mood-Linked Cognitive Reactivity and Relapse Risk

The treatment development of MBCT (Segal, Williams, Teasdale, & Gemar, 1996; Teasdale, Segal, & Williams, 1995) was informed by the experimental literature on mood-related cognitive changes in remitted depressed patients. These studies have shown that for recovered depressed patients, mild dysphoria activates thinking patterns similar to those previously present in episode, whereas never-depressed control subjects do not change their thinking style when tested in either euthymic or dysphoric mood (Ingram, Atchley, & Segal, 2011; Segal et al., 2006). There is now good evidence that the thinking patterns evident during dysphoric mood among formerly depressed individuals not only intensify the dysphoric state by escalating self-perpetuating cycles of ruminative cognitive-affective processing (Barnard & Teasdale, 1995; Teasdale, 1999), but also increase significantly the risk of relapse. For example, mood-linked cognitive reactivity is specific to patients with a history of depression and is not found in samples of never-depressed controls (Gemar, Segal, Sagrati, & Kennedy, 2001; Segal, Gemar, & Williams, 1999). Furthermore, formerly depressed individuals demonstrate mood-linked cognitive reactivity following remission achieved through either antidepressant pharmacotherapy or cognitive therapy. Most importantly, patients showing increased mood-linked cognitive reactivity relapsed at a rate of 69%, compared to those with minimal or decreased reactivity,

who relapsed at rates of 30% and 32%, respectively, over an 18-month follow up (Segal et al., 2006). These data underscore the importance of the direct relationship between mood-linked changes in cognitive processing among formerly depressed patients and subsequent relapse.

The task of relapse prevention, therefore, is to preempt the establishment of such dysfunctional processing cycles by fostering metacognitive skills. Metacognitive skills refer to an awareness of, and ability to understand and influence, cognitive processing and play a pivotal role in adaptive emotion regulation (Teasdale et al., 2002). Specifically, it is proposed that the risk of relapse and recurrence will be reduced if patients who have recovered from episodes of major depression can learn, first, to be more aware of negative thoughts and feelings at times of potential relapse/recurrence and, second, to respond to those thoughts and feelings in ways that allow them to disengage from ruminative depressive processing (Nolen-Hoeksema & Morrow, 1991). MBCT was designed to achieve these aims (Segal, Williams, & Teasdale, 2002; Teasdale et al., 1995).

Integrating aspects of cognitive therapy for depression (Beck, Rush, Shaw, & Emery, 1979) with components of the mindfulness-based stress reduction program (MBSR) developed by Kabat-Zinn (Kabat-Zinn, 1990), the focus of MBCT is to teach strategies to reduce future risk for relapse. Individuals are taught to become more aware of thoughts and feelings, and to relate to them in a wider “decentered” perspective as “mental events,” rather than as aspects of the self or as necessarily accurate reflections of reality. It is assumed that the cultivation of a detached, decentered relationship to depression-related thoughts and feelings is central in providing individuals with skills to prevent the escalation of negative thinking patterns at times of potential vulnerability.

The MBCT Program and Core Themes

MBCT is delivered in eight weekly, 2-hr group sessions. Each session begins with a mindfulness practice, whereby participants learn experientially to bring awareness to the present moment and to notice habits of mind, including wandering and ruminating. Following each practice, the group leader engages participants in a process of inquiry. During inquiry, participants are asked what they noticed during their practice, how the practice differed from typical ways of being, and how the practice might be relevant to prevention of depression. Participants next review their experience with the daily home practices. Over the course of the MBCT intervention, participants are asked to practice mindfulness strategies daily. Mindfulness practices include “informal” practice that may involve mindfulness of daily activities (e.g., eating, driving), and practice observing and describing pleasant and unpleasant events including accompanying thoughts, feelings, and sensations. Mindfulness practices also include “formal” practices, such as sitting meditation, body scan, breathing space, and mindful movement.

Most sessions also include a didactic component often utilizing cognitive therapy strategies. Cognitive therapy elements include psychoeducation about the symptoms of depression, involvement of social supports, discussion of the impact of thoughts on

emotions and that thoughts are not facts, and identification and scheduling of daily activities that are nourishing versus depleting.

In this section, we describe core themes of MBCT as they apply within and across sessions. The first session of MBCT highlights the differences between “automatic pilot,” described as mindless or absent-minded reliance on old patterns versus more intentional awareness. A core theme of MBCT is that reliance on automatic, well-worn paths of negative thinking is motivated by the desire to fix or understand depression. However, these attempts actually perpetuate depression. MBCT emphasizes meditation as the process by which participants learn skills to move out of automatic pilot and into mindfulness. For example, MBCT participants practice eating a raisin mindfully at the beginning of the first session. Participants are asked to greet the object of the raisin as if for the first time, drawing on novel versus past observations. Participants discuss how eating mindfully differs from typical ways of eating and how mindfulness changes the nature of the experience of a routine activity. Participants relate how mindless eating may be relevant to times when the mind gets caught up in old patterns of depressive ways of thinking.

The second session begins with a body scan practice, during which old, depressive patterns of thinking and feeling often arise. The in-session practice can be an important opportunity for participants to notice when judgmental, critical, or ruminative thoughts arise. Common reactions to the in-session and home practice are “I did it wrong,” “it was uncomfortable and unpleasant,” or “my mind kept wandering.” The process of inquiry following the practice often helps participants take a step back in order to see this process clearly, and to practice disentangling from an elaborative process and returning attention to the focus of the practice.

By session 3, participants have practiced noticing how busy and scattered the mind can be. Session 3 offers the breath as an ever-present anchor by which participants can bring awareness to the present moment, focusing attention on the mind. Focusing on the breath can be a way for participants to notice their relationship to thoughts, feelings, and sensations that arise. What happens when the mind wanders: is it brought back to the practice gently, or with judgment and criticism? What happens when difficult feelings arise: Are they clung to or pushed away, or noted with openness and acceptance? How does one relate to painful sensations: with curiosity and nonattachment or with an automatic attempt to fix it?

Session 4 sets the stage on which participants begin practicing sitting with negative thoughts, feelings, or sensations, rather than avoiding them or elaborating on them. The core themes of acceptance and nonattachment allow the mind time to identify novel solutions to old problems. By the time an MBCT participant has finished the first four sessions, they will have a sense of the difference between automatic pilot and mindfulness, the ways in which mindfulness can cast light on familiar patterns of thinking and feeling, and how one’s relationship to difficult thoughts, feelings, and sensations can contribute to depression.

The last four sessions of MBCT focus on learning ways to respond skillfully to mood shifts. In session 5, participants begin the practice of turning towards difficulty with openness and acceptance, rather than turning away with aversion. During a formal meditation practice, participants may be instructed to notice painful thoughts, emotions, or sensations, and to say, “It’s ok. Whatever it is, it’s ok. Let me feel it.”

Observing what is present is the first step to deciding how to respond. The practice of noticing and intentionally responding to difficulties contrasts with the automatic, ruminative ways people tend to respond to depressive thoughts by focusing on the experience, causes, and consequences of the difficulty.

In session 6, participants practice noticing thoughts as thoughts, rather than as facts or absolute truths. The practice of identifying thoughts as thoughts often has the liberating effect of fostering a more distanced versus engaged perspective. Participants learn that the first step to dealing with difficult thoughts is to take a breathing space. The idea is that the 3-min breathing space keys participants into a fuller awareness of what is occurring in the present moment, which can reveal a variety of ways to respond.

In the final two sessions (7 and 8), participants learn behavioral steps to take care of depression, including noticing signs of relapse, scheduling activities that bring a sense of pleasure or accomplishment, and maintaining a mindfulness practice. Participants also are invited to write and share with others a “letter” in which they summarize for themselves in the future what they have learned about personalized warning signs and effective steps to care for themselves.

Empirical Support for MBCT

In the first randomized control study of MBCT, participants in remission or recovery from major depression were stratified by recency of recovery and number of past episodes, then randomized to treatment as usual (TAU) or MBCT+TAU (Teasdale et al., 2000). Participants in the TAU group were instructed to seek help as they typically would, while MBCT participants completed the 8-week MBCT group. After 8 weeks, participants in both groups were followed for 1 year and completed bimonthly assessments of relapse/recurrence, and depression symptom severity. Among participants with a history of more than two episodes of depression, MBCT participants in both the intent-to-treat (ITT; everyone randomized) and per-protocol (attended >3 MBCT sessions) samples demonstrated significantly less risk of relapse/recurrence compared to TAU participants. In fact, MBCT per protocol nearly halved the rates of relapse/recurrence among participants with more than two prior episodes.

Ma and Teasdale (2004) aimed to replicate Teasdale et al. (2000) results evidencing relapse prophylaxis effects of MBCT primarily for individuals with three or more prior episodes. Seventy-five formerly depressed participants were randomized to MBCT+TAU or TAU, and followed for 60 weeks. Outcome depended on the number of prior episodes, and such MBCT was a more effective relapse prophylaxis compared to TAU for participants with more than two prior episodes. In the group with three or more prior episodes, 36% of MBCT participants relapsed compared to 78% of TAU participants, corresponding with a large effect size. There were no significant differences in relapse between MBCT and TAU in participants with fewer than three prior episodes. MBCT was more effective at preventing relapse when the relapse was not precipitated by a life event. Next, Ma and Teasdale investigated the ways in which participants with three or more versus fewer than three prior episodes may represent distinct populations. Participants with three or more prior episodes

differed from participants with fewer than three and never-depressed controls on early life experience. Participants with three or more episodes scored significantly higher on parental indifference and abuse than participants with fewer than three episodes, and on parental difference, abuse, and overcontrol compared to never-depressed controls. Never-depressed controls and participants with fewer than three prior episodes did not differ. Additionally, participants with fewer than three episodes differed from those with three or more in that the age of onset of the first major depressive episodes was significantly later.

In an independent replication of MBCT for depression relapse prophylaxis, Godfrin and van Heeringen (2010) randomized participants with three or more episodes of depression to MBCT or TAU. Significantly fewer MBCT participants relapsed over the course of 56 weeks compared to TAU participants. MBCT participants experienced a significantly greater reduction in self-report and interview measures of depression. Additionally, MBCT participants showed a significant increase in quality of life over time, whereas TAU participants did not. Similar research extending MBCT to the Swiss Health Care System and with minimal involvement from MBCT's developers found that remitted participants with three or more prior episodes of depression experienced a significantly longer time to relapse over the course of 14 months compared to participants randomized to TAU (Bondolfi et al., 2010).

Comparing MBCT and Antidepressant Medication

In the first study comparing MBCT with active treatment, Kuyken and colleagues (2008) identified 123 individuals with three or more prior episodes, on maintenance antidepressant medication (mADM), and in full or partial remission. Participants were randomized to either continue mADM or taper off mADM and initiate MBCT, and were followed for 15 months. MBCT was marginally more effective at preventing depression relapse compared to mADM. Additionally, MBCT participants reported significantly fewer residual symptoms of depression, better quality of life, and fewer comorbid diagnoses compared to the mADM group. A cost-effectiveness analysis showed that MBCT was more expensive than mADM for the first year, at which point MBCT became less expensive than mADM.

Segal et al. (2010) tested the efficacy of MBCT and mADM compared to pill placebo for prevention of relapse among depressed individuals treated to remission with ADM. One hundred sixty participants received acute treatment with ADM, of whom 50 failed to remit, 10 withdrew, and 10 remitted but refused randomization to the prevention phase. Remitters were subgrouped into those with stable (i.e., achieved an HRSD score of 7 with no subsequent increase) versus unstable remission (i.e., achieved an HRSD score 7, followed by brief increases in symptoms severity throughout the acute phase of treatment). Thus, 84 remitted depressed participants were randomized to mADM, MBCT, or pill placebo. Among unstable remitters, there were no significant differences in relapse rates between mADM and MBCT, and both groups experienced significantly lower relapse rates compared to pill placebo. Stable remitters, however, showed no added benefit of MBCT or mADM compared to pill placebo.

Extensions to Novel Populations

Because many psychiatric and physical disorders have a prominent emotional component, clinicians have found that MBCT, with its core emphasis on mindfulness skills leading to improved emotion regulation, is a valuable intervention for disorders such as hypochondriasis (Lovas & Barsky, 2010), chronic fatigue syndrome (Rimes & Wingrove, 2013), and tinnitus (Philippot, Nef, Clauw, de Romree, & Segal, 2012), in which stress can play an exacerbating role. MBCT has been extended to other mood-disorder populations, including bipolar disorder. Preliminary research suggests that MBCT may be a feasible and acceptable (Weber et al., 2010) intervention for interepisode symptoms of depression and anxiety (Deckersbach et al., 2012; Miklowitz et al., 2009; Williams et al., 2008).

What Are the Mechanisms of Change in MBCT?

As with any clinical intervention, the theory behind the clinical outcomes achieved may or may not map directly onto the actual mechanisms driving the treatment effect. In MBCT, for example, the daily practice of mindfulness is emphasized, and this might be responsible for its prevention effects. Alternatively, one could point to a number of other helpful features of this treatment that patients receive, such as group support, destigmatization, and psychoeducation, that could also enhance their ability to manage depressive symptoms. To date, only a handful of studies have examined possible mechanisms by which MBCT achieves its clinical effects.

The first mechanisms study of MBCT was conducted by Williams and colleagues, who investigated the effect of MBCT on autobiographical memory, hypothesizing that MBCT's focus on present-moment attention would mitigate the type of overgeneral memory that is characteristic of depression (Williams, Teasdale, Segal, & Soulsby, 2000). MBCT participants demonstrated a significant increase in recall of specific memories and significant decrease in overgeneral memories compared to TAU participants.

A growing body of research has investigated the relationship between mindfulness and rumination in MBCT. In two separate studies, Michalak and colleagues investigated whether MBCT produces significant differences in mindfulness and rumination (Michalak, Holz, & Teismann, 2011) controlling for changes in depression over the course of the 8-week intervention, and whether mindfulness and rumination predict depression relapse during a 1-year follow up period. Rumination (as measured by the RRS) decreased significantly, and mindfulness (as measured by the MAAS) increased significantly over the course of an 8-week MBCT intervention. Both post-MBCT rumination and mindfulness scores predict relapse during the follow-up period. Shahar, Britton, Sbarra, Figueiredo, and Bootzin (2010) found that recurrently depressed patients in remission, receiving MBCT, demonstrated significantly greater increases over the course of the 8-week intervention on mindfulness (as measured by the MAAS), and significantly lower scores on the brooding but not the reflection subscale of the RRS, compared to wait-list controls. In a study by Keune, Bostanov, Hautzinger, and Kotchoubey (2011), recurrently depressed participants were

randomized to MBCT or a wait-list control, and demonstrated significantly greater increases in mindfulness scores (as measured by the FMI), compared to control participants, and marginally significant decreases in rumination scores (as measured by the RSQ).

Kuyken et al. (2010) reanalyzed the findings of a randomized trial they conducted in 2008 study to examine whether changes on a number of specific, theory-linked variables were associated with MBCT's reduction of depressive symptoms over 15 months of follow-up. The two measures they examined were Kentucky Inventory of Mindfulness Skills (Baer, Smith, & Allen, 2004) with subscales that assessed mindfulness skills related to observing, describing, acting with awareness, and accepting without judgment, as well as the Self-Compassion Scale (Neff, 2003). They found that the magnitude of increases in both mindfulness and self-compassion over the 8 weeks of the MBCT program were larger than those observed for patients treated with antidepressants. Changes in these two variables significantly predicted depression levels 13 months later, even after the effects of treatment and background symptoms were taken into account. Because patients who did not acquire mindfulness or the capacity for self-compassion had higher rates of depressive symptoms, this argues strongly for the vital role played by mindfulness and self-compassion in the benefits derived from the 8-week program.

Finally, Bieling et al. (2012) tested a similar set of constructs in those depressed patients who were initially treated with an antidepressant and then, once well, were assigned to receive MBCT, maintenance pharmacotherapy, or a placebo pill as part of Segal et al.'s (2010) study. Participants completed the Experiences Questionnaire (Fresco et al., 2007), which measures a person's ability to observe thoughts and feelings as mental events, without being pulled into their story. This capacity is thought to underlie "metacognitive awareness." Results indicated that patients in MBCT showed increased mindfulness and metacognitive skills over the 8 weeks of the program, whereas those taking an antidepressant or placebo did not. Importantly, these changes were also associated with lower depression scores 6 months later.

Taking these studies as a whole, one could conclude that while no "definitive" mechanism has yet been identified for MBCT's effectiveness, there is converging support that changes in theory-driven variables such as mindfulness, compassion, and metacognitive skills contribute important variance and warrant the time spent in the program building these capacities. Additionally, the comparisons against an equally effective treatment for depression, such as antidepressant medication, suggests that these two equally effective approaches may operate through different pathways. While the mechanisms underlying antidepressant treatment are largely pharmacological, increases in mindfulness, self-compassion, and the active acknowledgment of negative affect are skills more likely to be employed by patients in MBCT.

Connecting MBCT to the Eastern-Derived and Western Psychological Approaches to Mindfulness

The concepts of mindfulness, attentional focus, mindlessness, and automaticity have intrigued researchers of the mind for decades. With the increasing uptake of these

concepts both in the psychological universe and in popular culture, it is not surprising perhaps that the term “mindfulness” has taken on a number of different and often overlapping meanings. If we can assume that there is a measure of agreement on the definition of mindfulness as a state of awareness that comes from paying attention in a particular manner, we can start to delineate some of the differences between the concept as it is applied in the early research on mindfulness conducted in social psychology and more recent studies in both clinical science and neuroscience.

We resonate with Langer’s emphasis on defining mindfulness as a mind state that is antithetical to mindlessness, and the considerable volume of experimental work that illustrates the divergent effects of processing information from these two standpoints is compelling. The ability to switch cognitive sets and adopt a mindful perspective clearly can reveal a wider array of information and choices to people, who, if operating under more habitual routines, may not be aware that such choices exist. An increase in one’s ability to choose or contribute to outcomes has been shown to have beneficial effects on health and is a central goal of many clinically oriented mindfulness therapies (Segal et al., 2002; see also Chapter 1). Consistent with Langer’s model, clinical treatments such as MBCT emphasize novelty-seeking through encouraging patients to pay attention to experience in the present moment as opposed to the filter of assumptions based on prior experience. Langer’s focus on cognitive flexibility also is mirrored in a number of mindfulness programs that encourage patients simply to observe the changing nature of thoughts, sensations, and emotions, and to pause before reacting to a stimulus or provocation. The generation of novelty is also found in mindfulness exercises where the invitation is to do something routine or mundane, but to see what effect paying attention throughout the enactment has on the experience (Kabat-Zinn, 1990).

A point of departure, however, arises when we ask the question: How exactly does one acquire the ability to bring a mindful processing mode online, whether in the service of seeking novelty, cognitive flexibility or engagement? Research from clinical studies suggests that this develops gradually and with sustained practice (Car-mody & Baer, 2008) and that mindfulness meditation is the vehicle by which people acquaint themselves with the existence of this alternative mode and slowly become able to choose it as a preferred response to events in their lives. There is very little written about the procedures or density of practice required to “become mindful” in Langer’s studies of mindfulness, or that it may even require considerable training. The clinical interventions are grounded in an assumption about the importance of sustained practice of both participants and instructors.

Eastern accounts conceive of mindfulness as an ongoing practice, which focuses on awareness of moment-to-moment experience of mental, emotional, and physical events, which differs from typical modes of mind (Grossman & Van Dam, 2011), very much in the way that Langer’s model emphasizes mindfulness as distinct, and perhaps even an antidote to mindlessness. There is a strong, and almost preferred focus on staying with attention at the level of the body to observe the flux and flow of experience (Gunaratana, 2002). This emphasis on somatic awareness may be particularly important for disorders like depression that are centrally defined by cognitive patterns of ruminative thought. Neuroimaging research further implicates the impact of mindfulness training on the role of somatosensory processing of sad events. Individuals with

8 weeks of mindfulness training via an MBSR group demonstrated greater recruitment of brain areas associated with body sensation compared to controls during a sad-mood induction (Farb et al., 2010). In contrast, the social-psychological perspective focuses more on the cognitive aspects of mindfulness and says very little about the role of practice and the need for mental training.

Conclusion

MBCT was developed to prevent depression relapse among individuals with recurrent depression. Research from numerous randomized control trials support the efficacy of MBCT, and preliminary research evidences novel extensions of MBCT. A primary goal of MBCT is to teach participants to identify vulnerability inducing habits of thinking with the relating to them through a metacognitive, present-moment orientation. MBCT is firmly rooted in the eastern-derived view of mindfulness as a form of attentional training that first requires familiarity with the automatic or mindless modes of cognitive processing before consistent practice can acquaint patients with new modes that provide flexibility and adaptive engagement with life's ever-present challenges and opportunities.

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Mindfulness and Anxiety

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The anxiety disorders constitute one of the largest clusters of mental illness. Estimated lifetime prevalence rates for anxiety disorders fall just under 30% in the United States, with individual prevalence rates topping 5% each for social anxiety, generalized anxiety, panic and agoraphobia, and posttraumatic stress disorder (Kessler et al., 2005). In addition, such estimates may exclude the countless individuals who suffer from shorter-term yet equally severe anxiety in response to negative life events, or who experience chronic patterns of anxiety that do not meet the criteria for a diagnosis.

It is not surprising that the growing concept of mindfulness has been applied to anxiety. Kabat-Zinn (1994) identified stress reduction as a stated intervention goal, and anxiety is a closely related experience. The present chapter will review the relationship between anxiety and mindfulness. From the perspective of psychopathology, empirical literature and theoretical models will be analyzed to summarize connections among mindfulness, the experience of anxiety, and the maintenance of anxiety disorders. From a treatment perspective, both theoretical and outcome literature on mindfulness-based interventions will be explored to review the current evidence for mindfulness as a potential treatment for anxiety. In total, it appears that mindfulness may be particularly well suited to elucidate anxiety and effect its reduction.

Definitions of Mindfulness

As discussed elsewhere in this volume (e.g., Chapter 29), definitions of mindfulness differ quite broadly across researchers' therapies and measures, complicating understanding of the topic and interpretations of research results. For example, the widely used Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) measures

mindfulness as a single-factor construct with an emphasis on awareness by reverse-scoring items tapping mindlessness. In contrast, the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) assesses mindfulness through multiple factors, many of which are composed of items originally written with Dialectical Behavior Therapy in mind. The more recent Philadelphia Mindfulness Scale (PHLMS; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008) measures a two-factor version of mindfulness with separate subscales for awareness and acceptance.

Research in our lab suggests that the specific measure of mindfulness used, and particularly the number of factors analyzed separately, can greatly affect the extent of associations between mindfulness and psychological health. Most notably, in an undergraduate sample, the five individual subscales of the FFMQ predicted on average 70% more variance in measures of negative psychological health than did total scores of the FFMQ or the single-factor MAAS (Woodruff et al., *in press*). As a result, we conceptualize mindfulness as having multiple aspects, with a similar view to Kabat-Zinn's (1994, p. 4) definition of "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" or to the definition by Cardaciotto and colleagues (2008) of "the tendency to be highly aware of one's internal and external experiences in the context of an accepting, nonjudgmental stance toward those experiences" (p. 205).

However, other forms of mindfulness may also be valuable in the discussion of the psychopathology and treatment of anxiety and other disorders. E. J. Langer's (1989) social psychological definition of mindfulness emphasizes an ability to tolerate uncertainty and understand context by forming novel ways of approaching material, moving beyond previous ways, and differentiating authoritative opinion from objective truth. In contrast to the operational definition promoted by Bishop and colleagues (2004), which primarily restricts mindfulness to internal experience, the social psychology construct brings a valuable emphasis on external experience to the dialogue. Our lab recently investigated relations between the social psychology version of mindfulness, as measured by the Mindfulness/Mindlessness scale (MMS; Bodner & Langer, 2001), and mindfulness constructs deriving from Eastern influences. The MMS total score correlated .43 and .40 with the describing and nonjudging facets of the FFMQ and .34 with the MAAS. This last correlation was consistent with relations found by Brown and Ryan (2003) during validation. Associations did not reach significance, likely due to a very small sample, but their medium-to-large effect sizes suggest that further study is warranted. In addition, we also examined relations with the MMS's factors of mindfulness and mindlessness that were identified in subsequent study of the questionnaire (Haigh, Moore, Kashdan, & Fresco, 2011). The mindlessness factor exhibited large correlations with the acting with awareness (-.75), describing (-.54), and nonjudging (-.49) facets of the FFMQ and with the MAAS (-.68). It is not surprising that the mindlessness factor of the MMS social psychology measure would exhibit strong inverse links to Eastern-inspired facets that characterize awareness or require it as a precondition. The relation with nonjudging also suggests that a greater tendency to evaluate the appropriateness of thoughts and emotions may be associated with lower tendencies to perceive the changing world or engage in thought-provoking activities. Altogether, while it maintains unique features, the social psychological construct of

mindfulness and its factors appear to overlap considerably with Eastern-inspired versions of mindfulness.

It is worth noting that the various operationalizations of mindfulness in clinical research do not necessarily capture the expansiveness of its Eastern inspiration and its relation to other Buddhist concepts (Rosch, 2007). Thus, we believe it is of the utmost importance to understand which definition or assessment of mindfulness a given study or intervention is employing, in order to properly understand its place within the body of research. At the same time, while the present review emphasizes mindfulness *per se*, it is not meant to imply a lack of appreciation for the importance of other closely related concepts, such as self-compassion (Neff, 2003), psychological inflexibility/experiential avoidance (Bond et al., 2011), or cognitive defusion (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). All of these are valuable in understanding the relation between acceptance-based interventions and psychopathology. There is also great value in blending acceptance-based concepts into existing cognitive-behavioral theory and research. Thus, the following discussions of mindfulness and anxiety will discuss mindfulness with a view toward existing cognitive-behavioral theories of anxiety.

Mindfulness and Anxiety

In one of the most prominent cognitive-behavioral models, anxiety or anxious apprehension is characterized as a forward-looking phenomenon evoked when an individual faces potentially negative events (Barlow, 2002). The anxiety reaction is composed of multiple parts, including self-focused attention, affective arousal, and cognitive biases. During the anxiety reaction, attention is increased toward internal experience; however, this focus may not translate into an increased propensity to perceive bodily sensations accurately (Ehlers & Breuer, 1996). In addition, negative cognitive biases may serve to increase attention toward future potential threats and lead to threatening interpretations of ambiguous stimuli, both of which make danger seem more imminent.

Within this context, anxiety appears to be incompatible with multiple forms of mindfulness. The nature of a forward-looking process is at odds with the present-focused orientation central to the experience of mindful attention, acting with awareness, or the engagement domain of the social psychological mindfulness construct (Langer, 1989). In the same way, the constructs of dispositional mindfulness represented in most research measures (e.g., Baer et al., 2006; Brown & Ryan, 2003; Cardaciotto et al., 2008) tend to include attention to both internal and external events. When not meditating on a specific target, a mindful individual would likely attend to a broad spectrum of experience. E. J. Langer's (1989) concept of mindfulness takes this even further, particularly emphasizing attention to external stimuli. In addition, the objectivity implied by most forms of mindfulness should help a mindful individual assess stimuli with greater accuracy relative to an anxious individual, as the mindful individual may pay greater attention to safe or helpful external elements and demonstrate a stronger ability to understand ambiguity. Thus, on a theoretical basis, several versions of mindfulness appear to include phenomena contradictory to anxiety.

Research over the past decade has supported these assertions. Studies have found negative associations between single-factor constructs of dispositional mindfulness and trait anxiety for the MAAS (Brown & Ryan, 2003; Cho, Heiby, McCracken, Lee, & Moon, 2010; Gonzalez, Solomon, Zvolensky, & Miller, 2009; McCracken & Keogh, 2009; Walsh, Balint, Smolira, Fredericksen, & Madsen, 2009), a single score of FFMQ items (Salmoirago-Blotcher, Crawford, Carmody, Rosenthal, & Ockene, 2011), and the single-factor Freiburg Mindfulness Inventory (Walach, Buchheld, Buttenmüller, Kleinknecht, & Schmidt, 2006; Walsh et al., 2009).

Individual subscales of mindfulness measures have also exhibited significant links with anxiety. The acting with awareness, nonjudging of experience, and nonreactivity to inner experience facets of the FFMQ have been found to predict anxiety negatively (Branstrom, Duncan, & Moskowitz, 2011; Cashwell, Glosoff, & Hammond, 2010). A study in our lab found a similar pattern, as the same three facets significantly predicted anxiety in undergraduate students, after controlling for self-compassion, while the observing and describing facets did not (Woodruff et al., *in press*). Similarly, the validation study of the PHLMS concluded that the acceptance scale, but not the awareness scale, was negatively associated with anxiety in student and general clinical samples (Cardaciotto et al., 2008). From the social psychology perspective, the mindlessness facet of the MMS also exhibited a modest positive correlation with anxious arousal scores in an undergraduate sample (Haigh et al., 2011). In a small sample, our lab found a correlation of .32 between the mindlessness factor on the MMS and anxiety, but virtually no relation between MMS mindfulness and anxiety. Thus, taken together, studies to date suggest that mindfulness components tapping the absence of mindlessness and lower tendencies to judge, reject, or react to experience may be particularly important in understanding relations between mindfulness and anxiety.

In addition, research has indicated that, in contrast to anxiety, mindfulness may be associated with less negativity bias, greater accuracy in detecting interoceptive stimuli, and greater ability to detect external stimuli. Kiken and Shook (2011) found that a brief mindfulness induction influenced negativity bias and accuracy during a categorization task. Participants in the mindfulness group exhibited no negativity bias (while control participants exhibited nonsignificant trends toward bias), and correctly classified significantly more positive stimuli than did those in the control condition. Also supporting links between greater accuracy and mindfulness, Hölzel and colleagues (2008) analyzed the gray-matter concentration of experienced meditators. Results suggested that participants' right anterior insula, which is involved in detecting interoceptive stimuli, had a significantly larger concentration of gray matter in meditators than in nonmeditators. Herndon (2008) also found that mindfulness, as measured by the MAAS, was correlated with a propensity to encode and pay careful attention to information from the external environment. Future research should further address the extent to which external attention may be associated with various constructs of mindfulness, particularly the social psychology construct.

From a treatment perspective, mindfulness interventions have been shown to decrease state or trait anxiety in a variety of populations. Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) is a multiweek group intervention spanning several mindfulness-based activities, such as breath meditations, body scans, and

hatha yoga exercises. MBSR has demonstrated efficacy in reducing anxiety and/or greater anxiety reductions than control groups for patients with chronic pain (Rosenzweig et al., 2010), breast-cancer patients (Tacon, Caldera, & Ronaghan, 2004), breast-cancer survivors (Lengacher et al., 2009), cancer outpatients (Carlson & Garland, 2005; Carlson, Speca, Patel, & Goodey, 2003; Carlson, Ursuliak, Goodey, Angen, & Speca, 2001; Garland, Carlson, Cook, Lansdell, & Speca, 2007; Speca, Carlson, Goodey, & Angen, 2000), heart-disease patients (Tacon, McComb, Caldera, & Randolph, 2003), patients with a lifetime mood disorder (Ramel, Goldin, Carmona, & McQuaid, 2004), fibromyalgia patients (Grossman, Tiefenthaler-Gilmer, Rasz, & Kesper, 2007), heterogeneous medical patients (Reibel, Greeson, Brainard, & Rosenzweig, 2001), and older adults with varied complaints (Young & Baime, 2010).

Originally designed to target depressive relapse, Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002) combines MBSR with more explicit cognitive elements. During clinical trials, MBCT has produced significant decreases in anxiety and/or significant advantages in anxiety reduction over control groups for patients with recurrent depression (Finucane & Mercer, 2006), female undergraduate students in Iran (Kaviani, Javaheri, & Hatami, 2011), outpatients with mixed anxiety and depression symptomatology (Ree & Craigie, 2007), patients with bipolar disorder in remission (Williams et al., 2008), patients reporting hallucination-like experiences (Langer, Cangas, & Gallego, 2010), and older adults with emotional distress (Splevins, Smith, & Simpson, 2009).

In addition, other meditation-based interventions have been shown to demonstrate reduced anxiety in college students (Sears & Kraus, 2009), binge eaters (Kristeller & Hallett, 1999; Smith, Shelley, Leahigh, & Vanleit, 2006), chronic-pain patients (Sagula & Rice, 2004), and patients with attention deficit hyperactivity disorder (Zylowska et al., 2008).

Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) promotes the mindful concepts of acceptance and a present-oriented focus, as well as greater distance from thoughts and feelings, recognition of deeply held values, and commitment to perform actions consistent with these values (for more information on ACT, see Chapter 35). Studies with ACT have shown the therapy to reduce anxiety in outpatients with mixed anxiety and mood symptoms (Forman, Herbert, Moitra, Yeomans, & Geller, 2007), students with math anxiety (Zettle, 2003), patients with chronic pain (McCracken, Vowles, & Eccleston, 2005), and women with body dissatisfaction (Pearson, Follette, & Hayes, 2012).

Compared to Eastern-influenced mindfulness-based therapies, an intervention dedicated to the social psychology construct of mindfulness would seem to look quite different. Instead of employing meditation techniques, a social psychology intervention might emphasize active thought strategies to promote tendencies to view information from multiple perspectives, increase attention to situation and context, and appreciate process more than outcome (Langer, 1989). Thus, while Eastern-inspired interventions may indirectly generate increases in mindfulness as defined in social psychology and vice versa, the treatment methods and emphasis would differ.

Taken together, multiple mindfulness measures have demonstrated inverse relations with anxiety, and mindfulness-based interventions have demonstrated efficacy in improving anxiety across a broad range of settings and populations.

Mindfulness and Anxiety Disorders

Much like the experience of anxiety, individual anxiety disorders also appear to be in conflict with mindfulness as defined in several conceptualizations. Further, there is growing evidence that mindfulness-based treatments may lead to symptom reduction.

Generalized anxiety disorder

The cardinal feature of generalized anxiety disorder (GAD) is worry. In the cognitive avoidance theory, worry is suggested to serve as a strategy to reduce unpleasant affective arousal (Borkovec, Alcaine, & Behar, 2004). The verbal content of worry, it is theorized, provides a somewhat diluted and more palatable alternative to images or bodily sensations. Further work has suggested that excessive reliance on this worry strategy in patients with GAD is driven by underlying deficits in processing emotional information (Mennin, Heimberg, Turk, & Fresco, 2002). These proposed deficits include greater discomfort with both positive and negative emotions, a reduced store of available emotion regulation strategies, and greater intensity of emotional experience. A prominent alternative theory focuses on the role of intolerance of uncertainty (Dugas, Buhr, & Ladouceur, 2004), in which discomfort is more closely related to uncertainty itself than to the negative outcomes that might occur.

These strategies of cognitive avoidance conflict with an accepting orientation toward experience as described in several definitions of mindfulness. Similarly, the social psychological construct of mindfulness (Langer, 1989), by definition, involves appreciation for uncertainty rather than intolerance. Research to date is consistent with an inverse link between characteristics of GAD and aspects of mindfulness. Patients with GAD reported lower levels of mindfulness on the MAAS than matching controls, while mindfulness in a nonclinical population negatively predicted GAD symptomatology above and beyond anxiety and depression (Roemer et al., 2009). In another study, both the nonjudging and acting with awareness facets of the FFMQ were negatively associated with repetitive thoughts, while the observing facet exhibited positive associations (Evans & Segerstrom, 2011). Further, the mindfulness-related concept of detached objectivity was also negatively associated with worry for a sample of students in Japan, a country with a majority Buddhist population (Sugiura, 2004).

With regard to the hypothesized emotional underpinnings of GAD, research also suggests that mindful awareness is associated with fewer emotion regulation difficulties in clinical GAD patients (Roemer et al., 2009). Examining worry, Arch and Craske (2006) studied the impact of a brief meditation induction for naïve meditators on their responses to a series of emotionally arousing images. Compared to a group completing a worry induction, participants in the meditation group reported less overall reactivity and negative affect, and were more likely to tolerate the full collection of negative images. In a sample of community participants, multiple facets of the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) were negatively associated with aspects of emotion regulatory difficulties, particularly the accepting without judgment facet (Vujanovic, Bonn-Miller, Bernstein, McKee, & Zvolensky, 2010). From the social psychology perspective, the MMS subscales of

novelty producing and flexibility were also found to be associated with greater emotional control skills in athletes (Kee & Wang, 2008).

Multiple studies have examined mindfulness-based interventions in the treatment of GAD. In an early study of mindfulness, Kabat-Zinn and colleagues (1992) tested the effects of MBSR on a small group of participants diagnosed with GAD or panic disorder. Significant reductions were found on measures of anxiety, fear, and agoraphobic avoidance. In addition, improvements in anxiety were maintained at a 3-year follow-up (Miller, Fletcher, & Kabat-Zinn, 1995). In a more recent study, community participants receiving MBSR exhibited larger improvements in worry, emotion-regulation difficulties, affective control, self-compassion, and facets of the FFMQ than those in a wait-list control condition (Robins, Keng, Ekblad, & Brantley, 2012). Delgado and colleagues (2010) also compared the effects of a mindfulness-based program to muscle relaxation training in a sample of students reporting high worry. Participants in the mindfulness group exhibited greater increases in emotional comprehension and slower respiratory rates than the relaxation group. However, improvements to worry for the mindfulness group, while significant, were no greater than those observed for the relaxation group.

In a small study testing an MBCT intervention for GAD patients, participants exhibited significant drops in anxiety, worry, and depression, with approximately half falling below the cutoff for clinical significance at study end (Evans et al., 2008). Craigie, Rees, Marsh, and Nathan (2008) similarly examined MBCT for GAD in a slightly larger study. Participants in the intent-to-treat sample reported significant improvements in worry, stress, depression, and one of two anxiety measures, with moderate-to-large effect sizes for each. However, only a quarter of participants demonstrated chronic worry levels consistent with recovery at a 3-month follow-up. Three studies also examined meditation-based interventions in South Korea, a country with a significant Buddhist influence. In a pilot study of an MBCT intervention, pharmacological patients diagnosed with GAD or panic disorder demonstrated significant improvements in worry, anxiety, and rumination, with large effect sizes for each (Yook et al., 2008). In a larger study with a similar population, MBCT generated greater improvements in multiple measures of anxiety, phobia, and obsessive compulsivity than did an anxiety-education program (Kim et al., 2009). A third study of a different meditation-based program had slightly different results, as participants' scores decreased for multiple measures of anxiety, but not for measures of phobia or obsessive compulsivity (Lee et al., 2007).

Roemer and Orsillo (2007) performed a small open trial of Acceptance-Based Behavior Therapy (AABT) for patients with GAD. The treatment combined aspects of ACT and other acceptance-based interventions with CBT to reduce experiential avoidance. Following the intervention, significant decreases were found in clinical severity, anxiety, stress, and depressive symptomatology, with increases in quality of life. The efficacy of AABT was further analyzed in a wait-list-controlled trial (Roemer, Orsillo, & Salters-Pedneault, 2008). Compared to controls, AABT participants exhibited decreased GAD severity, worry, stress, and depression. In addition, the experimental group demonstrated increases in the hypothesized mechanisms of change of experiential avoidance and mindfulness on the MAAS. Approximately 80% of participants exhibited subclinical GAD symptomatology by the study end. A follow-up

study on potential mechanisms of change in ABBT found that increases in one-item measures of acceptance and valued activities significantly predicted responder status (Hayes, Orsillo, & Roemer, 2010).

Taken together, research on mindfulness-based interventions for GAD has consistently shown improvements in anxiety and worry. However, with a scarcity of studies comparing mindfulness interventions for GAD to other active therapies, it is unclear how or if these treatments may be superior to more established treatment approaches. Future studies should examine the benefits of mindfulness-based interventions relative to other treatments, as well as the durability of improvements and client characteristics that may influence effectiveness.

Social anxiety disorder

Two prominent cognitive-behavioral models of social anxiety disorder (SAD) can be related to mindfulness concepts. According to Clark and Wells (1995), prior to entering a threatening social situation, individuals begin recalling previous social embarrassments. As anxiety increases, self-focused attention also increases toward interoceptive stimuli, and individuals use these stimuli to create a flawed depiction of their external appearance. Meanwhile, attention to external stimuli is minimal, while safety behaviors, such as the avoidance of eye contact or low speech volume, are employed to minimize exposure to the situation. Finally, after completing the social event, individuals engage in postevent processing, during which they rehash the situation, again based upon flawed estimates of performance. Similarly, Rapee and Heimberg (1997) also described the formation of a mental representation, in this case with significant attention given toward external cues. As individuals attempt to ascertain success or failure in meeting the expected standards of the audience, they are inordinately swayed by potential negative feedback. Anxiety increases as individuals perceive greater discrepancy between the audience's expectations and their own self-representation.

In both models, attention in those with social anxiety appears to shift involuntarily along with an experience of self-judgment and evaluation. This is in contrast to a mindful focus on paying attention "on purpose" without judgment (Kabat-Zinn, 1994). In addition, the prominent role of safety behaviors and pre- and postevent processing in the Clark and Wells model also stand in contrast to an accepting present-moment orientation toward experience. At the same time, the ability to take multiple perspectives, as described in the social psychology mindfulness conceptualization (Langer, 1989), could help counteract maladaptive aspects relating to the external sphere. For example, this flexibility may lead a speaker to assess audience reactions or expectations more accurately.

Research findings are consistent with a hypothesized link between social anxiety and lower levels of mindfulness. In our lab, a study on undergraduates and social anxiety traits found that the nonjudging facet of the FFMQ was negatively associated with self-focused attention, self-consciousness, and negative thoughts of social interaction, positively associated with positive thoughts, and unrelated to an external focus of attention (Hindman et al., 2009). Acting with awareness and nonreactivity showed less consistent relations in the same direction, while the observing facet was

significantly associated with *greater* self-consciousness. In a study of undergraduate speech anxiety, we found the acceptance facet of the PHLMS and describing facet of the FFMQ both to be associated with less discrepancy between participants' self-ratings of anxious behaviors and observer ratings (Woodruff, Crowley, Hindman, Arnkoff, & Glass, 2010).

Mindfulness, as measured by the MAAS, has exhibited negative relations with social anxiety in university and community settings (Brown & Ryan, 2003). Additionally, in a study of a Dutch translation of the KIMS (Dekeyser, Raes, Leijssen, Leysen, & Dewulf, 2008), all subscales except observing were consistently related to less reported distress during situations requiring social assertiveness and to less vulnerability to distress contagion. All four subscales were also associated with a greater frequency of participating in such situations. More recently, the construct of social anxiety acceptance was found to exhibit inverse relations with multiple measures of social anxiety symptomatology and to predict less chronic thought suppression, after controlling for social anxiety severity (MacKenzie & Kocovski, 2010). (For a more extensive discussion of mindfulness and social anxiety, see Chapter 38.)

Several mindfulness-based interventions have been examined for the treatment of SAD. In a study comparing MBSR to cognitive-behavioral group therapy (CBGT), participants completing an MBSR course demonstrated significant improvements in all outcome measures, including social fear, avoidance, clinician-rated severity, interpersonal sensitivity, depression, and quality of life with moderate-to-large effect sizes on an intent-to-treat basis (Koszycki, Benger, Shlik, & Bradwejn, 2007). However, these improvements were significantly less than in CBGT for multiple measures. Goldin, Ramel, and Gross (2009) studied the impact of an MBSR intervention on SAD participants, including an analysis using brain imaging. The participants demonstrated significant decreases in social anxiety, state anxiety, depression, and rumination, and increases in self-esteem. Moreover, fMRI images revealed a change in neural patterns consistent with a reduction in aspects of self-related processing, a key SAD characteristic. A further study found that SAD participants treated with MBSR exhibited lower amygdala activity, indicative of lower emotional reactivity, during a breath-focused attention task (Goldin & Gross, 2010).

A treatment blending ACT and MBCT was tested in a group format for participants diagnosed with SAD (Kocovski, Fleming, & Rector, 2009). Improvements were observed for multiple measures of social phobia, depressive symptomatology, and rumination with large effect sizes for each, while clinically significant change was observed in approximately 40% of participants. In addition, MAAS mindfulness and all KIMS subscales except observing increased significantly, while experiential avoidance decreased. Improvements in experiential avoidance and the KIMS scale of accepting without judgment exhibited high correlations with improvements in SAD symptomatology, while mindfulness on the MAAS demonstrated a moderate correlation. An ACT-based group therapy was also tested with a small group of patients seeking treatment for social anxiety (Ossman, Wilson, Storaasli, & McNeill, 2006). Treatment completers exhibited significant decreases in social anxiety, although these positive outcomes were tempered by the intervention's unusually large dropout rate. Finally, patients with SAD completed an extended treatment blending ACT with exposure therapy (Dalrymple & Herbert, 2007). Participants exhibited improvements in social anxiety, social fears, social avoidance, and fear of negative evaluation. Changes in

experiential avoidance were consistent with a pattern of mediation for social anxiety symptomatology, as decreases in experiential avoidance were associated with, and preceded, symptom improvement.

Thus, multiple mindfulness interventions appear to have generated improvements in core symptomatology of SAD. However, the only study comparing a mindfulness intervention to a first-line SAD treatment found superior results for the latter (Koszycki et al., 2007). Future studies should do more to examine comparisons between mindfulness interventions and established CBT interventions for the treatment of social phobia.

Posttraumatic stress disorder

According to emotion-processing theory, PTSD symptomatology stems from pathological informational structures of fear (Foa & Kozak, 1986). These structures, which persist when chronic avoidance is practiced, maintain negative reactions to otherwise harmless stimuli. Thompson, Arnkoff, and Glass (2011) conclude that substantial theory and empirical research supports an association for trauma resilience with mindfulness and acceptance. Increased mindfulness and acceptance may reduce the impulse to avoid negative emotional experiences, and allow for the recognition of the fleeting nature of many trauma-related symptoms. Furthermore, a present focus is contradictory to future and past-oriented repetitive thought patterns that may otherwise occur in PTSD (Follette, Palm, & Pearson, 2006). The social psychology version of mindlessness, characterized by a failure to recognize changes as they occur (Langer, 1989), would also seem to prolong the maladaptive persistence of fear structures.

There is growing empirical evidence to support these assertions. Mindfulness on the MAAS significantly predicted less PTSD symptomatology in firefighters above and beyond demographics and job-related variables (Smith et al., 2011), and less PTSD symptomatology and anxious arousal in trauma-exposed smokers above and beyond the number of traumatic events (Bernstein, Tanay, & Vujanovic, 2011).

However, studies considering multiple facets suggest that individual components of mindfulness may have differential relations to PTSD. In a comparison of combat veterans with and without PTSD, groups actually reported equal levels of mindful awareness on the MAAS, while the KIMS accepting without judgment facet was lower in PTSD patients and predicted less severity on all three PTSD symptom clusters, above and beyond combat exposure (Wahbeh, Lu, & Oken, 2011). In a sample of trauma-exposed individuals without an Axis I disorder, the KIMS accepting without judgment facet negatively predicted total PTSD symptoms and all three PTSD symptom clusters above and beyond negative affectivity and number of trauma experiences, while acting with awareness predicted only reexperiencing symptoms (Vujanovic, Youngwirth, Johnson, & Zvolensky, 2009). Further, in an undergraduate sample, the nonjudging facet of the FFMQ was the most robust predictor of PTSD avoidance symptoms above and beyond other constructs of avoidance, such as experiential avoidance, thought suppression, or alexithymia (Thompson & Waltz, 2010).

Similar patterns were also observed in two studies on coping motives of substance use in trauma victims. In a community of participants reporting trauma exposure, only the accepting without judgment subscale of the KIMS negatively predicted a tendency

to drink for coping purposes above and beyond alcohol use, PTSD severity, and other drinking motives (Vujanovic, Bonn-Miller, & Marlatt, 2011). Accepting also partially mediated links between PTSD severity and alcohol use as a coping mechanism. Results were similar for a study on marijuana use. PTSD symptomatology was predictive of less accepting without judgment, above and beyond marijuana use, negative affectivity, and all other aspects of mindfulness on the KIMS (Bonn-Miller, Vujanovic, Twohig, Medina, & Huggins, 2010). It also appeared to partially mediate the relationship between PTSD symptomatology and marijuana coping motivations.

One study produced in collaboration with members of our lab used script-driven imagery of trauma experiences to explore links between FFMQ facets of mindfulness and PTSD symptomatology in female assault victims (Thompson et al., 2010). Following the task, nonjudging of experience exhibited inverse relations with PTSD avoidance, while nonreactivity to inner experience was associated with *higher* emotional arousal. This underscores that the benefits of mindfulness in PTSD may be more closely linked to an individual's relation to experience (e.g., concern over emotional arousal) rather than to the nature of that experience (e.g., degree of arousal).

Taken together, the acceptance aspect of mindfulness, in particular, has been consistently linked to a lack of PTSD symptomatology. This is consistent with theory, which identifies the seemingly opposite phenomenon of chronic avoidance as the core factor maintaining pathology (Foa & Kozak, 1986). Due to the cross-sectional nature of the studies, it is unclear if high mindfulness may be a buffer against PTSD or if low mindfulness may be a consequence of psychopathology. When dividing trauma-exposed adults into groups based on mindfulness levels, Bernstein et al. (2011) found that variance in symptom severity and diagnostic status suggested that high levels of mindfulness were consistent with patterns of resilience to PTSD, while low levels were not consistent with a similar pattern of vulnerability.

Much less is known about mindfulness-based interventions as potential treatments for PTSD. MBSR was examined for the treatment of PTSD symptomatology in a sample of war veterans (Kearney, McDermott, Malte, Martinez, & Simpson, 2012). At a 6-month follow-up, approximately half of the participants demonstrated clinically significant improvements in PTSD symptoms, and over a third had clinically significant improvements in mental components of quality of life. In addition, mindfulness (as measured by the total score of the FFMQ) appeared to fully mediate improvements in PTSD symptoms, mental health, and physical health. Given the significant cross-sectional evidence of a negative relation between mindfulness and PTSD symptomatology, we look forward to more interventions testing mindfulness interventions as a potential treatment or preventive method for PTSD. For the latter, we believe studies comparing mindfulness interventions to other established treatments such as prolonged exposure or cognitive processing would be particularly useful.

Obsessive-compulsive disorder

In his model of obsessive-compulsive disorder (OCD), Salkovskis (1998) argued that intrusive thoughts cross the threshold of obsessiveness based upon the degree of threat and negativity ascribed to the thoughts themselves. In other words, while those

who can be classified as having obsessional thoughts may experience similar types of thoughts as nonclinically disturbed individuals, only the former are greatly distressed by them. The Obsessive Compulsive Cognitions Working Group (1997) further proposed six central areas of OCD: overestimating the importance of thoughts, controlling thoughts, a bias toward threat, intolerance of uncertainty, overestimating responsibility, and perfectionistic tendencies.

Broadly, the propensities to control thoughts and to fear them are at odds with the acceptance aspect of multiple definitions of mindfulness (e.g., Baer et al., 2006; Cardaciotto et al., 2008), in which thoughts would be received openly. In addition, the social psychological construct of mindfulness, in particular, is contradictory to intolerance of uncertainty, as tolerance for ambiguity is one of its features (Carson & Langer, 2006). However, research examining mindfulness and OCD in clinical populations is scarce. In a study on obsessional thoughts in undergraduates, all subscales from an abbreviated version of the FFMQ except observing were negatively associated with greater emotional and behavioral reactions to recurring thoughts (Berry, May, Andrade, & Kavanagh, 2010). Examining an inpatient sample, Argus and Thompson (2008) found that mindfulness on the MAAS was inversely related to perfectionism, a theorized feature of OCD. Mindful awareness also partially mediated the association between perceived underperformance and depression severity.

There is greater research to support the link between OCD and thought suppression, a concept antithetical to mindfulness, according to most conceptualizations. Thought suppression, that is, the attempt to control thoughts, and thought action fusion, that is, the failure to differentiate thoughts from actions, were found to be associated with greater obsessive-compulsive symptomatology in a nonclinical sample (Marcks & Woods, 2007). Potential reasons for this phenomenon are varied. Some research (e.g., Tolin, Abramowitz, Przeworski, & Foa, 2002) has suggested that suppression strategies actually cause OCD patients to exhibit increases in the thoughts they are attempting to avoid. Other research found no evidence that thought-suppression strategies led to increased thought frequency in OCD, but negative appraisals of thought recurrence, which are contradictory to the nonjudgment aspect of mindfulness, were associated with greater discomfort and negative mood (Purdon, Rowa, & Antony, 2005). A further study also found negative appraisals of thought reoccurrence to be associated with more negative mood in OCD, while actual time spent on the thought was unrelated to mood (Purdon, Gifford, McCabe, & Antony, 2011). Patients with OCD also exhibited a greater tendency than healthy controls to attribute the failure of thought-suppression strategies to persistent internal factors of themselves ("there is something wrong with my mind") or to the task itself ("my thoughts are uncontrollable"; Tolin, Abramowitz, Hamlin, Foa, & Synodi, 2002). Thus, there is evidence to suggest that OCD may be particularly associated with distress from experiencing thoughts, which is the opposite of mindful acceptance. The implied relationships between mindfulness and thought suppression should be investigated with a clinical population.

In addition, minimal research has explored mindfulness-based interventions as potential treatments for OCD. In a pilot study, nonclinical student participants in a mindfulness intervention exhibited significant decreases in OCD severity and thought-action fusion, and increases in "letting go" and mindfulness on the

Mindfulness Questionnaire (Chadwick et al., 2008), while a wait-list control group demonstrated no changes (Hanstede, Gidron, & Nyklicek, 2008). A randomized controlled study compared ACT to relaxation training in the treatment of OCD (Twohig et al., 2010). The ACT intervention yielded clinically significant improvement on OCD symptomatology for approximately half of the participants (vs. far fewer in the relaxation group) and greater improvements in depressive symptomatology. Participants in the ACT group also exhibited larger decreases in thought control and larger increases in psychological flexibility, willingness to engage the present, and willingness to act regardless of difficult internal experiences. Future studies should compare mindfulness interventions to exposure and response prevention, the most favored OCD treatment (March, Frances, Carpenter, & Kahn, 1997), and examine the potential facilitatory role of mindfulness interventions as adjuncts to exposure therapy (Hannan & Tolin, 2005).

Panic disorder and agoraphobia

Theories of panic disorder (PD) also intersect with concepts of mindfulness. Anxiety sensitivity, the extent to which anxiety symptoms are perceived to have harmful outcomes across multiple domains, has been implicated as a potential vulnerability factor for PD (Reiss, 1980). Somewhat similarly, interpreting interoceptive stimuli as suggestive of strongly negative consequences, such as impending death or loss of sanity, has also been proposed as a key element of panic (Clark, 1988). In both cases, the process of assigning negative consequences to bodily sensations is purported to maintain the disorder and drive continued behavioral avoidance. These tendencies are contradictory to a nonjudging orientation that encourages the perception of bodily sensations without judgment, and greater awareness is consistent with greater interoceptive accuracy. In addition, the failure to detect changes in the world, as described in the social psychology concept of mindlessness, could increase the likelihood that an individual fails to recognize normal variations in anxious bodily sensations as routine physical experiences.

In a study of anxiety sensitivity and mindfulness (as assessed by the MAAS), results suggested that positive associations between anxiety sensitivity and both anxious arousal and agoraphobic cognitions may be larger in participants with lower trait mindfulness (Vujanovic, Zvolensky, Bernstein, Feldner, & McLeish, 2007). The interaction was not significant for body vigilance or depressive symptomatology, suggesting that the interaction may have reflected a targeted effect for only certain selected aspects of PD and not general dysphoria. In addition, evidence suggests there also may be a direct relation between mindfulness and anxiety sensitivity (McKee, Zvolensky, Solomon, Bernstein, & Leen-Feldner, 2007). In particular, anxiety sensitivity was negatively associated with the mindfulness subscales of acting with awareness and accepting without judgment on the KIMS, but not observing and describing.

Eifert and Heffner (2003) studied the impact of a brief acceptance induction on response to a high carbon dioxide inhalation exercise. Participants, who consisted of women with high anxiety sensitivity, reported less cognitive distress and exhibited fewer signs of task avoidance in the acceptance induction group as compared to an

induction designed to reduce symptomatology, while physical symptomatology did not differ. Additionally, Levitt, Brown, Orsillo, and Barlow (2004) found that PD patients completing a similar challenge task also reported less subjective anxiety and exhibited fewer avoidant tendencies when following acceptance-based coping directions than suppression-based coping directions. One study also found experienced meditators to have a greater concentration of gray matter in areas associated with interoceptive awareness (Hölzel et al., 2008). Arch and Craske (2010) tested mindfulness scores on the MAAS as a predictor of response to a laboratory hyperventilation task across samples of participants with and without any anxiety disorder. Above and beyond anxiety and depression-related symptoms, trait mindfulness was predictive of less discomfort, less negative affect, and greater willingness to engage in hyperventilation for a longer amount of time. Higher trait mindfulness also predicted a greater ability to relax during a relaxation task for participants endorsing high anxiety sensitivity.

To date, studies seem to support a link between acceptance or nonjudgment and fewer panic symptoms. Further research with clinical populations and greater use of multifaceted measures of mindfulness would provide more information on the links between specific aspects of mindfulness and PD.

Only one study has investigated a mindfulness intervention with PD patients. Kim et al. (2010) examined MBCT in combination with pharmacotherapy for participants diagnosed with PD in South Korea. Following the program, participants exhibited significant decreases in all measures spanning panic severity, anxiety, anxiety sensitivity, and specific interoceptive fears. In addition, the relapse rate was very low at a 1-year follow-up. Due to the hybrid treatment approach and a lack of group differences on the Korean version of the MAAS, which was possibly affected by measurement error, the specific source of improvement was unclear. Many more studies are necessary to determine if the clear theoretical justification for applying mindfulness interventions to panic is accompanied by measurable treatment gains, and these interventions should be compared to established therapies such as Panic Control Treatment (Barlow & Craske, 2006). Mindfulness interventions may also be well suited to increasing the effectiveness and palatability of existing CBT interventions for PD (Levitt & Kerekla, 2005).

Conclusions

Taken as a whole, theory and research suggest that different constructs of mindfulness may be incompatible with anxiety and individual anxiety disorders in a variety of ways. At the same time, different components of the same mindfulness constructs appear to exhibit differential relations with anxiety. Across the literature, aspects of mindfulness relating to acceptance, nonjudgment, and the avoidance of mindless states appear to be most consistently linked to a reduction of anxiety or anxiety disorder symptomatology. As would be expected, there is far less clinical research on the social psychology version of mindfulness. However, there is considerable reason to believe that its shared and unique aspects may provide value in understanding the etiology and potential abatement of anxiety. We suggest that anxiety researchers integrate the MMS into studies,

to learn more about how various aspects of cognitive flexibility and active thinking may relate to anxiety.

While the treatment outcome literature on mindfulness-based interventions for anxiety disorders is relatively limited to date, early results are encouraging overall. Mindfulness-based interventions have consistently produced decreases in anxiety across a broad range of populations and improvements to the core symptomatology of GAD and SAD. However, much less is known about the efficacy of mindfulness as a treatment for the remaining anxiety disorders. Moreover, across all anxiety disorders, there is a paucity of research comparing mindfulness interventions to well-established CBT interventions, in both their targeted (e.g., anxiety symptomatology) and broad-based (e.g., quality of life) effects. We believe that closing this information gap should be a top priority for future treatment research in this area.

At the same time, mindfulness interventions may also hold particular promise as an add-on to more traditional CBT interventions, possibly promoting greater acceptance, increasing the impact of exposures, or providing a more palatable entree into difficult treatment components (e.g., Hannan & Tolin, 2005; Levitt & Karekla, 2005). Further, existing treatment research is almost exclusively dedicated to the group modality. Future research is needed to examine the efficacy of mindfulness in the individual therapy environment, where it is undoubtedly being used by many clinicians. Finally, more studies integrating mediational analysis are necessary to determine whether increases in mindfulness are responsible for the improvements observed from mindfulness interventions. This includes mediation research with the social psychology definition of mindfulness; this type of mindfulness is likely to increase during interventions, even if not explicitly targeted. Such studies would help identify the essential treatment components of mindfulness for anxiety and further unite mindfulness constructs from different researchers and fields.

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Putting the Self in Context

A Mindful Approach to Social Anxiety

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Social anxiety disorder (SAD), termed “social phobia” in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)*; American Psychiatric Association, 2000), is characterized by fear and avoidance of one or more discrete social situations such as public speaking, eating, or writing in front of others. Interpersonal or social performance situations are avoided or endured with intense discomfort, as individuals with SAD describe concerns that they will act in a way that is humiliating or embarrassing, or report other emotional consequences resulting from fear of negative evaluation. The National Comorbidity Survey-Replication (Kessler, Chiu, Demler, & Walters, 2005) found SAD to be the second most common psychiatric disorder in the United States with a 12-month prevalence rate of 6.8% and a lifetime prevalence rate of 12.1%. The majority of individuals reported eight or more feared situations, with public speaking and speaking up in a meeting/class ranking as most commonly feared (Ruscio et al., 2008).

SAD is associated with impairment in multiple areas of functioning, including restricted social relationships (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992), low social support (Schneier et al., 1994), poorer quality of life (Wong, Sarver, & Beidel, 2012), as well as increased risk for suicide (Katzelnick et al., 2001), and comorbid psychological disorders including depression and substance abuse (Keller, 2003). Studies also have documented high rates of outpatient medical treatment and indirect costs to society such as lower educational attainment, occupational attainment, and income, as well as greater impairment in work and home productivity (e.g., Katzelnick et al., 2001). Despite the high prevalence rates and extent of suffering and impairment associated with SAD, only about half of those suffering from it ever seek treatment (Wang et al., 2005), and without intervention, SAD tends to follow a chronic, unremitting course (Ruscio et al., 2008). Given the costs to the individual and society at large, SAD is considered to be a major public-health concern (Kessler, 2003) and deserving of research dedicated to innovations in conceptualization and treatment

of the disorder. Newer treatment approaches that contextualize SAD symptomatology represent one such innovation, and, since social anxiety symptoms have been found to correlate negatively with self-report measures of mindfulness (Rasmussen & Pidgeon, 2011), researchers have begun to examine mindfulness-based treatment approaches for SAD.

Mindfulness and SAD

In clinical psychology, from the earliest definition by Kabat-Zinn (1994) through Bishop and colleagues' (2004) consensus paper, mindfulness has been conceptualized as a psychological process with both awareness and attitudinal components: paying attention, in the present moment, with acceptance. This type of process definition both orients clients to its meaning and offers insight into its cultivation. It also helps tailor the intervention to the client's needs, such that awareness can be emphasized to address anxious apprehension or acceptance to counteract heightened self-criticism. Empirical evidence supports that these two components are independently related to mental-health variables, including social anxiety (Johnson, Winch, Cardaciutto, Block-Lerner & Moon, 2011).

Awareness and attention

The awareness component of mindfulness can be characterized as a continuous monitoring of the totality of experience (Cardaciutto, Herbert, Forman, Moitra, & Farrow, 2008). Mindful awareness focuses on the present moment, rather than the past or the future, and is similar to the Buddhist notion "bare attention" in which the mind is unbiased by conceptual thought (Gunaratana, 2002). It is understood to permit a noninterference with experience, greater choice over whether to engage and disengage in cognitive and affective content, and greater attentional flexibility (Brown, Ryan, & Creswell, 2007). During the continuous monitoring of experience, awareness can be heightened, and through the process of attention, awareness is focused on selected aspects of experience, continually pulling "figures" from the "ground" of awareness (Brown & Ryan, 2003).

The awareness component of mindfulness is particularly relevant to SAD, in that research has found heightened awareness both internally towards the self and externally towards threat cues. A multifaceted construct encompassing various types of heightened internal awareness is self-focused attention, defined as "an awareness of self-referent, internally generated information" (Ingram, 1990, p. 156). The content of self-focused attention may therefore consist of a range of stimuli including physiological sensations, thoughts, and emotions. Although self-focused attention is neither solely nor necessarily associated with negative psychological outcomes (Mor & Winquist, 2002), several studies have found a relationship between heightened self-focused attention and social anxiety (see Spurr & Stopa, 2002, for a review). Concerning heightened awareness directed externally, results from several methodologies provide support for the presence of hypervigilance to external threat cues in SAD

(Bögels & Mansell, 2004). For instance, individuals with SAD direct their gaze to angry faces more quickly than those without SAD (Gamble & Rapee, 2010). They also tend to look more quickly at emotional (i.e., angry) than neutral faces, a difference that is not found to the same degree in control participants (e.g., Garner, Mogg, & Bradley, 2006).

Collectively, these findings provide support for heightened awareness of both internal and external stimuli in SAD, which are considered to be factors that contribute to the maintenance of the disorder. In a meta-analysis examining the relationship between self-focused attention and negative affect, Mor and Winquist (2002) propose three factors that may moderate this relationship: context (i.e., the situation during the attentional process), valence (i.e., negative aspects of the self), and type (i.e., awareness of one's appearance to others). However, these factors account only for the environmental context and the content of the awareness, neglecting the internal context in which the awareness is held. Specifically, if anxious thoughts, feelings, and perceptions of threat are experienced within the context of judgment and unwillingness, the stimuli can become even more aversive, painful secondary emotions such as shame may emerge, and attempts to control and avoid experience can result. However, if the same stimuli are experienced in the context of nonjudgment and compassion, additional suffering and secondary negative emotions are less likely. In other words, awareness in and of itself is neither beneficial nor harmful, but is influenced by presence of the second component of mindfulness, acceptance.

Acceptance

Acceptance has been defined as “experiencing events fully and without defense, as they are” (Hayes, 1994, p. 30). When mindfulness was adapted into the modern-day therapeutic context, the construct was expanded to explicitly include mental qualities beyond awareness, such as acceptance, nonjudgment, and compassion (Siegel, Germer, & Olendzki, 2009). The explicit inclusion of acceptance was seen as a necessary counterbalance for a condition Tara Brach labels the “trance of unworthiness” (Brach, 2003): the poverty of self-acceptance and high levels of self-criticism, seemingly endemic to western culture and common to most clinical conditions including social anxiety.

In an integrated conceptualization of the factors maintaining social anxiety, Herbert and Cardaciotto (2005) propose an acceptance-based model of SAD. According to their model, for individuals with a genetic and/or learned predisposition towards social anxiety, certain social triggers will provoke an anxiety reaction that includes physiological arousal and cognitions related to social evaluation. This anxiety reaction produces an increase in awareness of internal experience, including physiological sensations and thoughts. In the context of a high level of acceptance, the individual will notice these anxious reactions as they enter the field of awareness. Because the individual does not engage in attempts to control or avoid the anxious reactions, behavioral performance is predicted to be minimally affected, and the individual is less likely to increase anxious reactivity beyond what is already present.

However, in the context of a low level of acceptance, the individual will reflexively engage in strategies to control or avoid the anxious sensations and cognitions. For

example, they might attempt to suppress thoughts or emotions, engage in distraction, or perform safety behaviors. These reflexive reactions, which are akin to mindlessness (Langer, Blank, & Chanowitz, 1978), have two main consequences. First, an increasing preoccupation with avoiding unpleasant internal experiences is predicted to negatively impact one's performance, restrict the individual's behavioral repertoire in social situations, or lead to avoidance of social situations entirely. This diversion of energy and attention away from social interactions and toward a frustrating internal struggle might contribute to the poor quality of life observed among socially anxious individuals. Second, substantial evidence indicates that strategies to control or avoid one's experience are ineffective, often paradoxically resulting in an increase in the unwanted experiences (Abramowitz, Tolin, & Street, 2001). Therefore, the avoidance of anxiety-related thoughts and physiological sensations is predicted to lead to increases in these experiences, creating a vicious cycle that continues to heighten anxiety.

Although empirical examination of the acceptance-based model has just begun (Johnson et al., 2011), abundant evidence from related areas of the literature supports the notion that individuals with SAD possess low levels of acceptance and suffer from the associated consequences. Individuals with social anxiety appear to be more fearful of emotional experience as well as of the implications of physiological arousal and expression of emotion (Glick & Orsillo, 2011). Further, SAD is positively correlated with attempts to control or avoid thoughts, feelings, physical sensations, and other internal negative experiences (e.g., Kashdan, Breen, Afram & Terhar, 2010), and those with SAD report less perceived control over their emotions during threatening social situations (Hofmann, 2007).

Mindfulness-based treatments for SAD

Contextual approaches such as mindfulness- and acceptance-based treatments are an emerging trend in cognitive behavior therapy (Hayes, Villatte, Levin, & Hildebrandt, 2011). These treatments focus on changing the relationship with experience when targeting psychological suffering. Although most aim to foster both components of mindfulness (awareness and acceptance), these approaches can be divided into two categories: those that focus more on awareness and those that emphasize acceptance.

Attention- and awareness-focused interventions Given that hypervigilance, attentional avoidance, and heightened self-focused attention have been found to maintain social fears (Bögels & Mansell, 2004), studies recently have examined the efficacy of computerized attention training procedures in modifying attention bias and emotional reactivity. Results from both laboratory and clinical studies suggest that the attention training procedures may be beneficial, as individuals showed significantly less attention bias, symptom reduction in general, and lower levels of anxiety in response to the public speaking task, and were judged as having superior speech performance compared to control participants (Amir, Weber, Beard, Bomyea, & Taylor, 2008; Amir et al., 2009; Schmidt, Richey, Buckner, & Timpano, 2009). The therapeutic benefits of attentional training seem to come from teaching individuals to disengage from socially

threatening stimuli and not just directing attention toward nonthreat cues (Heeren, Lievens, & Philippot, 2011).

Attention training has been combined with other interventions to explore the possibility of additive benefits. For example, in a single-case series design by Wells and Papageorgiou (1998), socially anxious participants were given a rationale for exposure (i.e., that staying in the anxiety-provoking situation will cause anxiety to decrease) and a rationale for external attention focus (i.e., to direct attention toward others to gain clues about their reactions). Each instruction set was followed by 5 min of exposure to a chosen idiosyncratic feared social situation. The results showed that exposure plus external attention was significantly more effective than exposure alone in reducing anxiety and belief in feared catastrophes.

Recent research suggests that mindfulness training, which fosters both focused attention and open, nonjudgmental, continuous monitoring of experience, may also be applicable to SAD. The most studied form of mindfulness training is mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990), which is an 8-week program teaching formal and informal mindfulness practices including breath-focused attention, body-scan-based attention to sensory experience, open monitoring of moment-to-moment experience, movement meditations such as walking, and eating meditation. MBSR aims to increase one's ability to observe the immediate content of experience and learn how thoughts, emotion, physical sensations, mental images, and other private experiences are transient (Goldin & Gross, 2010). After completing MBSR, individuals with SAD showed decreased anxiety, negative self-perceptions, and conceptual-linguistic self-referential processing, increased self-esteem and positive self-view, and increased activity in brain regions associated with attentional deployment (Goldin & Gross, 2010; Goldin, Ramel, & Gross, 2009; Goldin, Ziv, Jazaieri, Hahn, & Gross, 2012), although similar reductions were found for those engaging in aerobic exercise, an active comparison condition (Jazaieri, Goldin, Werner, Ziv, & Gross, 2012). Similarly, in comparison to cognitive-behavioral group therapy (CBGT; Heimberg & Becker, 2002), both MBSR and CBGT were found to produce equivalent improvements in mood, functionality, and quality of life, although those who participated in CBGT had significantly lower scores on self-report and rater measures of social anxiety (Koszycki, Benger, Shlik, & Bradwejn, 2007).

Based on MBSR, Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002) is a group intervention that was initially designed to reduce relapse in recurrent major depression and since has been applied more broadly. Mindfulness practice combined with skill training that explicitly focuses on difficult thoughts and feelings teaches individuals to recognize and disengage from self-focused ruminative, negative thoughts. MBCT has been combined with other treatments to treat SAD. For example, in a pilot study by Bögels, Sijbers, and Voncken (2006), Task Concentration Training (TCT; Bögels, Mulkens, & de Jong, 1997), instructing individuals to redirect their attention away from the self and toward the task at hand, was combined with a modified version of MBCT (e.g., individual treatment; references to cognitive therapy were removed). SAD symptoms decreased from pre- to posttreatment, and these gains were maintained for two months. MBCT also has been combined with group cognitive-behavior therapy to treat SAD; at posttreatment, individuals from both MBCT alone and the combined condition showed similar improvements in anxiety (Piet, Hougaard, Hecksher, & Rosenberg, 2010).

Acceptance-focused interventions In addition to attenuating cognitive avoidance and modifying habitual reactivity to negative self-beliefs by disengaging attention from threatening stimuli, mindfulness training may also enable an individual to come in full contact with present-moment experience. Instead of avoiding experience because it is evaluated as intolerable, mindfulness practice encourages attitudes of allowing and acceptance toward uncomfortable thoughts, feelings, and sensations. Making the attitudinal component of mindfulness explicit, Acceptance and Commitment Therapy (ACT; Hayes, Strosahl & Wilson, 2012) is a contextual behavioral approach aimed at increasing effective and meaningful action in daily life. According to the ACT model, symptoms are due in large part to “fusion” with distressing thoughts, feelings, and sensations and the consequences of struggling to control or avoid such experiences (i.e., experiential avoidance). For example, the harder one works to avoid anxiety, the more anxiety is intensified and prolonged. By engaging in mindfulness and “defusion” exercises, one can practice acceptance or a willingness to let these experiences be present. These exercises also can provide some distance from discomfort—including the negative evaluations of self—so that the discomfort can be experienced as transient and contextual (rather than fixed and literal). This distance, combined with an accepting, allowing stance, helps one to respond (as opposed to react) to the uncomfortable experiences and make a commitment to work toward what is valued even if anxiety or other uncomfortable experiences are present.

There have been a small number of studies empirically examining the application of ACT to SAD. After 10 sessions of group ACT, individuals experienced significant decreases on SAD symptom and experiential avoidance measures, and rated their effectiveness in pursuing friendships and social relationships as having increased (Ossman, Wilson, Storaasli, & McNeill, 2006). Dalrymple and Herbert (2007) conducted an open trial examining 12 sessions of individual treatment that included exposure exercises in the context of the ACT model. At posttreatment, participants reported greater agreement with the statement that the treatment resulted in decreases in avoidance compared to fear in social situations, decreases in experiential avoidance, and improvements in quality of life. Yuen and colleagues (2013) delivered the same treatment manual through Skype and also found significant reductions in psychopathology and improvements in functioning. Similarly, a brief (i.e., 6-week) acceptance-based exposure treatment utilizing concepts from ACT was found to be more effective than exposure with a habituation rationale for individuals with public-speaking anxiety, a nongeneralized type of SAD (England et al., 2012). Last, another acceptance-based treatment, Mindfulness and Acceptance-Based Group Therapy (MAGT; Kocovski, Fleming, & Rector, 2009) combines mindfulness, acceptance, and exposure strategies; results from an open trial showed decreases in social anxiety, depression, and rumination, as well as significant increases in mindfulness and acceptance, which were all maintained at a 3-month follow-up (Kocovski et al., 2009).

SAD: The Undesirable, Inferior Self

As previously noted, SAD is the second most prevalent psychiatric disorder. Further, over 98% of U.S. college students report having shy or self-conscious

experiences, and nearly 60% say they are shy and that shyness is sometimes a problem (Henderson, 2011). Thus, feeling shy or anxious in social situations may be quite normal. An evolutionary perspective explains why most individuals are innately capable of feeling socially anxious in certain contexts, suggesting that social anxiety evolved as a mechanism for preserving needed social bonds (Baumeister & Tice, 1990; Gilbert, 2001; Gilbert & Trower, 2001).

Survival under adverse conditions would have been greatly facilitated by group membership and affiliation with others. Further, since people prefer to form relationships with those who are useful to their own interests, humans evolved to “prove one’s worth” and compete for the social resources of being wanted, valued, and recognized (Gilbert, 2001). Therefore, it makes sense that a biologically adaptive mechanism facilitating the need to belong and make good impressions developed over time, evoking anxiety when the threat of separation, rejection, or exclusion from the social group is present. The evolution of this mechanism is proposed to be due to the presence of social hierarchies (Gilbert, 2001; Gilbert & Trower, 2001). For thousands of years, mammals, including humans, have been shaped by the need to live within hierarchically organized groups and relationships, and the judgment of one’s own relative rank and who is superior and inferior has played a key role in group cohesiveness. Competence in the sending and decoding of social signals helps to create desired social roles and rank order within the group. The signals could be aggressive strategies, such as being coercive or threatening, or strategies that enhance one’s worthiness, such as being agreeable or demonstrating physical attractiveness. Thus, humans have motivations to be liked, approved of, and valued, and must closely monitor the success in stimulating the positive emotions of others to prevent social exclusion or rejection.

When entering social situations, though, those with SAD automatically place themselves in the inferior position regardless of the status of the others, fearing that they are unable to compete for the approval, interest, and investment of others, and will stimulate disinterest or disapproval (Gilbert, 2001). This is supported by the findings from an experiment during which a confederate lecturer broke certain conversational rules in a videotaped conversation with a student: Socially anxious students evaluated themselves as inferior to the lecturer and blamed themselves for the disruption and subsequent embarrassment, whereas the reverse was true for nonanxious students (Trower, Sherling, Beech, Harrop, & Gilbert, 1998). To avoid the risk of rejection, those with SAD could completely avoid social situations, but this is at the cost of forming social connections and could explain why they have restricted romantic relationships and less social support. On the other hand, they may choose to enter a social situation, but they are highly aware that they are being evaluated by others. The individual with SAD may wish to make a particular impression but is unsure about his or her ability to do so (Hofmann, 2007), which can then lead to increases in arousal, self-consciousness, and avoidance or “submissive” behaviors such as lack of eye contact or overpracticing what to say (Gilbert, 2001). The display of submissive behaviors is adaptive when convincing a superior that one is a subordinate and does not pose a threat or when used affiliatively to move oneself into a higher rank (Gilbert, 2001). However, in the context of SAD, these submissive or “safety behaviors” are automatically activated for “damage control,” as the individual is focusing on what *not* to do (e.g., to not act anxious or foolish which could result in social rejection).

In social situations, self-monitoring may be a normal and adaptive process, as it likely increases one's ability to display social signals that enhance affiliation (Gilbert, 2001). However, in the context of SAD, as one becomes aware about how poorly one is doing relating to others, attention increasingly becomes more self-focused, decreasing the ability to attend outward and disconfirm negative beliefs and attributions about oneself and one's performance. This could explain why individuals with SAD shift their attention inward and engage in detailed self-monitoring when faced with social threat (see Spurr & Stopa, 2002, for a review), causing them to miss positive cues during the social encounter (Hirsch & Mathews, 2000). Further, the chronic fear of rejection or exclusion could become a self-fulfilling prophecy: When individuals with social anxiety held negative beliefs about being evaluated, they not only had poorer performance in a social situation but had an increased risk for rejection by confederates (Voncken, Dijk, de Jong, & Roelofs, 2010).

Over time, repeated experiences of symptoms of social anxiety reinforce beliefs that others are threats and that the self is inferior; this process is proposed to damage the social self-identity (Gilbert, 2001; Gilbert & Trower, 2001). A comprehensive review by Hofmann (2007) of the cognitive processes that serve as maintenance factors in SAD provides evidence that those with SAD do have negative self-perceptions. Studies have consistently found that individuals with SAD perceive their attributes as falling short of what they believe others expect them to possess, and they form negative mental self-representations based on how they believe potential evaluators view them at any given moment. During periods of self-monitoring in the context of a social threat, they experience recurrent and excessively negative images that they perceive to be accurate. Further, individuals with SAD have been found to minimize their performance accomplishments, and appraise their own performance more negatively. Not only do those with SAD maintain negative self-perceptions, but they go on to believe that others will see them in the same way or that they will be stigmatized for showing anxiety; for those with SAD, every social encounter begins from a position of threat or inferiority (Gilbert, 2001).

The literature clearly indicates that individuals with SAD have a negative self-perception in the context of social situations. However, the disturbed self-image may be more global and stable. For example, the fourth edition of the *DSM* includes "low self-esteem or feelings of inferiority" as clinical features of SAD (American Psychiatric Association, 2000, p. 452). Self-criticism has been associated with SAD symptom severity, and over the course of cognitive-behavioral therapy, changes in self-criticism were associated with improvement in SAD symptoms (Cox, Walker, Enns, & Karpinski, 2002). Further, Cox and colleagues (2004) found higher levels of self-criticism for those with a lifetime history of SAD, even if the diagnosis was not current. Acting like social stimuli, self-criticism is conceptualized to be like "internal self-harassment" (Gilbert & Proctor, 2006, p. 358), which then triggers a submissive or anxious response. Further, self-criticism can lead to feelings of shame, especially if the individual believes that the critical beliefs are valid (Gilbert & Miles, 2000). Shame is the belief that others will find one's personal attributes, personality characteristics, or actions unattractive, and as a result, they will be rejected or put down (Gilbert, 2000). In SAD, shame seems to represent an "undesired self" (Gilbert, 2001, p. 732) or the self that one does not want to be. In other words, the individual believes that they

are someone with whom others do not want to affiliate or “can easily do without” (Gilbert, 2001, p. 732). Studies have found a relationship between shame-proneness and SAD symptoms (Fergus, Valentiner, McGrath, & Jenicus, 2010; Lutwak & Ferrari, 1997), and shame was correlated with negative self-perceptions and unfavorable social comparisons (Gilbert, Allan, & Gross, 1996), both of which are present in SAD. Further, there is overlap between shame and the submissive behavior strategies of those with SAD in that both involve eye-gaze avoidance, backing down quickly if challenged, and not being assertive (Gilbert, 2000).

Thus, according to an evolutionary perspective, social anxiety may be adaptive to the extent that it helps individuals to align with what is socially acceptable, build and maintain relationships, and prevent social exclusion or rejection. However, when an individual enters a social situation with the assumption that they are inadequate and will not be deemed acceptable by others, submissive behaviors and feelings of inferiority, self-criticism, and shame are the likely outcome. Given the presence of such negative self-perceptions and associated negative emotional consequences, research has begun to examine how self-compassion (i.e., having a warm and accepting stance towards the aspects of oneself that are disliked or painful) can be applied to social anxiety symptoms.

Compassion Towards the Socially Anxious Self

Over the past 10 years, Western psychologists have begun to examine the construct of self-compassion and its relationship to well-being. One of the most commonly cited conceptualizations is offered by Neff (2003a), who describes self-compassion as having three interrelated components present during times of pain and failure: self-kindness rather than judgment or criticism; recognition that inadequacies, failures, and hardships are part of the shared human experience; and the holding of painful thoughts and feelings in a balanced way rather than avoiding or overidentifying with them. Gilbert and colleagues (e.g., Gilbert, 2009a) believe that self-compassion stems from a biologically based care-giving mentality, which includes being sensitive to others' distress and willing to be present with it, as well as embodying empathy, nonjudgment, and warmth. Thus, those with high levels of self-compassion view their worth as unconditional, and are able to be present with and empathic toward their pain and imperfections, seeing them as part of the shared human experience. Self-compassion is related to mindfulness theoretically and empirically (e.g., Van Dam, Sheppard, Forsyth, & Earleywine, 2011), as both foster attitudes of nonjudgment toward and gentleness with one's experience.

Research examining the relationship between SAD and self-compassion is emerging. In a nonclinical student sample, self-compassion was negatively correlated with symptoms of social anxiety (Winch et al., 2012). In an adult community sample, Werner and colleagues (2012) compared levels of self-compassion and its components in individuals with and without a principle diagnosis of SAD. They found that those with SAD reported lower levels of self-kindness, common humanity, and mindfulness, and higher levels of self-judgment, isolation, and overidentification. Further, greater fear of evaluation (regardless of valence) was associated with less self-compassion.

One explanation for these relationships may be that self-critical individuals, including those with SAD, are less able to engage in self-caring and self-soothing behaviors. For example, those with higher levels of self-compassion scores reported less anxiety after writing about their greatest weaknesses during a mock job interview (Neff, Kirkpatrick, & Rude, 2007), suggesting that the presence of kindness and warmth toward the self may buffer against self-criticism. Shame-based self-criticism is proposed to be rooted in “feeling memories” (Gilbert & Irons, 2004, p. 507) involving the self being rejected, criticized, or shamed. These memories can then be internalized, resulting in evaluation of the self as flawed or inferior. Further, those who are self-critical do not have access to feeling memories of being affectionately cared for, causing their ability to self-care and self-soothe to be underdeveloped and underelaborated (Gilbert & Irons, 2004). Supporting this theory, those high in self-criticism found it easy to imagine a hostile, controlling, self-critical part of the self, but found bringing to mind a soothing, accepting, and compassionate image of themselves more difficult (Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006).

Another potential reason why those with SAD have lower levels of self-compassion may relate to the isolation that results from being avoidant and submissive. Self-compassion involves seeing one’s weaknesses, imperfections, and hardships as part of being human, recognizing one’s connection to others and a common humanity. This is in contrast to withdrawing, isolating, and struggling alone with perceived inadequacies or failures. In the writing-task study by Neff and colleagues (2007) described above, those with higher levels of self-compassion used more first-person plural pronouns (e.g., “we”) and more words referring to family, friends, and communications with others, suggesting those with higher levels of self-compassion have a more interconnected view of themselves. Similarly, Werner and colleagues (2012) found that those with SAD had higher scores on the Isolation subscale and lower scores on the Common Humanity subscale of the Self-Compassion Scale (Neff, 2003b), and suggest that the presence of negative self-focused attention may contribute to the sense of isolation and lack of connection with the millions of others that are shy and have SAD.

Compassion-focused therapy and SAD

To help those with high levels self-criticism and shame develop self-soothing abilities in the context of perceived threat, interventions examining the application of compassion toward the self are beginning to emerge. Research has shown that self-compassion can develop from mindfulness practice (e.g., Shapiro, Astin, Bishop, & Cordova, 2005), even though the aim of mindfulness training is to increase nonjudgmental awareness of moment-to-moment experience. Compassion-focused interventions, however, explicitly teach individuals how to be self-soothing and generate feelings of kindness and warmth when feeling threatened or being self-critical.

Compassion-Focused Therapy (CFT; Gilbert, 2009b, 2010) refers to the theory and process of applying a compassion model to psychotherapy. According to this model, problematic levels of social anxiety are due to an oversensitive threat system, an overactive drive system that seeks validation from others, and to an underdeveloped or inaccessible soothing system that cannot regulate the two other systems. The

threat and protection system works through attention-focusing and attention-biasing to detect threat quickly and trigger action (i.e., fight or flight) and evolved to protect the self. For those with SAD, early life events may have sensitized the threat system and contributed to well-developed submissive safety strategies such as being aware of the rank, status, and power of others and being quick to feel inferior and uncertain in social situations (Gilbert, 2010). Although self-monitoring and submissive behavior in the context of an actual threat (e.g., someone who is powerful) would be adaptive, in the context of SAD, these "safety behaviors" (e.g., self-concealment, self-criticism to reduce errors) are automatic, enacted to cope with fears of rejection, and can lead to unintended consequences, such as feeling isolated, self-harassed, or ashamed.

The second system outlined in CFT (Gilbert, 2009b, 2010), drive and excitement, is a motivational system that generates positive feelings to energize and guide individuals to seek out important rewards, resources, and achievements (e.g., food, sexual opportunities, friendships). One type of achievement motivation is proving self-worth and gaining validation from others, which is actually threat- and safety focused, as failure equates to the loss of social resources and fear of being rejected. This motivation is particularly relevant for individuals with SAD, as they may engage in activities in order to be liked and avoid feelings of rejection, and failed attempts could result in self-criticism.

According to CFT (Gilbert, 2009b, 2010), when individuals are not avoiding threat or pursuing pleasure, they can be in a state of contentment and have a sense of calmness and well-being. The contentment, soothing, and safeness system developed with the evolution of attachment behavior; for example, a child with a secure and affectionate history might still be sensitive to threat but will be able to self-soothe and self-regulate, whereas individuals who had fewer opportunities for the development of a soothing/safeness affect system will be less able to regulate their emotions in the context of threat. Therefore, CFT interventions aim to help individuals disengage from threat, and stimulate the contentment system via compassion to regulate the threat and drive systems. CFT interventions may use techniques from other approaches outside of the compassion/mindfulness/acceptance domain, such as graded exposure (Gilbert, 2010). However, these interventions are conducted in the context of compassionate attributes (sensitivity, sympathy, distress tolerance, empathy, nonjudgment, and care for well-being) and with therapists being mindful of the systems that need to be activated in order for the client to process information conducive to recovery and well-being (Gilbert, 2010).

Based on this model, Gilbert and colleagues have developed a compassion-based treatment for habitually self-critical individuals called compassionate mind training (CMT; Gilbert, 2009b; Gilbert & Proctor, 2006) that aims to train individuals to generate feelings of compassion and warmth when feeling threatened. In CMT, the therapist helps clients to be in tune with the feelings associated with (difficult) memories; understand the development of safety strategies as not one's fault but conditioned processes to cope with threat; apply compassionate acceptance and empathy toward these strategies and processes; understand the threat, drive, and contentment systems, and how their different priorities can create emotional conflicts; and develop compassionate imagery and mindful ways of thinking, feeling, and behaving (Gilbert, 2010). Further, the therapist also embodies the attributes of compassion described

above, and as the client experiences the therapist as de-shaming, compassionate, and safe, the client is proposed to be able to develop compassionate attributes and skills and direct them toward the self (Gilbert, 2010). Henderson (2011) extended CMT to social anxiety and shyness in her popular press book, *Building Social Confidence: Using Compassion-Focused Therapy to Overcome Shyness and Social Anxiety*. The first three chapters provide psychoeducation about shyness, SAD, and compassion, and the remaining chapters describe and provide practical exercises for the development of the compassionate attributes and skills. Although research supporting the efficacy of CMT is in its infancy, initial results suggest that it significantly reduces self-hatred and associated feelings of anxiety and depression (Gilbert & Proctor, 2006).

Mindful Exposure: Using Mindfulness and Compassion to Change the Context

Historically, the most popular and empirically supported approaches in treating SAD are variants of cognitive-behavioral therapy, which involve systematic exposure to anxiety-provoking stimuli, and some researchers suggest that exposure appears to be the most powerful mechanism for producing change (e.g., Feske & Chambless, 1995). Exposure therapy for SAD typically involves the development of a hierarchy of anxiety-eliciting situations and the systematic introduction of those situations. Exposure exercises can be imaginal to address internal experiences or events difficult to recreate (e.g., giving a speech to a large audience) or in vivo to help clients come into contact with specific social situations (e.g., initiating a conversation). Although the mechanism of action has yet to be fully expounded, a prevailing rationale is that exposure works through principles of conditioning and extinction (Craske et al., 2008; Treanor, 2011). For example, in SAD, by repeatedly having the individual confront cues associated with social rejection or exclusion without these adverse consequences occurring, the individual learns that the presence of these cues (e.g., saying hello) is no longer a signal of the feared negative outcome (e.g., rejection).

A number of individuals have likened mindfulness practice to exposure (e.g., Baer, 2003), as the individual is encouraged to come into full contact with experience without trying to control, alter, or avoid it. Sustained, nonjudgmental attention on difficult feelings, such as anxiety, may lead to desensitization, a reduction in emotional reactivity, greater tolerance for and acceptance of unpleasant feelings, and opportunities for new learning (Brown et al., 2007). Although behavioral approaches traditionally have not targeted emotions in exposures for SAD, self-compassion interventions could be conceptualized as a form of exposure to the feelings of shame and self-criticism. Much of the work in CMT is directed toward addressing fears and resistance toward becoming self-compassionate, as engaging in compassion-focused imagery has been found to evoke a physiological stress response (Rockliff, Gilbert, McEwan, Lightman, & Glover, 2008).

Even though literature suggests that mindfulness may facilitate exposure and new learning, and several mindfulness-based behavioral protocols have been developed for SAD and other anxiety disorders, no studies to date have directly

examined whether mindfulness practice positively impacts exposure treatment and extinction processes. However, research examining attention and mindfulness suggests a few ways in which mindfulness may enhance extinction learning (Treanor, 2011). Mindfulness may serve as a retrieval cue for the extinction context: By conducting mindfulness inductions in the context of exposure, mindfulness becomes associated with extinction. Therefore, practicing mindfulness in a new situation (i.e., one in which extinction has not taken place) should help mitigate the renewal of fear (Treanor, 2011). Another way that mindfulness may benefit exposure is through the process of labeling, which has been conceptualized as a mindfulness skill (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). For example, Tabibnia, Lieberman, and Craske (2008) found that exposure plus affective labeling was more effective than exposure alone in a sample of individuals with spider fears, suggesting that the activation of prefrontal brain regions is beneficial (Treanor, 2011). Further, the inclusion of mindfulness in exposure therapy may reduce behavioral or psychological avoidance and/or increase willingness to experience and tolerate fear.

Although there is some reason to believe that mindfulness may enhance exposure therapy, mindfulness could inhibit the mechanisms of exposure. For example, if mindfulness training induces relaxation, the increased positive feelings or decrease in distress associated with feeling relaxed may be reinforcing, and so mindfulness practice may be used maladaptively to avoid unpleasant experiences (Treanor, 2011). Therefore, empirical investigation of the impact of mindfulness on exposure and the extinction process is necessary.

Putting the Socially Anxious Self in Context

The notion of “self” is central not only to the etiology of the recommended treatments for SAD, but also to human suffering in general. Applying Buddha’s teachings to the etiology and treatment of social anxiety provides a glimpse of where a “new” generation of therapies and perspectives may have found their inspiration. As the famous Zen master, Dogen, said (as quoted in Epstein, 1995):

To study Buddhism is to study the self.

To study the self is to forget the self.

To forget the self is to be one with others.

Put simply, in “Buddhist psychology, the self that we treasure and protect is significantly less substantial than it appears, and mistaking it as “real” is a major source of psychological suffering” (Engler & Fulton, 2012, p. 176). In the West, a psychologically healthy sense of self is understood to exist as separate, independent, stable, and relatively autonomous. While Buddhism recognizes this “reality” as part of our experience, reflecting the information received from our senses in any one moment, Buddhist analysis states that our sense of self—along with everything—is dependent on a vast array of changing conditions. As such, the self has no inherent or

enduring essence that stands apart from experience and no underlying “me” to whom all experience happens (Olendzki, 2005).

Once an enduring sense of self is constructed, though, our mind is left having to defend and fortify it. Ironically, the very concept that arises to help us make sense of our experience and protect us from uncertainty becomes a psychological Achilles heel. For example, the drive for self-esteem, comparing oneself to others, and seeking a place in social structure all work toward bolstering this illusory self. Further, the cravings of wanting to be a particular self (e.g., wanting to be a self that is happy or competent) or not to be a particular self (e.g., not wanting to be a self that is anxious or has the experience of feeling stupid) become harder to let go because of our mistaken view of the self as enduring and substantial. From a clinical perspective, social situations with the potential for evaluation and judgment by others result in conditions of heightened threat to an illusory self that relies on self-esteem, social status, and ranking to protect itself.

From the perspective of Theravadan Buddhism, mindfulness meditation is the starting point and the primary vehicle for the program of healing. The heart of the teaching suggests that mindfulness facilitates an accurate understanding of the conditional nature of reality, allowing us to let go of our mistaken views of the self. In the words of Ajahn Chahn, a Thai teacher, “If you let go a little, you will have a little peace. If you let go a lot, you will have a lot of peace. If you let go completely, you will have complete peace” (Chah, Kornfield, & Breiter, 2004, as cited in Teasdale & Chaskalson, 2011). More precisely, the goal is to undermine the reflexive habits of identification and craving as the mind projects permanence onto an impermanent flow of experience. With practice, the capacity to bring awareness to experience is developed, allowing the self to be less intertwined and the experience to be received simply *as it is* (Engler & Fulton, 2012).

Within contemporary clinical psychology, the mindfulness- and acceptance-based interventions are based broadly on this Buddhist perspective. For example, MBSR is perhaps less of a psychotherapeutic treatment and more of a secular training in Buddhism with the purpose of alleviating chronic suffering (see Kabat-Zinn, 2011). According to Kabat-Zinn (2011), MBSR is intended to improve self-regulation of attention, change our relationship to experience, and ultimately provide opportunities for insight into impermanence, suffering, and no-self. The mountain meditation (Kabat-Zinn, 1994) provides an example of an experiential exercise that offers a window into seeing the difference between particular experiences, such as anxieties and negative predictions, and the self who identifies with these experiences. Similarly, ACT (Hayes et al., 2012) aims to foster greater psychological flexibility, or the “ability to contact consciously the present moment and the thoughts and feelings it contains more fully and without needless defense, and based on what the situation affords, to persist or change behavior in the service of chosen values” (Hayes et al., 2011, p. 155). The six main processes that contribute to psychological flexibility—acceptance, defusion, self-as-context, present-moment awareness, values, and committed action—foster direct contact with what is happening in the here and now. For example, perspective-taking exercises encourage a stance of self-as-context, or contact with a transcendent sense of self that is distinct from the contents of consciousness.

Although the study of mindfulness in cognitive psychology developed independently of that in clinical psychology, and has been noted as distinct from the traditional Buddhist perspective (Carson & Langer, 2006), parallels among these frameworks can be drawn. According to Langer (1989), mindfulness occurs when we create new categories, are open to new information and novelty, and are aware of more than one perspective. When we are mindful, we are situated in the present and sensitive to context and perspective. This is contrasted with mindlessness, during which we act habitually and automatically with little or no conscious awareness. The cognitive perspective suggests that emotional responses are learned mindlessly and can impart a false sense of stability, certainty, or objectivity reality (Carson & Langer, 2006). Further, mindless behavior such as accepting others' opinions through this lens as "truth" or basing our identity on mistakes could lead to decreased self-acceptance (Carson & Langer, 2006). Therefore, being mindful from a cognitive psychology perspective is consistent with the importance of experiencing the self in context described in both Buddhist teachings and clinical practice.

In Buddhism, as a result of our understanding into the conditional nature of reality (including the self) that develops with mindfulness, any fear provoked by a social situation can be as transient as the threat itself, our unnecessary preoccupation with defending the self subsides, and we become more likely to receive accurate information from our senses, serving to reduce our threat bias and increase our contextual awareness. Deepening insights into the futile attempts to protect an illusory self also serves to open and incline the mind towards further investigation. By gradually "cutting through the mind's construct of separateness," we increasingly recognize the same layers of suffering in others, which allows us to experience others as fundamentally like ourselves (Makransky, 2012). This process cultivates mental qualities of acceptance, kindness, and compassion toward ourselves and others. As East meets West, therapeutic approaches that seek to cultivate a more mindful and compassionate view of self appear to offer one way of nurturing those who suffer from social anxiety into a more flexible and healthier context.

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Mindfulness Meditation for Posttraumatic Stress Disorder

Helané Wahbeh

Introduction

Clinical mindfulness interventions have blossomed in the last few decades, being adapted and applied to a variety of populations and health conditions. One such condition is posttraumatic stress disorder (PTSD). The objectives of this chapter are to: (1) describe PTSD and its symptoms; (2) give a brief introduction of Western clinical applications of mindfulness; (3) explain potential mechanisms of action for mindfulness meditation's use in PTSD treatment; (4) summarize the state of research on mindfulness interventions for PTSD; and (5) propose future directions for the use of mindfulness for PTSD treatment.

PTSD and Its Symptoms

How do you get PTSD and what are its symptoms?

PTSD may occur when a person has been exposed to a traumatic event that involves actual or threatened death or serious injury or threat to the physical integrity of self or others; and the person's response involves intense fear, helplessness, or horror. People who acquire PTSD after a traumatic event then experience a constellation of symptoms in three categories: hyperarousal, reexperiencing, and avoidance (American Psychiatric Association, 1994). Hyper-arousal symptoms refer to increased arousal and sympathetic nervous system hyperactivity that were not present before the trauma (Buckley, Holohan, Greif, Bedard, & Suvak, 2004; Pole, 2007). These symptoms include hyper-vigilance, difficulty concentrating, difficulty falling or staying asleep, irritability or outbursts of anger, or exaggerated startle response. Reexperiencing symptoms refer to persistent reexperiencing of the trauma through recurrent and intrusive distressing

recollections of the event or distress when exposed to cues that symbolize or resemble an aspect of the trauma. Finally, PTSD is characterized by pervasive avoidance symptoms such as avoiding thoughts, feelings, conversations, people, places, or activities that remind them of their trauma.

The cost of PTSD

PTSD is a serious public-health issue. Approximately 7.7 million American adults (3.5%) have PTSD annually, with 6.8% having lifetime prevalence (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). The personal and societal costs of PTSD are high due to chronic symptoms, comorbidities, marked functional impairment, and economic costs (Brunello et al., 2001; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Solomon & Davidson, 1997). The annual economic burden of anxiety disorders in the United States is estimated to be between \$42.3 and \$46.6 billion (Marciniak et al., 2005). Not only do people with PTSD experience the debilitating symptoms of PTSD, but also they have a higher prevalence of other psychiatric and physical comorbid conditions, making it difficult to treat (Seal et al., 2011).

PTSD treatment

The complex psychopathology and frequency of comorbid conditions in PTSD make its treatment challenging. Selective serotonin and serotonin–norepinephrine reuptake inhibitors have the strongest evidence for the pharmaceutical treatment of PTSD. However, medication refusal and noncompliance are quite high in this population (Rakofsky, Levy, & Dunlop, 2011). Trauma-focused psychotherapy such as Prolonged Exposure and Cognitive Processing Therapy, which include exposure and/or cognitive restructuring, has the strongest evidence for PTSD treatment (Berg et al., 2007). However, a high percentage of individuals do not engage in or drop out prematurely from these treatments because of chronic patterns of avoidance and an inability to tolerate the intense emotions often experienced in these approaches (Grunert, Weis, Smucker, & Christianson, 2007). Additional treatments for PTSD are needed.

Clinical Western Mindfulness Meditation

Mindfulness meditation origins

As a form of mind–body medicine, meditation has a 5,000-year-old known history and a growing body of scientific literature for its clinical use. While there are various meditation styles, all types of meditation practices incorporate self-observation of mental activity, attention training, and cultivating an attitude that highlights process rather than content (Ospina et al., 2007). Mindfulness is a meditation practice that originated in Eastern Buddhist traditions, such as the traditional Vipassanā and Zen approaches. Traditional mindfulness meditation has been adapted for Western practitioners as clinical mindfulness meditation programs that are usually taught independently from their original religious and cultural traditions. The central element of

mindfulness is to acquire attentional control by focusing internally (on bodily sensations, breath, thoughts, emotions) and externally (on sights, sounds) at the current moment. As thoughts, feelings, and sensations arise, the participant is encouraged to observe them with nonjudgmental acceptance and continually return their attention to their target whenever the mind wanders.

Clinical applications of mindfulness meditation

Standardized clinical mindfulness meditation programs have been developed for a variety of physical- and mental-health conditions. Dr. Jon Kabat-Zinn brought mindfulness meditation to the West with Mindfulness-Based Stress Reduction (MBSR) for use with chronic pain and stress-related disorders, and observed positive results even with the most difficult cases (Kabat-Zinn et al., 1992). Based on this program, Teasdale and colleagues developed Mindfulness-Based Cognitive Therapy (MBCT) as a treatment for chronic depression. Many other clinical programs include mindfulness in their curriculum and/or adapted MBSR to create programs for specific clinical populations. Concurrently with mindfulness meditation practice programs, therapies created a third generation of psychotherapies adapted from Cognitive Behavioral Therapy, another group of evidence-based treatment for PTSD (Department of Veteran Affairs & Department of Defense, 2010). These psychotherapies, such as Acceptance and Commitment Therapy and Dialectical Behavioral Therapy, include mindfulness as part of the therapy. The inclusion of mindfulness in these programs is separate from any formal meditation practice. The understanding of including mindfulness, separate from meditation per se in improving health, is longstanding (Langer, 1989; Langer, Janis, & Wolfer, 1975). Dialectical Behavior Therapy was created by Martha Linehan for use with people with borderline personality disorder (Linehan, Heard, & Armstrong, 1993). Acceptance and Commitment Therapy was developed by Steven Hayes, Kelly Wilson, and Kirk Strosahl to increase psychological flexibility (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Mindfulness-Based Relapse Prevention was developed by Alan Marlatt for individuals in addictive behavior recovery for substance-abuse relapse prevention (Witkiewitz & Bowen, 2010). Mindfulness-Based Eating Awareness Training was developed by Jean Kristeller for binge-eating disorders (Kristeller & Wolever, 2011). Mindfulness-Based Childbirth and Parenting was developed by Larissa Duncan for pregnant women to promote family health and well-being through the practice of mindfulness during pregnancy, childbirth, and early parenting (Duncan & Bardacke, 2010). Clinical applications like MBSR and MBCT have standardized techniques, that is, the techniques have been described systematically in manuals and are relatively invariant wherever, whenever, and by whomever they are taught (Kabat-Zinn, 1982; Kabat-Zinn et al., 1992; Teasdale et al., 2000). They are taught in groups, usually weekly classes for 8 weeks, and employ formal and informal practice in mindfulness meditation, education, discussions, and intensive home practice. Mindfulness meditation practice incorporates mindful attention to body sensations, mindful breathing, sitting meditations, Hatha yoga, and daily activities. Informal mindfulness practices are applied to any activity, like walking, cooking, and eating.

Mechanisms of How Mindfulness May Improve PTSD

The need for additional treatments for PTSD and the growing popularity and evidence for mindfulness meditation for mental-health conditions lead clinicians and researchers to use it for PTSD. Before discussing the evidence of mindfulness meditation for PTSD, the rationale and mechanism by which it may improve PTSD symptoms will be presented. Ways that mindfulness meditation may improve PTSD symptoms include attention training, improving prefrontal cortex activity, changing thought patterns, increasing emotional acceptance and reducing avoidance, improving autonomic nervous system function, and regulating the hypothalamic–pituitary–adrenal (HPA) axis.

Attention training

Mindfulness meditation practice includes focusing one's attention on the present moment, nonjudgmentally. The process of focusing one's attention on a particular target in each moment with nonjudgmental acceptance, continually returning the attention to the target whenever the mind wanders, is attention training. Learning how to control attention and focus on the present moment is useful for PTSD patients because their environment frequently triggers them to reexperience past events that exacerbate their symptoms and, thus, may help reduce symptoms.

Improving prefrontal cortex activity

The shift in attentional control cultivated through mindfulness meditation may produce clinical changes in people with PTSD by improving frontal cortex activity. People with PTSD have numerous symptoms that reflect dysfunction of the prefrontal cortex. This is not surprising, since parts of the prefrontal cortex regulate emotion. Intrusive thoughts are a diagnostic criterion in PTSD reflecting the frontal lobe's ability to suppress these thoughts, since intrusive thought suppression is modulated by the frontal lobe (Wyland, Kelley, Macrae, Gordon, & Heatherton, 2003). Abnormal stress responses in people with PTSD may originate from the prefrontal cortex failing to adequately regulate emotion stimulated from experienced events.

People with PTSD have demonstrated abnormalities in frontal-lobe executive function as seen in poorer performance in cognitive tasks than controls (Leskin & White, 2007). Neuroimaging studies also support the idea of frontal dysfunction in people with PTSD demonstrated by a meta-analyses that found prominent hypo-activations in the prefrontal cortex, ACC, and thalamus, regions associated with the experience or regulation of emotion compared to controls (Etkin & Wager, 2007). Prefrontal cortex reactivity was inversely correlated with PTSD symptom severity in another neuroimaging study (Shin, Rauch, & Pitman, 2006). Any training to increase this area's activity and consequently emotion regulation may improve PTSD symptoms.

Meditation is one such training. Intrusive thought frequency is reported to be reduced by mindfulness (Jain et al., 2007; Speckens, Ehlers, Hackmann, & Clark, 2006). Executive function cognitive tasks show improvements in participants who

have completed mindfulness meditation programs (Jha, Krompinger, & Baime, 2007; Tang et al., 2007). Electrophysiological and neuroimaging studies reveal that meditation improves frontal-lobe function. Meditation increases frontal-cortex coherence during meditation (Travis & Arenander, 2004) and also in long-term meditators at rest or engaged in cognitive tasks (Cahn & Polich, 2006). Meditators show stronger frontal cortex activation compared to controls during meditation and mental arithmetic tasks reflecting greater control over distracting events and engagement in emotional processing (Hölzel et al., 2007). Neuroimaging studies show an association between mindfulness and enhanced prefrontal cortical activation with emotional processing (Creswell, Way, Eisenberger, & Lieberman, 2007). Thus, increased activation and efficiency of frontal cortex function provide a biological mechanism by which mindfulness meditation improves PTSD symptoms.

Changing thought patterns

People with PTSD often have altered perceptions and beliefs about themselves and their environment, which may in part maintain their PTSD symptoms (Ehlers & Clark, 2000). Mindfulness meditation may be effective for people with PTSD because it emphasizes the mindfulness of and disengagement from thoughts, shifting PTSD-related mental patterns and automatic dysfunctional cognitive patterns (i.e., "Thoughts Are Not Facts" MBCT session). Mindfulness meditation helps people reappraise thoughts and emotions, improving their anxiety symptoms (Greeson et al., 2012). One study showed that participants were increasingly able to see their thoughts as mental events rather than facts, aspects of the self or accurate reflections of reality (metacognitive awareness), which may be a key to healing trauma (Williams, Duggan, Crane, & Fennell, 2006). Mindfulness meditation may also help change thought and emotion patterns increasing autobiographical memory and reducing generic memories (Williams, Teasdale, Segal, & Soulsby, 2000). Patients with PTSD often retrieve generic rather than specific memories of past events preventing appropriate processing and resolution of a trauma.

Increasing emotional acceptance and reducing avoidance

Mindfulness meditation emphasizes an increased awareness of present experiences, allowing and accepting internal experiences without judgment and attending to the here and now. PTSD is characterized by both over- and underemotional experiencing, intrusive memories of past traumatic events, and avoidance of internal experiences and situations. Mindfulness offers an approach that completely counters these tendencies. Mindfulness meditation cultivates increased tolerance and acceptance of experiencing emotions and supports people in becoming more nonreactive to their trauma reminders. Further, the ability to experience emotions, without blunting or escalating, is considered fundamental to effective emotional processing of traumatic experiences (Foa et al., 1999). Multiple studies demonstrate that mindful acceptance is a significant predictor of avoidance and other PTSD symptoms in Veterans with PTSD (Wahbeh & Oken, 2011) and other trauma-exposed adults (Thompson & Waltz, 2010; Vujanovic,

Youngwirth, Johnson, & Zvolensky, 2009). Increased mindfulness may increase emotional acceptance and decrease avoidance behaviors in people with PTSD, thus allowing for effective emotional processing.

Improving autonomic nervous system function

People with PTSD have hyperarousal symptoms. These symptoms are reflective of increased sympathetic dominance as demonstrated by decreased heart-rate variability (HRV; Cohen et al., 1998; Lakusic et al., 2007; Mellman, Knorr, Pigeon, Leiter, & Akay, 2004; Wahbeh & Oken, 2013a), increased heart rate (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Muraoka, Carlson, & Chemtob, 1998; Pole, 2007), and increased blood pressure (Pole, 2007). The act of slowed breathing during meditation may be a mediator of positive clinical outcomes. Slowed breathing is a potent regulator of the autonomic nervous system. Although no specific directions are given to slow the breath in mindfulness training, a slower rate occurs as a part of being conscious of the breath (Ditto, Eclache, & Goldman, 2006). Experienced meditators have slower respiration rates compared to controls at rest and during meditation (Oken, Zajdel, & Wild, 2007). Slowed breathing has known physiological effects caused by parasympathetic activation such as decreased oxygen consumption, decreased heart rate and blood pressure, and increased HRV (Ducla-Soares et al., 2007; Jerath, Edry, Barnes, & Jerath, 2006). Mindfulness meditation studies without conscious breath control have shown changes in these same parameters, such as HRV, diastolic blood pressure (Ditto et al., 2006), and heart rate (Conrad et al., 2007; Ditto et al., 2006; Ospina et al., 2007]. Slowed breath during meditation and thus parasympathetic activation may mediate PTSD clinical improvement from mindfulness meditation interventions.

Regulating the HPA axis

The HPA axis is considered one of the major mediators of the stress response and is another mechanism by which meditation could improve PTSD symptoms. People with high stress are known to have higher cortisol values, a measurable product of HPA axis function (Wahbeh, Kishiyama, Zajdel, & Oken, 2008; Yehuda, 2006). Alterations in cortisol are commonly reported in people with PTSD (Wahbeh & Oken, 2013b; Yehuda, 2006). Meditation studies have improved cortisol values (Carlson, Speca, Patel, & Goodey, 2004; Kamei et al., 2000; Tang et al., 2007; Walton et al., 2004). Mindfulness meditation, especially MBSR, is a stress reduction technique that decreases stress reactivity and may normalize HPA axis function.

Mindfulness Meditation's Evidence for People With PTSD

Mindfulness meditation has strong positive evidence for PTSD-related symptoms

As a mind–body medicine, mindfulness meditation is an attractive therapy because of the relatively low cost, low physical and emotional risk, ease of implementation,

and the facilitation of patients to take a more active role in their treatment (Wahbeh, Elsas, & Oken, 2008). A meta-analysis of 64 mindfulness meditation studies examined psychological and physical outcomes for a variety of physical- and mental-health conditions (Grossman, Niemann, Schmidt, & Walach, 2004). Mindfulness meditation consistently improved a spectrum of mental-health measures including psychological dimensions of quality-of-life scales, depression, anxiety, coping style, and other affective dimensions of disability. Physical outcomes, such as medical symptoms, sensory pain, physical impairment, and functional quality of life, were also consistently improved. Mindfulness meditation studies looking at anxiety in general rather than PTSD have all reported positive outcomes (Finucane & Mercer, 2006; Kabat-Zinn et al., 1992; McKee, Zvolensky, Solomon, Bernstein, & Leen-Feldner, 2007; Miller, Fletcher, & Kabat-Zinn, 1995; Tacon, McComb, Caldera, & Randolph, 2003). Similar improvements have been seen in other PTSD-related symptoms such as depressive symptoms or relapse (Finucane & Mercer, 2006; Kenny & Williams, 2007; Ma & Teasdale, 2004; Mason & Hargreaves, 2001; Sephton et al., 2007; Teasdale et al., 2000), sleep disturbances (Carlson & Garland, 2005; Shapiro, Bootzin, Figueiredo, Lopez, & Schwartz, 2003), suicidal behavior (Williams et al., 2006), stress, quality of life and cortisol levels (Carlson, Speca, Faris, & Patel, 2007), and chronic pain (Price, McBride, Hyerle, & Kivlahan, 2007).

Mindfulness meditation studies for PTSD are few but promising

While evidence for mindfulness meditation for PTSD-related symptoms like depression is strong, controlled trials of mindfulness meditation for people with PTSD are limited. In a cross-sectional study, we found that people with PTSD had lower mindfulness traits than controls (Wahbeh & Oken, 2011). In a clinical setting, we further observed improvements in PTSD and depression symptoms from group MBCT classes taught at the Portland Veterans Administration Medical Center as standard care. Some uncontrolled pilot mindfulness meditation trials have also found positive results for PTSD. A feasibility study used mindfulness meditation for chronic pain in female veterans with PTSD where study participants adhered to study procedures, 100% attended at least seven of eight sessions, and all completed in-person posttreatment assessment (Price et al., 2007). An uncontrolled MBSR study for veterans with PTSD assessed PTSD symptoms, depression, functional status, behavioral activation, experiential avoidance, and mindfulness at baseline, and 2 and 6 months after enrollment. Significant improvements were seen at 6 months in PTSD symptoms, behavioral activation, acceptance, and mindfulness, and 47.7% of veterans had clinically significant PTSD symptom improvements (Kearney, McDermott, Malte, Martinez, & Simpson, 2012). A randomized controlled trial compared a brief tele-health mindfulness meditation program to psychoeducation control in 33 combat veterans with PTSD. The PTSD participants tolerated and reported high satisfaction with the mindfulness intervention and had temporary improvements in PTSD symptoms (there were significant improvements compared to the psychoeducation after the 6-week intervention, but the effects were not sustained at the 12-week follow-up; Niles et al., 2012). Another uncontrolled MBSR study examined PTSD symptom changes in adult survivors of

childhood sexual abuse (PTSD diagnosis was not an inclusion criterion). They found significant reductions in PTSD symptoms that were sustained at a 24-week follow-up (Kimbrough, Magyari, Langenberg, Chesney, & Berman, 2010). A meta-analysis of 39 studies, totaling 1,140 participants, examined mindfulness-based therapies for anxiety and depression symptoms in a variety of populations. Improvements in anxiety symptoms were observed when analyzed with the whole sample (Hedges's $g = 0.63$) and were even greater (Hedges's $g = 0.97$) when only patients with anxiety disorders were included (Hofmann, Sawyer, Witt, & Oh, 2010). Preliminary uncontrolled and controlled studies demonstrate that mindfulness-based therapy is a promising intervention for PTSD that warrants further study.

Mindfulness meditation for PTSD studies in progress

Currently, numerous efforts are being made to implement mindfulness meditation for people with PTSD. We have conducted a pilot study for nine participants with PTSD and depression who were randomized to individual or Internet mindfulness meditation program. There were no drop-outs or adverse events in the remaining participants. PTSD and depression symptoms were improved in both groups trending towards significance (PTSD Checklist change -9 ± 4 , $t = 2.0$, $p = 0.04$; BDI change -7 ± 4 , $t = 1.7$, $p = 0.06$). In such a small pilot study, these results are promising. In an ongoing study, we administered a 6-week individual mindfulness meditation intervention to 50 combat veterans with PTSD. Participants receive a one-on-one session weekly for 6 weeks with daily home practice between sessions. We have had no adverse events in the study, and participants report positive comments in the qualitative interviews after the study. Additionally, there are nine ongoing trials on mindfulness meditation and PTSD listed in www.ClinicalTrials.gov.

Future Directions

Considerations for the clinical application of mindfulness meditation for PTSD

While definitive evidence for the use of mindfulness meditation for PTSD is not yet available, the rationale, mechanism of action, and preliminary evidence warrant its use clinically with appropriate considerations. The standard MBSR program lists a PTSD diagnosis as exclusionary for its participants as a first line of treatment because they may be too unstable to tolerate challenging emotions that may arise from the practice (Kabat-Zinn & Santorelli, 2007). Adaptations to standard mindfulness-based clinical programs should be implemented in treating people with PTSD with mindfulness meditation. We have experienced no adverse events from mindfulness meditation for people with PTSD with an adapted program. We adapted the program, understanding that people with PTSD may be more sensitive to experiencing symptom exacerbations than other populations. For example, most people with PTSD have ingrained avoidance patterns of thoughts, emotions, and body sensations associated with their trauma. While practicing being present with their thoughts, emotions, and body sensations,

they may be reminded of their trauma, and their symptoms may actually be exacerbated. The standard program for MBSR includes eight 2.5-hr weekly sessions, about 45–60 min of daily home practice, and a full-day retreat. Most people with PTSD are unable to complete a 45-min meditation, as they learn the practice without falling asleep or having a reaction. Shorter, more frequent meditations are recommended for people with PTSD. The reduction in class and home practice hours is rationalized by the lack of evidence for the minimum number of hours required for clinical effects. Reducing session length and/or number of sessions does not appear to diminish the effects of mindfulness meditation interventions. Many researchers have adapted the standardized programs to shorter class, home practice, and retreat hours, and still found positive effects in PTSD patients (Niles et al., 2012), cancer patients (Carlson, Speca, Patel, & Goodey, 2003), organ-transplant patients (Gross et al., 2004), and health-insurance employees (Klatt, Buckworth, & Malarkey, 2008) with positive results. Also, a meta-analysis of 30 MBSR studies found that the number of in-class hours did not correlate with mean psychological outcome effect size in both clinical and nonclinical samples. The authors concluded that adaptations to reduce in-class hours may be appropriate for participants when the longer time commitment is an obstacle to their participation and when psychological distress is an issue (Carmody & Baer, 2009). Rather than implementing a longer meditation (e.g., 30–45 min), the clinician can suggest to the PTSD patient to do the exercises only as long as they feel comfortable. For example, participants are encouraged to just try it for a few minutes at a time building up their tolerance. Additionally, the clinician can remind the patient that they are in complete control and can turn off the meditation at any time.

Alternative delivery formats may be helpful for PTSD applications

Group mindfulness-based interventions have shown positive effects in a variety of health conditions, and the group format has many benefits (Grossman et al., 2004). The group format usually costs less than individual therapy because one therapist can see many patients in a session. Groups can provide motivation and synergistic learning opportunities for the participants. Meeting other people with similar or other issues can give the participants a wider perspective of their own situation and allow them to see how others handle their problems. Participants can provide encouragement and emotional support for each other, thereby instilling a sense of camaraderie (Allen, Chambers, & Knight, 2006).

However, the group format can also be an issue for people with PTSD, and alternative delivery methods, such as a one-on-one format, may be useful. Some participants with sensitive diagnoses or aversions to public sharing are unwilling to receive group treatment—situations that are common in those with PTSD. In an MBSR study in combat veterans with posttraumatic stress disorder, out of 382 clinician referred patients who were eligible for an MBSR class, only 44% agreed to go to an orientation. Of those who attended the orientation and entered the MBSR study, 26% were considered noncompliant for their failure to attend at least four classes (Kearney et al., 2012). Alternative formats may provide an alternative choice to group averse patients

who would otherwise not receive the therapy and may also improve compliance and reduce attrition as others also recommend (Lau & Yu, 2009).

A few small studies have examined alternative mindfulness meditation formats. Brief clinical cases of individual mindfulness meditation therapy have been reported (de Lisle, Dowling, & Allen, 2011). A randomized controlled trial of tele-health mindfulness meditation compared to psychoeducation was administered one on one and showed positive preliminary effects (Niles et al., 2012). Similarly, Internet programs are just beginning to be studied. One small feasibility study of a 2-week Internet mindfulness meditation program found no adverse events and trends for improvements in distress, perceived stress, and negative affect for adherent participants compared to controls (Gluck & Maercker, 2011).

Not only may the person with PTSD be averse to a group format, but there may be individual client differences that affect the potential benefit that can be received from a group format. For example, the group format may be very effective for someone who is extraverted, loves groups, and thrives in a social setting, while not as effective for an introvert who feels intimidated in groups. A mindfulness meditation study showed that participants with insecure adult attachment styles were twice as likely as the participants with secure attachment styles to drop out of group treatment (Cordon, Brown, & Gibson, 2009). A meta-analysis compared the treatment outcomes from 2,300 clients across 26 psychological intervention studies that were matched or not matched to their preferred treatment. The matched clients had a 58% chance of showing greater improvement, and were half as likely to drop out compared to non-matched clients (Swift & Callahan, 2009). The use of an individualized approach to format may improve adherence to mindfulness meditation and outcomes.

We conducted a survey to assess if people would prefer alternative formats over a group format. Two hundred and one participants (mean age 43 ± 15 ; 69% female) completed an online survey about format preferences for a mindfulness meditation intervention and presence of PTSD and depression symptoms. Sixty-nine percent of the participants screened positive for PTSD (mean score 16 ± 6 SD, 14 = cutoff), 72% for depression, and 61% for both. Internet and individual formats received more positive responses than the group format, and 10% of participants said they would refuse a group format. Internet was rated as the first choice format (Internet 40%, individual 39%, group 21%), and group was the last choice for most participants (Internet 35 %, individual 13%, group 52%; Wahbeh, unpublished data). PTSD and depression symptoms were not associated with first or last format choice. The survey was administered online, which could bias preference ratings towards the Internet version. Regardless, these cross-sectional data lend support to the consideration and study of alternative mindfulness meditation delivery formats.

Novel approaches

Novel approaches for implementing and assessing mindfulness meditation interventions would also be helpful to the field. The evaluation of program adherence is an important issue in assessing mindfulness meditation's effects because greater adherence is associated with improved clinical outcomes (DiMatteo, Giordani, Lepper, &

Croghan, 2002). Adherence is especially important in mindfulness meditation trials because home practice is frequently prescribed (Vetteese, Toneatto, Stea, Nguyen, & Wang, 2009). Home-practice adherence is usually assessed through self-report. Self-reporting is an improvement from not measuring home-practice adherence at all but has limitations. Self-report adherence data are rarely reported (Flegal, Kishiyama, Zajdel, Haas, & Oken, 2007; Sannes, Mansky, & Chesney, 2008; Wahbeh, Haywood, Kaufman, Harling, & Zwickey, 2009) and are easily altered, as is well known in medication trials (Osterberg & Blaschke, 2005). Results based on self-report home practice logs must be interpreted with caution because there are no objective measures validating the accuracy of them (Carmody & Baer, 2008, 2009; Flegal et al., 2007; Rosenzweig et al., 2010). Drug trials regularly use Medication Event Monitoring System and pill counts as objective adherence measures. No such standards exist in mindfulness meditation research. We created a novel software application, iMINDr (Wahbeh, Zwickey, & Oken, 2011), to collect objective adherence measures of home practice and assess its effect on clinical outcomes. iMINDr is an iPod (Apple) application that accurately tracks adherence because the device is used to play home-practice meditations and collect usage data. We have successfully used iMINDr for multiple studies, and other researchers have implemented it as well. The program, or ones like it, can be used to support clinical applications of mindfulness meditation to assess home-practice adherence.

In addition to tracking adherence, ecological momentary assessment (EMA) may help evaluate the efficacy of mindfulness meditation interventions. EMA serves to minimize recall bias and maximize ecological validity, allows for the study of microprocesses that influence behavior in real-world contexts, and has been used in people with PTSD (Csikszentmihalyi & Larson, 1987; Germain, Hall, Katherine Shear, Nofzinger, & Buysse, 2006; Shiffman, Stone, & Hufford, 2008; Yoshiuchi, Yamamoto, & Akabayashi, 2008). Decreased stress and stress reactivity may be most apparent and relevant in the participants' natural environment rather than in a lab, and thus, EMA may elucidate more practical and relevant outcome changes from mindfulness meditation interventions. We have developed EMA programs and found it sensitive to stress (Oken, Fonareva, & Wahbeh, 2011) and to a mindfulness meditation intervention in stressed adults (Oken et al., 2010). We are currently using it for people with PTSD.

Conclusions

Mindfulness meditation is growing in popularity for multiple conditions. Although the use of mindfulness meditation for PTSD is not widespread, there is rationale for its use and preliminary positive evidence for its effects. Clinical considerations need to be implemented when applying mindfulness meditation for people with PTSD, including shorter class and home-practice times and sensitivity to potential symptom exacerbations. Opportunities for alternative delivery formats of mindfulness meditation programs such as individual, telephone, and Internet programs would support its use in people with PTSD who can be averse to group therapy sessions. Individualized prescription of these formats can incorporate personality and other predictor qualities to maximize efficacy. Finally, novel methods such as using technology to deliver and

track home practice and EMA evaluations of symptom changes may improve both delivery of the intervention and assessment of their efficacy.

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Mindfulness Training Targets Addiction at the Attention–Emotion Interface

A Neurocognitive Framework

Eric L. Garland and Brett Froeliger

Addiction is an age-old human ill, a vexing and pernicious problem that humans have sought to illuminate and address for millennia. Within the past several decades, findings from cognitive and affective neuroscience have radically expanded and deepened our understanding of addiction. The view emerging from a number of lines of research is one in which addiction is conceptualized as a cycle of compulsive drug-seeking behavior and dysregulated neurocognitive processes undergirding information processing and emotional experience (Garland, Boettiger, & Howard, 2011; Koob & Volkow, 2009). Processes that appear to be central in regulating the cognitive, affective, and autonomic mechanisms underpinning addiction include attention, automaticity, reward processing, emotion regulation, stress reactivity, and inhibitory control, among others. These processes are thought to result from individual differences in a widely distributed yet functionally and anatomically integrated network of cortical and subcortical brain regions that subserve the acquisition, maintenance, and reinstatement of addictive behaviors (George & Koob, 2010).

In spite of the considerable advances made in understanding addiction, many behavioral treatments for this condition lag behind the ever-accelerating pace of accumulated knowledge and have yet to integrate findings from the leading edge of addiction science into intervention development. Yet, emerging behavioral interventions that target the neurocognitive processes outlined above may hold promise as effective treatments for persons with substance-use disorders. In this regard, addiction therapies involving mindfulness training such as Mindfulness-Based Relapse Prevention (Bowen et al., 2009; Bowen, Chawla, & Marlatt, 2010) or Mindfulness-Oriented Recovery Enhancement (Garland, 2013; Garland, Gaylord, Boettiger, & Howard, 2010) are especially promising. A growing body of studies indicates that mindfulness-based interventions produce significant therapeutic outcomes among persons suffering from various forms of addiction, including alcohol dependence (Garland, Gaylord, et al., 2010), drug dependence (Bowen et al., 2009),

and nicotine dependence (Brewer et al., 2011), among others. How such interventions target the pathogenic cognitive, affective, and psychophysiological mechanisms that contribute to addiction remains an open question.

The following chapter offers a conceptual framework with which to understand how mindfulness training may ameliorate addiction. This framework is first grounded in the description of a neurobiological risk chain linking cue reactivity, implicit cognitive operations, and maladaptive cognitive control strategies that drives the appetitive motivational states and drug-seeking behaviors characteristic of addiction. Next, our framework is contextualized within traditional Buddhist psychology. Finally, we conclude by contrasting and informing our framework with Langer's concepts of mindfulness and mindlessness. From the neurocognitive perspective presented herein, facilitation of regulatory mechanisms via mindfulness in persons suffering from addiction may be an important key to recovering from this destructive human ill.

A Neurocognitive Model of Addiction

Numerous preclinical and human drug-addiction studies have demonstrated that the neural circuits subserving reward processes, habit learning, and memory are tightly intertwined. In the context of healthy behavior, the coordination between reward and habit learning confers numerous biological advantages to species, including motivational drive to explore the environment to obtain resources that have been paired with safety, satiety, or the sense of well-being.

However, in the context of drug dependence, this pairing becomes dysregulated. For example, most forms of psychoactive drug use induce dopaminergic activity in the ventral striatum and ventral tegmental area (Feltenstein & See, 2008), resulting in pleasure and an experience of reward. Repeated use of substances is believed to impart motivational significance to cues associated with drug-use episodes through sensitization of mesocorticolimbic brain regions, known as incentive salience (Robinson & Berridge, 2008). However, following a period of chronic use, drug administration results in potentiated dopamine transmission in the dorsal striatum (habit learning pathway), but not ventral striatum (reward learning pathway; Ito, Dalley, Robbins, & Everitt, 2002). As such, drug-related cues come to evoke a powerful, conditioned motivational response coupled with a “wanting/craving” for substances that may be fully dissociable from a sense of “liking” or finding the drug pleasurable (O’Brien, Childress, Ehrman, & Robbins, 1998; Robinson & Berridge, 2001).

This conditioned response to drug-related cues, known as cue reactivity, manifests as a constellation of somatic sensations coupled with a broad array of physiological reactions including autonomic, corticolimbic, corticostriatal, and neuroendocrine responses (Bergquist, Fox, & Sinha, 2010; Carter & Tiffany, 1999; Heinz, Beck, Grusser, Grace, & Wrage, 2009; Sinha et al., 2003). Furthermore, neuroimaging research with humans demonstrates that through conditioning, nondrug cues elicit dorsal striatal dopamine release (Volkow et al., 2008). Thus, following prolonged drug use, the pattern of dopamine transmission elicited by drug cues shifts from being paired with reward circuitry function to becoming increasingly overlearned and automated via habit-based neural circuitry. As such, cue reactivity confers compulsivity

to drug-seeking behaviors, motivating the addict to consume drugs even after long periods of abstinence and in spite of countervailing motivations to remain abstinent, particularly in contexts that elicit stress and negative affect (Garland, Boettiger, & Howard, 2011).

The cognitive and behavioral response to drug-related cues is thought to be coordinated by drug-use action schemas, that is, memory systems that drive drug-seeking and drug use through automatized sequences of stimulus-bound, context-dependent behavior (Tiffany, 1990; Tiffany & Conklin, 2000). These schemas originate from a history of repeated drug use in much the same way that other overlearned behavioral repertoires become automatized through repetition (e.g., riding a bike, driving a car). After hundreds of repetitions of consistent responses to a given stimulus, attending and responding to that stimulus become automatic (Shiffrin & Schneider, 1977), leading to rapid processing in neural circuits involved in response execution (Schneider & Chein, 2003). During habit formation, a neurobiological shift occurs in which behaviors that were originally guided by associative networks involving prefrontal cortical regions become controlled by sensorimotor corticobasal ganglia networks (Yin & Knowlton, 2006). Addictive use of substances appears to derive, in part, from an automatized stimulus-response habit that has been imparted with compulsivity through the dopaminergic effects of incentive sensitization.

Once drug-related cues have acquired incentive salience, drug-use action schemas deploy attention to search for and focus on such cues as a means of satisfying the goal of drug use. Attended stimuli become preeminent at the expense of other stimuli in the competitive processing of neural networks, and thereby preferentially engage perceptual systems and behavioral response (Desimone & Duncan, 1995). Current goals bias the competition for attention to select and favor stimuli that match representations of those goals held online in working memory (Soto, Hodsoll, Rotshtein, & Humphreys, 2008). Because obtaining and consuming psychoactive substances are motivationally salient goals in addiction, drug-use action schemas stored in memory guide implicit cognitive processing of stimuli associated with previous drug-use episodes. This implicit cognitive process is manifested as a preferential focus of attention towards drug-related cues, known as addiction attentional bias (Field & Cox, 2008).

When attention is focused on drug-related cues, motivation for drug use increases, which then amplifies the salience of the cues (Franken, 2003). Thus, addiction attentional bias and craving are mutually excitatory processes (Field, Munafo, & Franken, 2009) that may compel drug use even in the absence of the volition or intent to use drugs. Nonvolitional, automatic processing of drug-related cues (external cues like the sight of a crack pipe and/or internal cues like negative affective states associated with previous drug-use episodes) via drug-use action schema may elicit a conditioned behavioral response without the deployment of conscious decision-making processes. As such, an addict may find themselves consuming drugs without awareness of the intent to use, in much the same way as other complex thought-action repertoires such as goal pursuit can be engaged without conscious volition by conditioned contextual cues (Bargh & Chartrand, 1999). This process corresponds with anecdotal reports of addictive binges in which alcoholics describe having the intent to have only one drink and “the next thing I knew, the bottle was empty,” previously abstinent crack addicts

describing being “lost” for days in a crack house after relapsing by taking a single hit, or the common occurrence of sitting in front of the television with a bag of potato chips only to discover 30 min later that the whole bag has been eaten.

As the addictive habit becomes more entrenched, individuals struggling with addiction experience a loss of control over substance use. This loss of control is particularly evident under conditions that evoke stress and negative affect (Garland, Boettiger, & Howard, 2011), as stress induces deficits in executive function (Liston, McEwen, & Casey, 2009) and elicits habitual behaviors (Dias-Ferreira et al., 2009). Irrespective of stress, persons with substance-use disorders and behavioral addictions evidence deficits in inhibitory control, that is, the ability to withhold an automatized response under conditions that typically elicit that response (Goldstein & Volkow, 2011). Indeed, during tasks that require inhibition of automatized responses, addicts commit more errors, coupled with dysfunctional activation of anterior cingulate and right prefrontal cortices, two brain structures crucial for error monitoring (Bush, Luu, & Posner, 2000), and inhibitory control, respectively (Hester & Garavan, 2009). Thus, as the ability to inhibit drug-seeking and consummatory responses becomes impaired due to the neurocognitive changes that occur with the development of addiction, the addict progressively loses more and more control over the addictive habit.

Although persons in active addiction may experience an intense, overwhelming compulsion and motivation to seek and use drugs, persons in recovery from addiction often experience the impulse to use substances as ego-dystonic, that is, perceived as intrusive and incongruent with the desire to remain abstinent (Soutullo, McElroy, & Goldsmith, 1998). As such, individuals in recovery may employ “willpower” to suppress the urge to engage in the addictive behavior. Ironically, suppression may promote relapse insofar as this cognitive strategy inadvertently results in a “rebound effect,” i.e., an increased rate of the thoughts and emotions it is directed against (Wegner, Schneider, Carter, & White, 1987; Wenzlaff & Wegner, 2000). When attention is deployed in search of undesirable mental content to be suppressed (e.g., a drug craving), the ensuing positive-feedback loop leads to hyperaccessibility of unwanted cognitions (Wegner & Erber, 1992), amplifying their frequency and intensity under conditions of stress (Nixon, Cain, Nehmy, & Seymour, 2009). Thus, attempted suppression of substance-related thoughts and urges may further bias cognitive processing towards drug-related cues and mental contents, increasing attention to substance-related thoughts and urges (Klein, 2007; Palfai, Monti, Colby, & Rohsenow, 1997). Further, suppression of thoughts of substance use leads to greater enactment of consummatory behaviors (Erskine & Georgiou, 2010; Erskine, Georgiou, & Kvavilashvili, 2011). When addictive urges are chronically suppressed over time, the neurocognitive resources for self-regulation are depleted, resulting in an inability to inhibit substance-related cognitions and an attentional bias towards drug-related cues (Garland, Carter, Ropes, & Howard, 2011). Ultimately, exhaustion of regulatory resources that occurs during sustained suppression of urges may result in relapse.

In sum, from this neurocognitive perspective, addiction occurs through basic human learning processes gone awry. In the case of drug or alcohol addiction, learning processes become hijacked due to the neuropharmacologically rewarding properties of the substance (Hyman, 2007). Once an intentional decision, over time the act of seeking and consuming drugs becomes embedded as an automatic, compulsive habit,

one that becomes increasingly difficult to inhibit as brain structures involved in self-regulation are dysregulated by the combined action of stress and the pharmacologic agent itself. Unwittingly, the struggle to reassert control over the addictive behavior through misguided attempts at urge suppression results in hypervigilance for salient cues such as the sight of a bar, an old hang-out spot, or a familiar “drinking buddy,” which triggers uncomfortable physical sensations and a strong desire to consume substances, even after extended periods of abstinence. Eventually, the addict succumbs and relapses, which strengthens the addictive habit through the processes of conditioning and negative reinforcement (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004). Hence, behavioral interventions that aim to interrupt automatized drug-use action schemas and restore more normalized reward-learning processes may prove to be beneficial in helping drug abusers maintain abstinence. Similarly, treatment approaches offering effective alternatives to the maladaptive strategy of suppressing the urge to engage in addictive behaviors in the face of relapse triggers may free neurocognitive resources for the effective regulation of emotional distress and concomitant urges. It is in these regards that mindfulness-based interventions may be especially efficacious for the treatment of addiction.

Mindfulness, Buddhist Psychology, and Addiction

Classically, the Buddhist traditions from which modern mindfulness-based interventions are derived were concerned with addressing human suffering (*dukha*). According to the Buddhist view (Kalupahana, 1987; Rahula, 2007), suffering is the result of craving (*tanha*), out of which also arise destructive emotions (*klesas*)—the three fundamental *klesas* are attachment to what is pleasurable (*raga*), aversion towards what one does not want (*dvesha*), and ignorance of the true nature of self and existence (*avidya*). The centrality of craving in Buddhist psychology was elucidated by the Buddha in the Dhammapada, who stated “From craving arises sorrow and from craving arises fear. If a man is free from craving, he is free from fear and sorrow” (Dhammapada, 1973, verse 197, p. 216). The objects of craving may be sense pleasures (such as those provided by drugs, alcohol, food, or sex), a mental state (such as happiness or the “high” provided by heroin), or nothingness (a state of oblivion, not unlike the obliteration of feeling produced by acute alcohol or opiate intoxication; Groves & Farmer, 1994).

According to the Buddhist philosophical doctrine of interdependent coarising, or *pratityasamutpada*, craving is embedded within the flow of human experience as one of the 12 key factors (*nidanas*) by which phenomena mutually condition one another and come to exist (Kalupahana, 1987). From the perspective of *pratityasamutpada*, all phenomena arise out of a web or chain of causes and conditions. When one of these causes is altered or disappears, the dependent phenomenon will change or cease—much like when a link in a chain is broken, the chain falls apart. In the *nidana* chain, based on past conditioning, one becomes conscious of one’s own identity and sense of embodiment, which in turn provides the ground for the senses. The senses, in turn, make contact with the objects of perception through attention, yielding pleasurable or painful sensations. One then experiences craving for what is pleasurable, and is attached to or clings to that pleasure, wanting it to continue. Attachment to the

object of craving becomes the central focus of experience and may come to define an individual's life. From this perspective, addictions may be thought of as severe attachments that cause the individual to be "reborn" as a "hungry ghost" (*preta*), a being who is dominated by insatiable hunger, craving, and longing for a permanent sense of satisfaction that can only be transitory and impermanent at best (Groves & Farmer, 1994). This depiction, while extreme, conveys the essence of desperation and compulsivity that characterizes addiction, and is congruent with modern conceptualizations of addiction as a form of "excessive appetite" (Orford, 2001).

The linkage between contact and craving espoused in the Buddhist doctrine of *pratityasamutpada* may be evidenced by the neurobehavioral coupling between attention and appetitive motivation identified by modern psychophysiological methods (Lang, Bradley, & Cuthbert, 1997). Attended stimuli receive preferential information processing and are likely to direct behavior (Desimone & Duncan, 1995). Conversely, the goal relevance (or motivational salience) of a stimulus guides attention to select and discriminate it from the environmental matrix in which it is embedded (Corbetta & Shulman, 2002). In so doing, attention gates perceptions of the stimulus for further cognitive processing (including evaluation of its motivational relevance) and, ultimately, for execution of approach behaviors in response to appetitive objects or avoidance behaviors in response to aversive ones. Thus, depending on its salience to the survival of the organism, the object of attention elicits the motivation to approach (cf. *raga*-attachment) or avoid (cf. *dvesha*-aversion), while the resultant emotional state, as the manifestation of approach or avoidance motivations, tunes and directs attention (Friedman & Förster, 2010; Lang & Bradley, 2011). Attention and emotional response are thereby inextricably linked in a self-perpetuating cycle that governs action. Thus, in both the Buddhist and neurocognitive models, addiction, like all forms of suffering, arises and abides at this attention–emotion interface.

Mindfulness Training Targets Addiction at the Attention–Emotion Interface

According to Buddhism, suffering can be extinguished through a deep understanding of its causes; once the causes of suffering are genuinely known, craving and ignorance may be uprooted and eradicated (Rahula, 2007). Mindfulness has long been held to be a key to gaining insight (*vipassana*) into the nature of suffering, and therefore is viewed as an essential component in the extinction of craving and addictive attachment. Informed by recent empirical research, we offer the following hypotheses to explicate the pathways by which mindfulness may ameliorate addiction.

Mindfulness training may increase the accuracy of cognitive appraisals
and thereby attenuate stress reactivity

Persons in recovery from addiction confront numerous challenges to their resolve to remain abstinent. Exposure to socioenvironmental stressors may render such individuals vulnerable to relapse, as stress evokes automatic appetitive responses and impairing functions involved in the regulation of addictive urges (Dias-Ferreira et al., 2009;

Garland, Boettiger, & Howard, 2011; Schwabe, Dickinson, & Wolf, 2011). Mindfulness training may allay stress-induced relapse by virtue of its demonstrated stress-reductive effects (Grossman, Niemann, Schmidt, & Walach, 2004). Although early theorists hypothesized that mindfulness meditation reduces stress by generating a relaxation response (Benson, Beary, & Carol, 1974), modern research indicates that mindfulness practice may reduce stress through mechanisms other than relaxation, including modification of cognitive-emotional coping processes (Ditto, Eclache, & Goldman, 2006; Garland, Gaylord, & Fredrickson, 2011; Jain et al., 2007).

Mindfulness has been conceptualized as awareness without emotional distortions and reactivity (Bishop et al., 2004, p. 2004). Emotional distortions and reactions bias perception, leading to exaggerated, overestimated appraisals of threat and underestimations of self-efficacy (Mathews & MacLeod, 2005), thereby resulting in avoidant behavior and increased stress. In contrast, mindfulness may help the individual to view their present circumstances more clearly and adaptively, and to assess more accurately their ability to cope with present challenges (Garland, 2007). Concomitantly, recent neuroimaging research demonstrates that, in contrast to a meditation-naïve control group, mindfulness meditation practitioners exhibit less reactivity in frontal-attention brain regions (i.e., dorsolateral prefrontal cortex) and less deterioration of positive affect in response to amygdala activation to negative emotional cues (Froeliger, Garland, Modlin, & McClernon, 2012). These data suggest that mindfulness training may alter the allocation of attentional resources to processing negative emotional stimuli and attenuate the effects of limbic reactivity on mood state. Similarly, persons with a history of depression treated with MBCT evidenced reduced attention to negative information (De Raedt et al., 2011). Mindfulness training is also associated with significantly improved memory for positive information (Roberts-Wolfe, Sacchet, Hastings, Roth, & Britton, 2012) and reduced overgeneral memory bias among depressed individuals (Williams, Teasdale, Segal, & Soulsby, 2000). An additional study showed that mindfulness meditation training reduces emotional interference from unpleasant stimuli (Ortner, Kilner, & Zelazo, 2007). Taken together, these neurocognitive findings suggest that mindfulness training may lessen the impact of emotional bias on information processing, and thereby decrease catastrophic appraisals of life events. Such clarification of appraisal processes may preclude the perceived need to self-medicate stress with alcohol or drugs.

Mindfulness training may improve emotion regulation

Multiple studies have indicated that mindfulness training may augment emotion regulation (Chambers, Gullone, & Allen, 2009; Hölzel et al., 2011). Outside of the context of mindfulness, emotion regulation may be conceptualized as a series of complex processes that involve exerting proactive cognitive control over emotional reactions. Cognitive regulation of negative emotional processes reduces negative affect and attenuates the effects of emotional interference on cognition (Kim & Hamann, 2007; Ochsner et al., 2004; Ochsner & Gross, 2005; Urry et al., 2006), whereas regulation of positive emotional processes increases positive affect. Neuroimaging research of emotion regulation posits a dual-system neural-network model with reciprocal

interactions: a dorsal brain system (e.g., dorsolateral prefrontal cortex, dorsal anterior cingulate cortex, parietal cortex) subserving executive function and top-down control, and a ventral brain system (e.g., amygdala, striatum) subserving emotional processing and bottom-up impulses (Drevets & Raichle, 1998; Gyurak, Gross, & Etkin, 2011; Kim & Hamann, 2007). Moreover, successful downregulation of negative emotion is thought to be dependent upon increased engagement of prefrontal cortex (e.g., dorsolateral and dorsomedial prefrontal cortices), which in turn attenuates amygdala activation (Kanske, Heissler, Schönfelder, Bongers, & Wessa, 2011; Ochsner, Bunge, Gross, & Gabrieli, 2002). Successful upregulation of positive emotion is thought to involve increased activation in a predominately left lateralized prefrontal network that in turn potentiates striatal activation (Kim & Hamann, 2007; Mak, Hu, Zhang, Xiao, & Lee, 2009). Furthermore, research suggests that the failure to regulate emotional reactions occurs when the reciprocal balance between bottom-up and top-down neural circuits becomes tipped in favor of bottom-up processes (Heatherton & Wagner, 2011). Mindfulness practice may help serve to restructure neural function to be tipped in favor of top-down control processes. Consistent with this notion, Goldin and Gross (2010) demonstrated that among individuals with elevated baseline negative affect, following a mindfulness intervention, individuals exhibited greater negative emotional regulation as indexed by improved affect related to negative self-beliefs, reduced amygdala activation, and greater recruitment of attentional resources (Goldin & Gross, 2010).

Addiction is associated with elevated negative affect and attenuated positive affect. Neuroimaging research demonstrates that, compared to controls, persons with substance-use disorders viewing negative emotional cues exhibit hypoactivation in cognitive-control brain regions (Froeliger et al., 2013; Payer, Lieberman, & London, 2011; Sinha et al., 2005). Moreover, dysregulation in frontal cognitive control circuitry to processing negative emotional information is potentiated by substance withdrawal (Froeliger, Beckham, et al., 2012; Froeliger, Modlin, Kozink, et al., 2012; Froeliger, Modlin, Wang, et al., 2012). Further lines of research have reported on drug dependence altering neural function during the processing of intrinsically positive emotional information. For example, while viewing positive emotional images, addicts display hypoactivation in frontal executive (Asensio et al., 2010; Diggs, Froeliger, Carlson, & Gilbert, 2013) and striatal-dopamine reward circuitry (Asensio et al., 2010). Taken as a whole, these studies suggest that drug-addiction-related deficits in affective response may result largely from aberrant neural function in frontal brain regions that play an important role in regulating the affective response subserved limbic regions. Thus, mindfulness-based interventions, which augment neurocognitive control processes, may improve emotion regulation in drug abusers and thereby reduce drug use triggered by negative affect.

One specific form of cognitive regulation of emotion that may be augmented by mindfulness training is reappraisal, the process by which the meaning of a stressful or adverse event is reconstrued so as to reduce its negative emotional impact (Lazarus & Folkman, 1984). According to a recent model of mindful coping (Garland, Gaylord, et al., 2011; Garland, Gaylord, & Park, 2009), following an encounter with adversity, a mindfulness practitioner may first disengage from their initial negative appraisal into the state of mindfulness, an open-minded metacognitive awareness in which thoughts and feelings are viewed as ephemeral mental events rather than

accurate reflections of reality. In so doing, attention broadens to encompass a larger set of information from which one may generate new appraisals of the challenging life circumstance. By accessing this enlarged set of data pertaining to the situation, individuals can then reappraise their circumstances more easily as meaningful or growth promoting. For instance, a recovering alcoholic might reappraise an affront by an old drinking buddy as further confirmation of their decision to build new sober relationships. The “mindful reappraisal” process likely involves an unfolding of brain activations over time. Invoking the state of mindfulness may activate anterior cingulate, medial, and dorsolateral prefrontal cortices (Chiesa & Serretti, 2010; Hölzel et al., 2007), which may enable self-monitoring of stress reactivity and attentional disengagement from stress appraisals. Furthermore, mindfulness training attenuates activation in brain areas (i.e., medial prefrontal cortex) that subserve self-referential, semantic processing during negative affective experience while enhancing activation in brain regions subserving interoception (i.e., insula; Farb et al., 2010). This metacognitive perspective afforded by mindfulness practice may then promote the process of cognitive reappraisal, where brain activations spread from the left to right prefrontal cortex and posterior to anterior parts of the cortex as emotional interference is attenuated, while alternate interpretations of the stressor are retrieved from memory and evaluated for relevance to the self (Kalisch, 2009).

Mindfulness training may undo the physiological stress reaction

In addition to its effects on cognitive-emotion regulation, mindfulness training may reduce stress by decreasing the sympathetic “fight-or-flight” response and inducing a compensatory parasympathetic relaxation response. Studies have identified effects of mindfulness meditation on physiological indicators of the stress reaction, such as blood pressure (de la Fuente, Franco, & Salvator, 2010), heart rate (Zeidan, Johnson, Gordon, & Goolkasian, 2010), skin-conductance responses (Tang et al., 2009), cortisol levels (Carlson, Speca, Faris, & Patel, 2007), and muscle tension (Benson, Greenwood, & Klemchuk, 1975). In addition, mindfulness meditation increases heart-rate variability, a marker of increased parasympathetic activation, to an even greater extent than relaxation therapy (Ditto et al., 2006; Tang et al., 2009). Hypothetically, the effects of mindfulness training on autonomic indices may result in improved ability to manage cue reactivity. In support of this hypothesis, persons participating a mindfulness-based smoking cessation intervention who exhibited increased heart-rate variability during mindfulness meditation smoked fewer cigarettes following treatment than those who exhibited decreased heart-rate variability (Libby, Worhunsky, Pilver, & Brewer, 2012). Further, a Mindfulness-Oriented Recovery Enhancement intervention for alcohol dependence increased heart-rate variability recovery from stress and alcohol cues (Garland, Gaylord, et al., 2010). In addition, relative to their less mindful counterparts, alcohol-dependent individuals with higher levels of trait mindfulness exhibit greater cardiac-autonomic recovery from stress and alcohol cue reactivity (Garland, 2011).

As persons recovering from addiction develop higher levels of trait mindfulness as a result of mindfulness training, they may be better able to engage pre-frontal cortical regulation of the stress reaction via parasympathetic nervous system

activation of the “vagal brake,” resulting in increased heart-rate variability and heart-rate deceleration in the face of stress or addictive cues (Porges, 1995; Thayer & Lane, 2009). This hypothesis is plausible given evidence of the effects of mindfulness on dorsolateral prefrontal and anterior cingulate cortices (Farb et al., 2007; Hölzel et al., 2007), key structures involved in heart-rate variability responses (Lane et al., 2009; Napadow et al., 2008). Mindful individuals may have greater capacity for contextually appropriate engagement and subsequent disengagement of neurocognitive resources in response to the presence and absence of stress and drug cues. Such autonomic flexibility (Friedman, 2007) developed through mindfulness training may help persons in recovery from addiction adapt to situational demands without falling into stress-precipitated relapse.

Mindfulness training may increase the sense of reward from natural pleasures through savoring

With repeated drug use, neural sensitization may occur whereby the drug elicits a potent response in striatal dopamine neurons and in turn a robust hedonic experience. Concomitantly, long-term exposure to drugs significantly attenuates neural responses to intrinsically positive stimuli in the environment (e.g., a beautiful landscape, a smiling baby, a delicious meal). In other words, through neuroadaptation, the addicted individual learns to experience reward through self-administration of drugs rather than by enjoying the subtle beauty of the natural environment or the affiliative or health-promoting objects found therein. This rewiring of reward learning entrenches the drug user in a vicious cycle of drug taking that serves to maintain the ongoing use of drugs. Indeed, vulnerability to relapse has been attributed to increased incentive salience of drug cues and decreased salience of intrinsically pleasant stimuli (Berridge, Robinson, & Aldridge, 2009; Koob & Le Moal, 2001). Though pharmacotherapies may provide acute relief to drug-addiction-related anhedonia, their course and effectiveness in facilitating restoration of normal, healthy reward learning remain unknown. Thus, therapies that may target reward processes over the long term, in the absence of, in adjunct to, or after pharmacotherapies, have been discontinued are very much needed.

A nascent database of research suggests that mindfulness training may enhance reward experience and positive affect in both healthy and clinical populations (Garland, Fredrickson, et al., 2010). Among healthy individuals, mindfulness augmented positive emotional information processing, which was correlated with improvements in positive affect (Roberts-Wolfe et al., 2012). Moreover, mindfulness-based interventions have proven effective in enhancing positive affect in clinical populations with low positive and elevated negative baseline affect. For example, studies demonstrate that mindfulness training results in increased positive affect and reduced depressive symptoms in major depressive disorder (Geschwind, Peeters, Drukker, van Os, & Wichers, 2011), bipolar (Deckersbach et al., 2012), and HIV (Gayner et al., 2012) patients, among others. Notably, Geschwind et al. (2011) found that MBCT increased reward experience from pleasant events throughout daily life among persons recovering from major depressive disorder. Plausibly, mindfulness training may

facilitate the relearning of reward among drug-addicted individuals seeking drug abstinence.

By instructing participants to mindfully focus attention on pleasurable objects, events, and experiences (e.g., a beautiful nature scene or the satisfying taste of a meal), mindfulness training may increase the sense of reward one receives from natural pleasures. Such mindful savoring increases positive emotion (Quoidback, Berry, Hansenne, & Mikolajczak, 2010) and may counter the allostatic effects of addiction on reward neurocircuitry in the brain to generate positive emotions. In light of research indicating that attending to present-moment experience robustly predicts happiness (Killingsworth & Gilbert, 2010), learning to mindfully attend to and savor positive events may offset negative affective states that often trigger addictive responses.

Mindfulness training may disrupt drug-use action schema

Drug-dependent individuals typically report experiencing a sense of well-being or even euphoria during initial stages of drug use. However, over time, the positive feelings associated with taking a drug become drastically reduced. In spite of the diminishing returns in positive emotional experiences resulting from drug-use dependent users continue habitually to self-administer their drug of addiction. This habitual action becomes an overlearned process that results in automatized behavior—putatively due to neuroplastic changes in striatal circuitry (Ito et al., 2002; Volkow et al., 2008).

Relatedly, human positron emission tomography research has reported that meditation practice increases dopamine release in the ventral striatum (Kjaer et al., 2002). This pioneering study by Kjaer et al. (2002) suggested that mindfulness practice may target striatal-dopamine transmission—a neural function known to mediate automaticity that becomes dysregulated following chronic drug use. Though much more investigation is needed to elucidate the effects of mindfulness on the brain-behavior relations subserving drug-use action schemas, early research on the effects of mindfulness on behavioral measures of automaticity has emerged, providing a theoretical foundation for the potential efficacy of mindfulness training for interrupting drug-use action schemas. Hypothetically, mindfulness training may increase awareness of the activation of drug-use action schema when triggered by substance-related cues or negative emotion, thereby allowing for the disruption of automatized appetitive processes with a controlled coping response.

Insofar as mindfulness meditation has been shown to reduce habitual behavior (Wenk-Sormaz, 2005) and inflexible reliance on scripted cognitive responses (Greenberg, Reiner, & Meiran, 2012), mindfulness training may strengthen conscious control of automatic addictive habits. Deikman (1966) conceptualized the effect of mindfulness meditation as a form of “deautomatization,” that is, an undoing of automatization whereby unconscious, habitual patterns of perception and motor behavior are reinvested with attention. It is plausible that during the course of mindfulness-based interventions, automatic drug-use action schemas may be deautomatized through formal and informal mindfulness practices, which involve the intentional and conscious direction of attention to cognitions, emotions, physiology, and behavior. Given evidence that such conscious attentional processing disrupts

automatic processing (Lieberman, 2003), mindfulness training may interrupt drug-use action schema, allowing for the strategic deployment of self-regulatory mechanisms to reduce or prevent substance use.

Mindfulness training may modify addiction attentional bias

Given that drug-use action schemas can be triggered by cues associated with past episodes of substance use, the activation of these automatic addictive habits may be interrupted by shifting attention from substance-related triggers to innocuous objects and events. Mindfulness training involves practices that exercise sustained attention and vigilant monitoring, whereby one repeatedly places their attention onto an object while alternately acknowledging and letting go of distracting thoughts and emotions. Objects of mindfulness practice can include the sensation of breathing; the sensation of walking; interoceptive and proprioceptive feedback about the body's internal state, movement, and position; visual stimuli (like a candle flame or running water); mental contents such as thoughts or feelings; or the quality of awareness itself (Lutz, Dunne, & Davidson, 2007). Concomitantly, research suggests that mindfulness is linked with improved regulation of attention (Chiesa, Calati, & Serretti, 2011; Lutz, Slagter, Dunne, & Davidson, 2008). Mindfulness training is associated with strengthening of functional connectivity of a dorsal attentional network (Froeliger, Garland, Kozink, et al., 2012) and can increase attentional reorienting, that is, the ability to engage, disengage, and move attention efficiently from one object to another subserved by dorsal attentional systems (Jha, Krompinger, & Baime, 2007; van den Hurk, Giommi, Gielen, Speckens, & Barendregt, 2010). Moreover, long-term mindfulness training strengthens alerting (Jha et al., 2007; MacLean et al., 2011), that is, vigilant preparedness to selectively attend to incoming stimuli, subserved by the ventral attentional stream. In addition, trait mindfulness is significantly correlated with self-reported attentional control (Herndon, 2008), decreased errors on sustained attention tasks (Schmertz, Anderson, & Robins, 2009), and improved selective attention, inhibitory control, and cognitive flexibility (Moore & Malinowski, 2009).

In light of the association between mindfulness and attentional control, mindfulness may increase the capacity of persons recovering from addiction to disengage attention from substance-related stimuli. In support of this hypothesis, a recent study of recovering alcohol-dependent adults in residential treatment identified a significant inverse relationship between trait mindfulness and attentional bias for alcohol-related stimuli presented for 2000 ms that remained robust even after controlling for alcohol-dependence severity, craving, and perceived stress (Garland, Boettiger, Gaylord, West Channon, & Howard, 2011). It is plausible that the enhanced capacity for attentional disengagement from alcohol cues exhibited by alcohol-dependent persons higher in trait mindfulness may be subserved by individual differences in prefrontal cortex and anterior cingulate cortex functionality, as these brain structures have been implicated in addictive attentional bias (Ersche et al., 2011; Hester & Garavan, 2004; Luijten et al., 2011). Indeed, to the extent that mindful recovering alcohol-dependent individuals were better able to disengage their attention from alcohol cues, such reduced alcohol attentional bias predicted the degree to which their heart-rate

variability (an index of prefrontal-autonomic control) recovered from alcohol cue-exposure levels (Garland, 2011). Moreover, 10 weeks of Mindfulness-Oriented Recovery Enhancement was found to exert significant effects on attentional bias for alcohol cues presented for 200 ms among alcohol-dependent adults in inpatient treatment (Garland, Gaylord, et al., 2010). Posttraining reductions in attentional bias were significantly correlated with decreases in thought suppression, which were in turn associated with decreases in impaired alcohol-response inhibition (i.e., the subjective sense of being unable to regulate alcohol impulses) and increased autonomic recovery from stress-primed alcohol cues. Hence, mindfulness training may increase one's ability to disengage attention from "people, places, and things" associated with past substance use and to refocus on neutral or health-promoting stimuli, such as the sensation of one's own breath or a beautiful sunset. Ultimately, repetitively disengaging and moving attention away from substance-use triggers (including internal body sensations stemming from negative emotions and stress reactions) toward innocuous or beneficial stimuli may weaken linkages between substance-related cues and drug-use action schema. As such, attentional-bias modification among addicts has been shown to result in decreased substance use and improved treatment outcomes (Fadardi & Cox, 2009; Schoenmakers et al., 2010).

Mindfulness training may regulate craving by decreasing bottom-up processing, decoupling affect from craving, and promoting interoceptive awareness

In light of the traditional Buddhist conceptualization of mindfulness as an antidote to craving (Groves & Farmer, 1994), it is plausible that mindfulness training may impact the urge to use addictive substances. A number of studies have demonstrated that mindfulness training interventions can produce significant reductions in craving (Alberts, Mulkens, Smeets, & Thewissen, 2010; Alberts, Thewissen, & Raes, 2012; Bowen et al., 2009; Ussher, Cropley, Playle, Mohidin, & West, 2009; Westbrook et al., 2013), yet other studies have failed to identify significant reductions in craving among participants in mindfulness training interventions (Bowen & Marlatt, 2009; Brewer et al., 2009; Garland, Gaylord, et al., 2010; Rogojanski, Vettese, & Antony, 2011).

Hypothetically, mindfulness training may positively influence craving-related processes in several ways. First, mindfulness training may decrease bottom-up reactivity to drug-related stimuli, as mediated by reduced activation in the subgenual anterior cingulate cortex and striatum during exposure to substance cues (Westbrook et al., 2013). Second, mindfulness training may decouple negative emotion from craving. Although negative emotion is a common precipitant of craving and subsequent relapse (Marlatt, 1996), mindfulness training may extinguish this association, such that an addict experiencing sadness, fear, or anger could allow these emotions to arise and pass without triggering an appetitive reaction. Indeed, substance-dependent individuals participating in Mindfulness-Based Relapse Prevention were less likely to experience craving in response to depressed mood, and this reduced craving and reactivity to negative emotion predicted fewer days of substance use (Witkiewitz & Bowen, 2011). Third, mindfulness training may increase awareness of craving. Tiffany (1990) proposed that conscious craving occurs when an activated drug-use

action schema is blocked from obtaining the goal of drug consumption. As such, persons in acute withdrawal, persons unable to obtain drugs (e.g., due to lack of funds or availability), or persons attempting to maintain abstinence in the face of triggers may experience an upwelling of craving for substances. In contrast, according to this theory, addicts who are able to obtain and use drugs in an unimpeded fashion would not experience craving. Similarly, persons in long-term residential treatment who are isolated from drug-related cues are unlikely to be conscious of craving. Without awareness of craving, the addict may unwittingly remain in high-risk situations and thus be especially subject to relapse. Indeed, lack of awareness of appetitive reactions to substance cues has been shown to be predictive of future relapse (Rohsenow et al., 1994). Mindfulness may increase conscious access to the appetitive drive to use substances by virtue of its effects on increasing body awareness (Hölzel et al., 2011; Sze, Gyurak, Yuan, & Levenson, 2010). Concomitantly, mindfulness training has been shown to increase activity in the anterior insula during provocations by emotionally salient stimuli (Farb et al., 2010; Zeidan et al., 2011). The anterior insula is held to subserve interoception and awareness of the physical condition of the body, among other related processes (Craig, 2003). Putatively, increased neural activity in the insula during mindfulness meditation indexes heightened access to interoceptive information. Hence, mindfulness may increase awareness of craving and thereby facilitate cognitive control of otherwise unconscious appetitive impulses. Yet, this mechanism may explain the disparate findings on the effects of mindfulness on craving: because of potential underreporting of baseline levels of craving among individuals with impaired insight into their addiction (Goldstein et al., 2009), this increased awareness may confound researchers' attempts to measure the impact of mindfulness training on craving, resulting in an apparent lack of change in craving over time.

Mindfulness training may facilitate exposure to substance-related cognitions and cravings without thought suppression

When persons in recovery attempt to suppress the urge to use drugs or alcohol, such suppression attempts often backfire, resulting in depletion of self-control resources (Garland, Carter, et al., 2011; Muraven, Collins, & Nienhaus, 2002) and a rebound of substance-related thoughts (Klein, 2007; Palfai et al., 1997). Mindfulness training provides an effective alternative to suppressing unpleasant substance-related thoughts, emotions, and cravings by promoting acceptance and encouraging a nonjudgmental "turning toward" these experiences. Through experiencing unpleasant events in the mind and body without avoidance or reactivity, this mindful exposure practice may prevent the postsuppression rebound effect and allow the individual to become desensitized to experiences that were previously distressing (Hölzel et al., 2011). Ultimately, such mindful exposure may lead to an unlearning of previous associations between triggers, habitual emotional reactions, and addictive behaviors.

In support of this hypothesis, changes in thought suppression have been shown to mediate the effects of mindfulness training on alcohol use and drinking consequences (Bowen, Witkiewitz, Dillworth, & Marlatt, 2007). Furthermore, Mindfulness-Oriented Recovery Enhancement has been shown to lead to significant reductions in thought suppression linked with increased ability to resist the temptation to drink,

reduced alcohol attentional bias, and enhanced heart-rate variability recovery from stress and alcohol cues (Garland, Gaylord, et al., 2010). As individuals develop trait mindfulness over time, they may learn to cope with stressful life events by adopting an attitude of nonjudgment and self-compassion towards their own thoughts and emotions, rather than attempting to avoid or deny experience through suppression. In that regard, among a sample of persons in long-term treatment for cooccurring trauma and substance-use disorders, dispositionally mindful individuals who coped by adopting a nonjudgmental awareness and acceptance of trauma-related thoughts and emotions were less likely to develop posttraumatic stress symptoms and had greater capacity to downregulate craving (Garland & Roberts-Lewis, 2013). Thus, mindfulness may reduce the tendency to suppress aversive thoughts and feelings, thereby allowing urges that had been previously suppressed to surface to consciousness. In so doing, automatic drug-use action schema that may have been operating in isolation from controlled cognitive processing during active suppression may become tractable to explicit cognitive control. As suppression decreases, controlled cognitive processing can be deployed more effectively to inhibit and counter addictive responses.

Although we have described these therapeutic mechanisms as discrete processes linked in a sequential, linear, fashion, in actuality they often run in parallel and are linked in a recursive, self-reinforcing system of positive feedback loops. Figure 40.1 offers a visual depiction of the hypothesized interactions between these processes.

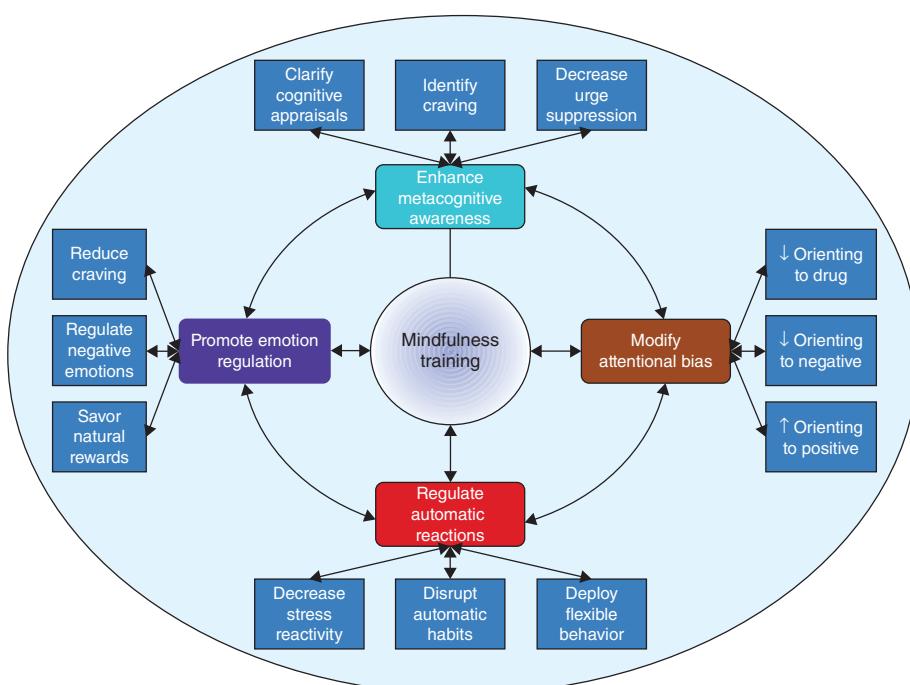


Figure 40.1 Neurocognitive framework of the therapeutic mechanisms of mindfulness training on addiction.

Conclusion

Ellen Langer (1992) contrasted *mindlessness*, the cognitive state in which an individual operates in a scripted fashion according to rules and categories made in the past, with mindfulness, which she defined as a state of continual distinction making or discrimination in which new perspectives and approaches are adapted to present situations. While mindfulness leads to cognitive and behavioral flexibility, mindlessness results in habitual or stereotyped activity in thought or action and therefore may be a critical facet of addiction. Indeed, substance-dependent individuals who endorse higher levels of mindlessness tend to have higher levels of craving (Garland & Roberts-Lewis, 2013) and consume larger quantities of addictive substances than their more mindful counterparts (Garland, Boettiger, Gaylord, et al., 2011). These findings suggest that habitual, reflexive responding can confer vulnerability to individuals in recovery. Conversely, greater attention and awareness of one's reactions to substance cues predict less substance use among persons in recovery from addiction (Rohsenow et al., 1994). In light of Tiffany's (1990) proposal that automaticity drives appetitive addictive responses, mindfulness of one's automatized reactions would presumably allow for greater self-regulation of mindless reactions elicited by drug cues, and increase choice over substance use.

Coming full circle from Langer's social psychological conceptualization of mindfulness back to the neurocognitive model posed earlier in this chapter, mindfulness may facilitate a novel, adaptive response to the canonical "people, places, and things" that tend to elicit addictive behavior as a scripted, habitual reaction. In so doing, the practice of mindfulness may attenuate stress reactivity and suppression while disrupting addictive automaticity, resulting in an increased ability to regulate and recover from addictive urges. The neurocognitive framework we have presented in this chapter is intended to stimulate future research and promote the optimization of mindfulness-based interventions for the treatment of addiction. Yet, the tools of modern science have only begun to elucidate the many ways in which mindfulness training targets the risk chain of addiction at the attention–emotion interface.

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Applying Principles of Mindlessness–Mindfulness Theory and Drug-Injecting Behavior

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Injecting-drug use is an endlessly fascinating area and has been a rich field within which to examine practice using the lens of mindfulness. Indeed, a mindful approach is useful not only for examining the practice of the individual in their technical execution of injecting, but also for examining the practices of services and organizations in delivering health promotion. This chapter will summarize findings from a number of research projects conducted in Sydney, Australia. Each project investigated ways to improve efforts to minimize the harms associated with injecting-drug use using mindlessness as an organizing and conceptual framework.

Injecting-drug use is associated with a range of harms including the risk of acquiring blood-borne viruses such as HIV and hepatitis C. In Australia, early introduction of methadone treatment services and needle and syringe programs has been lauded as avoiding an epidemic of HIV among people who inject drugs (Mathers et al., 2008). Hepatitis C has not been similarly contained in Australia or elsewhere (Alter, 2007). Global estimates of hepatitis C prevalence have been reported as being at rates higher than 50% among people who inject drugs (PWID) in 49 of 52 countries reviewed (Aceijas & Rhodes, 2007). In Australia, more than 50% of people surveyed in a national study of people attending needle and syringe programs show exposure to hepatitis C infection (Iversen & Maher, 2013). Estimates suggest that approximately 10,000 new infections occur each year in Australia (Razali et al., 2007) and that the time to infection after initiation to injecting-drug use is very short (1.6–2 years; Hagan et al., 2001, 2007; Lucidarme et al., 2004; Maher et al., 2006)—hence the window period for prevention is limited.

Infection with hepatitis C can take decades to result in ill effects. Approximately 25% of people exposed to hepatitis C will naturally clear infection and retain antibodies but not develop ongoing infection. Of those who become chronically infected, 7–18% will develop cirrhosis after 20 years of infection and be at considerable risk of liver cancer

(1–6% per annum) and liver failure (2–3% per annum). Hepatitis C is a leading cause of liver transplants in Australia (Gidding et al., 2009), and the economic demands of providing caring for people with hepatitis C-related advanced liver disease are starting to become apparent as those who have been infected for two to three decades begin to develop advanced liver disease.

Research with people at risk of or living with the virus has noted stigma and discrimination as defining characteristics of hepatitis C (see synthesis articles: Rhodes & Treloar, 2008; Treloar & Rhodes, 2009). This research has also shown that hepatitis C may be seen as ubiquitous and unremarkable, and experienced relatively to HIV. That is, hepatitis C may be seen as “not HIV,” and hence less serious and urgent. This perception may be reinforced by the ways in which diagnosis is provided by health workers using trivializing language (Rhodes, Davis, & Judd, 2004) and providing testing within a suite of tests and without adequate counselling (Rhodes & Treloar, 2008).

Efforts to prevent hepatitis C have relied on structural investments, such as needle and syringe programs (Palmateer et al., 2010; Wodak & Cooney, 2004), a partnership approach specifically involving people affected by the virus (Australian Government Department of Health and Ageing, 2010), and health-promotion education conducted by health services and as peer education by PWID (Australian Injecting & Illicit Drug Users League, 2006). Education targeting PWID was originally dominated by campaigns to contain HIV with key messages such as “a new fit for every hit” imploring PWID to use a sterile needle and syringe for each injection. Awareness of the importance of hepatitis C prevention for PWID emerged after the HIV crisis of the mid-late 1980s. Further evidence suggested the importance of other items, besides the needle and syringe, as risks for hepatitis C transmission. Other items used in drug preparation and injection such as spoons, filters, tourniquets, and even the hands of people involved have all been implicated as possibly involved in transmission of hepatitis C (De, Roy, Bioivin, Cox, & Morrisette, 2008). Hence, the evolving message around HCV prevention broadened to focus on blood awareness, or blood-to-blood contact, that is the means by which blood from one person can enter the bloodstream of another.

Delivering prevention messages is a challenge, as injecting-drug use is very frequently hidden. People new to injecting may not plan to inject, but the opportunity (availability of drugs and equipment) can present itself without these people having sufficient knowledge or access to equipment to inject in ways that would minimize the risk of hepatitis C transmission (Abelson et al., 2006; Crofts, Louie, Rosenthal, & Jolley, 1996; Fast, Small, Krusie, Wood, & Kerr, 2010). Research about initiation to drug use emphasizes the importance of other people as providers of equipment and drugs as well as being modelers (and sometimes instructors) of technique. Research with young people who inject demonstrates that they access information about injecting practice and hepatitis C (such as health-promotion pamphlets) only after having injected for some time, when they may have already acquired infection (Treloar & Abelson, 2005).

With over 10,000 new infections occurring per year in Australia (90% of which are among PWID; Razali et al., 2007), prevention efforts can claim only very limited impact. There is a danger of people giving up on prevention, feeling that the

task is too hard and complex. Hence, prevention efforts need continual renewal and reinvigoration to avoid unreflexive repetition of existing prevention efforts. There has been little scholarly work on how best to communicate complex, multilayered messages with PWID. Given this complexity, and the possibility of the sector becoming resigned to less-than-optimal impact, prevention efforts need to use all the available tools, and specifically employ theory to develop sophisticated messages that reflect the diversity of experience among the target group.

Mindfulness is one such theoretical tool. My work has been informed by the early writings of Langer and colleagues who characterized a state of mindlessness as: (1) being overreliant on categories or distinctions drawn in the past; (2) oblivious to novel or alternative aspects of the situation; and (3) rigid or invariant in behavior with little or no conscious awareness. Mindfulness, on the contrary, is characterized as a state in which we are: (1) open to novelty; (2) alert to distinction; (3) sensitive to different contexts; (4) aware of multiple perspectives; and (5) oriented in the present (Langer & Moldoveanu, 2000). Further, mindlessness can be seen as the process of classifying new events or situations into preexisting categories, reducing creativity and causing people to see events in predetermined ways. Mindfulness can be defined as a state of continuous category formation, in which an individual can demonstrate flexibility and perceive how the environment can alter the meaning of ideas and behaviors (Margolis & Langer, 1990).

Below, I describe a number of different projects in which mindfulness concepts have been deployed to suggest ways in which efforts for hepatitis C prevention could be adjusted to employ these concepts. I outline three projects that have directly involved exploration of mindlessness and mindfulness among PWID. A fourth study examined the messages and language used in health-promotion materials in this area. I also draw upon experience in this field to examine how equipment distribution may be more mindfully designed. Interrogation of my own practice demonstrates the importance of reflexivity to avoid premature cognitive commitment in seeking to understand practice and a way of life that I do not share. Finally, I examine what is on the horizon for this field and how mindful concepts can be incorporated to contribute to better health and social outcomes in the future.

Do People Who Inject Display Signs of Mindless or Mindful Practice?

I have conducted two studies that have directly examined mindlessness in injecting practice. The first involved interviews with 32 people who inject (Treloar, 2005), and the second involved videotaping injecting episodes of 13 participants at the Sydney Medically Supervised Injecting Centre and interviewing participants before and after they viewed their video footage (Treloar, Laybutt, & Carruthers, 2010).

My analysis of these data was directly informed by the definitions of mindfulness given above. I looked for instances where participants placed emphasis on the continual creation of categories and expanded possibilities, and where behaviors were described as socially constructed and open to revision as evidence of mindfulness.

Although blood awareness has been a key message of HCV-prevention campaigns for some years, participants described becoming desensitized to blood, despite being sometimes exposed to large quantities of blood:

I don't associate injecting with lots of blood, even though I've sat in pools of my own blood ... And once again its part of using I suppose, you don't associate. I don't associate it with using but it's part of using. Like I don't think "geez I'm going to get a heap of blood over me now I'm going to have a shot." But if it's there, it's not even thought about, it's just because it's so much a part of it, you're so used to seeing it when you're using. (Sue, 30-year-old woman with hepatitis C; Treloar, 2005, p. 140)

Sue's lack of conscious awareness of her surroundings, specifically the presence of blood, or the unique characteristics of the injecting event, were echoed by participants of the video project who spoke of the ritual nature of injecting, and of it being "second nature," that they could do it with "eyes closed": "it's just like riding a bike really. It turns into a sort of natural thing ... and you never forget, it's something you do in a dark alley on a dark night. You can just instantly go in and do it" (Susan, 39 years old; Treloar, Laybutt, et al., 2010, p. 434).

The notion that injecting was "quite basic, very simple" among these experienced injectors, was further evidenced in descriptions provided of injecting practice using global and undifferentiated terms that indicated events (injections) as predetermined. In particular, participants described their practice in ways that indicated they were no longer able to separate and identify each step of the process. "I mix up the gear and put it in my arm and then do all the cleaning after" (Alan, 40 years old; Treloar, Laybutt, et al., 2010, p. 435): "draw up the water, put the gear in, mull it up! Suck it up, put that stuff away, wrap my tourniquet around, have a shot and chuck that in my container. That's it" (Debra, 47 years old).

Alan's description of "put it in my arm" and Debra's of "have a shot" belie the very technical aspects of achieving an injection, which require, among other things, insertion of the needle at the correct angle and to the correct depth, jacking back (or pulling back the plunger to draw blood in to the barrel to indicate the needle is located within a vein) and then administration of the content of the barrel (now blood and drug mixture) at an appropriate speed and force to achieve injection and avoid "missing the shot" (that is, without pushing the needle further into the arm and through the vein). None of this detail features in any participants' description of their practice when first asked to describe it. Some additional detail (but not to this level of specificity) was provided by some participants when expressly asked to describe the process in a step-by-step fashion. These results indicate that such issues, which may have concerned them as novices, have disappeared from their available repertoire as experts in which behavior is forecast in limited and rigid categories.

Using video footage of injecting episodes allowed an additional layer of analysis of practice. Mindless behavior has been described as occurring when learned behavior "drops out of mind." Participants in the video project were first asked to describe their injecting practice, and then narrate their practice as they viewed their footage. Some participants performed specific behaviors (as shown in the video footage) which they did not realize they had, or did not perform specific behaviors that they were

adamant they had. For example, one participant emphasized during an interview that she swabbed the injection site prior to interview. However, when she viewed her video footage, she was perplexed to see that she did not swab the site and could not account for the discrepancy between her described and actual practice.

When participants were asked to provide a rationale for some aspects of their practice (particularly those that were not necessary for achieving injection), many drew on the notion of habitual practice that had remained unchanged over a long period and for some since initiation of injecting-drug use. The video footage showed one participant, Lara, draw sterile water into the syringe and squirt this water into her mouth in the moments immediately after injection. Lara's explanations of her actions indicate a reliance on categorizations drawn in the past, as something that she observed others doing and had incorporated into her practice around the time she initiated injecting-drug use and had been practicing unconditionally, since then, that is, without considering alternative practices:

it's probably just a habit thing as well, you know, the habits that you get into when you first start using probably carry through, like the water thing, you know. We've probably been doing it for years and years but I don't know why really anymore ... I mean it doesn't do anything, it's just one of those things, you know you do without any reason. (Lara, 27; Treloar, Laybutt, et al., 2010, p. 434)

Mindful practice was also evident in these data, but alertness to distinction and novelty were not solely related to concerns about hepatitis C. Lana was a 19-year-old sex worker and reported as hepatitis C negative. Lana's description of injecting herself included some elements of mindful practice. She used the term "each time" as if she was constructing new categories of action and risk for each injecting episode. She drew attention to some of the aspects of action and risk that she was aware of and her strategies for negotiating or avoiding risk. Lana's narrative addresses the question underpinning mindful action ("how might it be otherwise?") by actively positioning herself in different categories in terms of place ("no matter where I sneak to myself") and risk ("you don't know if blood's been here or there").

Like everything I use would have to be clean. Sometimes even if I use clean needles all the time I don't touch no-one else's blood. I'm still scared, cautious of getting hep C and all that. It really, really scares me. Like each time I have a shot I go somewhere by myself. Somewhere clean. In my own room. Normally where I work you can only use the back toilets. But no matter what I sneak to myself, get my own utensils all the time, even if I have no fits, you know ... But I would never ever share anything or touch their stuff or let them touch my stuff. I always use my own utensils and each time I have a shot, because too much girls are using the toilets, you don't know if blood's been here or there. To touch or anything like that. So I would not ever, no. (Treloar, 2005, p. 141)

In the video project, elements of mindful practice were evident in participants' descriptions of injecting but were typically motivated by concerns that were unrelated to hepatitis C risk. For example, notions of "safety" in injecting included avoiding being observed or surprised by other people (which may result in drugs being lost) or

avoiding contamination by bacteria and other particles (which may result in a “dirty hit” that can leave the person experiencing fever, vomiting, severe headaches, etc).

it's like when I cook, I like to sort of clean up as I go ... I like to make sure everything's sort of neat. It's also for safety. If someone comes barging in the door ... who might be shocked by it ... if it's all in the bag, it's a lot easier to just go whoosh—hide it or whatever. Whereas if everything's lying everywhere, blood everywhere, then you're not going to stand a chance. (Charles, 31 years old; Treloar, Laybutt, et al., 2010, p. 435)

A dirty shot is not doing anything hygienically, not washing your hands, not making sure, because people have bugs all over their skin. You know, a bug can be transferred from clothes to jeans, from jeans to your hands and to bed linen so on. So I know how easy it is to contract bugs.

Interviewer: So you've set up what you do very specifically to be so hygienic?

Yes, yes. I do that for a reason, because I don't want to get sick. (Geoffrey, 44 years old; Treloar, Laybutt, et al., 2010, p. 435)

How Do PWID Use Mindful Concepts in Hepatitis C Health Promotion and Education?

In a follow-on from the video project, I devised a project to use these videos in developing health promotion and education messages. This project was conducted in close partnership with the local drug-user organization. With their help, we recruited PWID and who had an interest in educating their peers. We were specifically interested in exploring opportunities for the use of mindful principles in peer education, where PWID provide information to their friends and networks at times when health professionals cannot be present (such as during purchase, preparation, or use of drugs). Over a series of three sessions, participants developed, trialled, and provided feedback on peer-education messages and strategies. In the first session, participants viewed selected deidentified videos (participants of the initial phase had provided their permission for such use) and developed messages about hygiene in injecting. Participants were asked to trial these messages with people they knew and to give feedback on their attempts in the second session. Also, in the second meeting, participants were asked to develop messages using mindful principles and trial these, reporting back in the third session.

What became apparent in participants' efforts were the mindful strategies that they used to engage their friends and contacts. Peer education is based on the principle of a shared social status among peer educators and their networks (Parkin & McKeeganey, 2000). However, a “social status” category, like young people or gay men, can be a blunt means by which to define an intervention approach or target group. Participants in our study identified that a more useful organizing construct for social relations was the “hierarchy of the underworld” and that they needed to manage this hierarchy effectively in attempting peer education, particularly involving people who may mistrust (for good reason) authority. Rather than potentially embarrassing a peer by attempting instruction of injecting technique, participants put themselves in the position of learner, even if they were known as old hands in the

illicit-drugs field. To open up discussion of injecting safety, participants told others that they were “doing a course” and that “no one’s perfect” with regard to their knowledge of safe injecting. These strategies further modeled that these participants, as experienced injectors, were open to learning new information. As Brian explains: “And I have to reveal my own stupidity to them or my own naiveness and say, ‘Look, I had no idea, reason, until last week about swabbing’” (Treloar, Rance, Laybutt, & Crawford, 2010, p. 648).

Is Mindfulness Used in Health Promotion and Prevention Materials?

Participants in the peer-education project could identify ways to promote mindfulness among their peers. I was also interested to examine the extent to which formal health-promotion efforts used mindful concepts. Before we examine the content of health-promotion materials, it is important to acknowledge a key aspect of scholarship in this field that has recognized the limitations of focusing only on the individual (and making them responsible) as a means to achieving better health outcomes (such as prevention of hepatitis C; Fraser, 2004; Moore & Dietze, 2005; Rhodes, 1997, 2009). For people undertaking an illegal act (drug purchase and use) who may have limited social and economic resources, factors in the broader environment may have much more direct influence on an individual’s practice than their knowledge or intention alone. For example, PWID may have no control over policing practices that may limit their access to sterile equipment. This section examines factors that the hepatitis C prevention sector can control, that is, messages that are distributed to promote hepatitis C prevention and the operation of services involved in distribution of sterile equipment.

Health promotion and prevention messages have been a foundation of the Australian response to hepatitis C. To examine the content and delivery of health-promotion messages, we collected over 200 such materials produced between 1990 and 2010 (Winter, Fraser, Booker, & Treloar, 2012). Exploring the materials’ use of mindless or mindful language (unconditional or conditional) was important, as Langer (1992, 1997) has argued that an unconditionally learned task is performed when smaller components of the task are brought together in larger and larger units. A person who learns conditionally or mindfully is able to access the components of the task and, through innovative transformation of the routine (as required when there are changes in the circumstances in which the task is to be performed), perform the task with greater effectiveness. In this case, health-promotion materials may encourage conditional learning through the language or images employed.

Mindful concepts and conditional language were typically not a feature of the hepatitis C health-promotion materials contained in this collection. Directive and unconditional language was typically used to present an entreaty to use sterile equipment, but little context or conditionality was included to highlight components of injecting that may generate hepatitis C risk: “Never share injecting equipment! Use a new fit for every hit!” (“What is hep C?,” Streetwize Communications, 2004).

The move away from an exclusive focus on equipment to a broader message of blood awareness provided an opportunity to operationalize this in mindful ways. However, while blood awareness was found to be a mainstay of the materials, the concept was typically not well explained and infrequently involved language that would promote mindful approaches to injecting. A few resources were more consistent with a mindful approach. These resources provided explanations of blood awareness and/or identified specific steps in the preparation and injecting process during which people who inject should be alert to the potential for blood (presence and/or transference).

Always be blood aware!!! Being blood aware means being alert to what is happening before, during & after you inject. If you think blood, yours or someone else's, has contaminated the injecting space or equipment you should replace any sterile equipment, re-clean any other things that may have been contaminated, and re-wash your hands before proceeding. (“Hep C not 4 me: A guide 2 staying safe,” AIVL, n.d., p. 6)

The authors of the extract above have avoided the use of absolute or unconditional language and hence opened up alternative ways of interpreting and applying the information presented. The message draws attention to the need for awareness throughout the injecting process (especially after injection when blood is present, but to which participants in the video project typically paid little attention). The notion that one should continue to think about where blood might have been and take actions to remedy any suspected contamination (by replacing equipment or rewashing hands) directs the audiences' attention to examining steps within the process and to question the assumption that all equipment remains “clean,” that is, prompting a process of continual category formation. In specific terms, the conditional language used in this extract could, for example, direct people to reconsider equipment that comes out of a wrapper (an indication that the equipment is “new” or sterile) in terms of its possible contamination when other people are present. Although the equipment may have been sterile when it was first taken out of the wrapper, it may not be so after other people have touched it (for instance, other people with blood on their hands).

A major finding of this review was that resources should aim to make greater use of conditional language; this means changing directives such as “never” and “always” to words such as “perhaps,” “possibly,” “typically” and “one way of....” Further, health-promotion materials could directly acknowledge the issue of expertise and automatic behavior (perhaps a more palatable way to describe mindless behavior for lay audiences) noting that as one becomes expert at a behavior, one can also lose sight of the small steps in the process, hence emphasizing the importance of continually checking one’s practice and keeping up to date with new information about safety.

What Can Health Services Do to Promote Mindful Injecting Practice?

A recent mathematical modeling exercise suggested that, in Australia, attempts to prevent hepatitis C were underpinned by the amount of sterile injecting equipment

distributed (Kwon, Iversen, Maher, Law, & Wilson, 2009). This work suggested that doubling the amount of equipment distributed would halve the rate of new hepatitis C infections. Similarly, reducing the amount of equipment distributed would increase infection rates. Given, the importance of equipment distribution for hepatitis C prevention, it is an area that deserves examination using a mindfulness lens.

Equipment distributed by health-promotion services may vary widely. This variation may be a result of the service working with local drug users to meet the needs of people in that area (as different drugs may be more available or more popular in different areas and require different types of equipment). However, decisions about the distribution of equipment may be made for reasons that are not informed by the needs of the consumer and reveal mindless elements involved in such decisions. For example, service budgets, bureaucracy around ordering or storage facilities, and organizational history may all have a significant impact on what equipment is available to service users. During the video project described above, we raised the question regarding inadvertent messages about injecting practices provided by health services via the distribution of equipment (Treloar et al., 2008). Injecting equipment is often provided in a black plastic container known as a "fitpack." Fitpacks available via specialized automated dispensing machine in inner Sydney contain, for example, five needles and syringes but a more limited number of other equipment such as swabs, spoons, and sterile water ampoules. Sterile water, in particular, is troublesome, as it remains a relatively expensive (and hence restricted) item. However, sterile water may be preferred by people wishing to be as hygienic as possible (rather than using water from a tap) and the risk of reusing sterile water ampoules may not be understood (that is, used needles may be placed in ampoules to extract water for mixing up the drug solution). Although services may rationalize the provision of only two water ampoules for every five needles/syringes on the basis of cost (i.e., it is better to provide some water to all people, rather than sufficient water to only some people), the implications of such provision need to be examined. For example, service users may interpret that two water ampoules are sufficient for use with five needles/syringes if they uncritically accept the inherent messages sent by health services in providing equipment in such a way. There is room for services to carefully examine their practices to avoid sending messages about equipment use that may undermine hepatitis C prevention efforts and to provide conditional messages about why such equipment has been provided.

In an extension of this thinking, a current project is seeking to examine ways in which the design of fitpacks could be changed to better suit the needs of people who inject in situations where there is more than one person present (Fraser, 2013; Fraser, Treloar, Bryant, & Rhodes, *in press*). In our preliminary work for this project, couples who inject drugs noted that the packaging of fitpacks with three or five needle/syringes does not suit the needs of a couple. When one needle remains (when two of three or four of five have been used), it is likely that a couple will share that needle. Participants suggested that packaging needles in even numbers (i.e., in packs of two or four) would reduce equipment sharing among couples. The overall design of fitpacks has changed little in their 20-year history, and I am not aware of any published literature examining the design of equipment packaging to suit users' needs or promote better or mindful practice. The goal of our project is not to provide the definitive design for fitpacks but to draw attention to the possibility of creativity and

novelty in fitpack design and to prompt others to mindfully engage in efforts to tailor equipment design and distribution.

Researchers Prematurely Committing to Meaning

So far, I have examined the practices of people who inject, the content of health-promotion messages, and the practices of services in packaging and distributing equipment. It is now time to examine my approach to research in this field: Does a researcher's growing expertise in an area predispose them to mindless engagement with new information or premature commitment to a singular interpretation of data?

I feel very privileged to have access to the very hidden, illegal, and stigmatized practice of injecting-drug use. To do this, I have worked very closely with drug-user organizations and, wherever possible sought to involve PWID in research—as co-investigators and coauthors, on advisory committees or indeed at the coalface as peer researchers. The project described above, where participants developed mock peer-education messages and trialled these, involved a peer researcher participating as a moderator of discussions with PWID. Over a series of three meetings, the peer researcher and I met with a group of people and discussed in detail their approaches to injecting and to educating their peers. Over the course of these discussions, conducted over 3–6 weeks, we got to know the issues in the local area important to people who use drugs. For example, a location initially nominated as useful for peer education, that is, where people gathered to talk, was unable to be used by participants, as local police were targeting this location with “move on” orders. In another area, a number of people who injected drugs had contracted endocarditis (an inflammation of the heart resulting from injected particulates; Moss & Munt, 2003). One person was reported as dying of endocarditis. The impact of this outbreak of endocarditis was described as creating opportunities for increasing awareness, providing new knowledge, and changing injecting practice by discussing the importance of hygiene. In addition, this discussion of endocarditis by participants provided an example where the involvement of peer researchers was central to understanding this issue and its implications. At first, the experience of endocarditis was discussed by participants in terms of its impact on the individual and their family.

there's about 13 people at one time all in hospital with endocarditis, right. Now we actually lost a girl. She died of endocarditis... Even two days before she died she said, "I don't want to go to the doctor's because I know what it is." She knew it was endocarditis come back to her. She'd already had the hospital done. She'd been in hospital three months. Yeah. She's left a little boy behind, six years old, the same age as my little boy. So that's all he had. Just mum. (Treloar, Rance, Laybutt, & Crawford, 2011, p. 253)

This story deeply resonated with me, as I had a child the same age, and I was terribly saddened to hear of this family's loss. My interpretation of this aspect of the data was very strongly grounded in this perspective. As the study design allowed ongoing contact with this group of people, a discussion in a later session positioned the impact of endocarditis in very different and broader terms including the negative implications

of spending an extended period of time in hospital on opportunities to earn money or access drugs.

Peer researcher: That's right. But it's also because if you get, if you're running a habit and you get endo, and you, I mean you have to go to hospital ... like you are so fucked because you, you've either gotta have someone bringing you shots every day. The police are totally onto you ...

Participant: And you lose your way when you're finding money.

Peer researcher: You lose your ways of earning and all of that. So the impact of endo is not just, is an immediate impact on your using life. (Treloar et al., 2011, p. 253)

As this issue was very much removed from the earlier discussion, and I had invested so deeply in the perspective of family loss, I did not pick up on the full meaning of the participants' discussion. Indeed, I remember imagining a coffee urn when the term "earn" was used by participants. The notion of other impacts of endocarditis was very far away from my closed perspective. Further elaboration by the peer researcher during the discussion clarified the layered meanings and impact of endocarditis.

In this example, I can see how my interpretation was at once superficial (not understanding the disruption caused by an extended hospital stay to people who are dependent on illicit drugs), hijacked by my emotional response to the story of an orphaned child and also prematurely closed by my concern with the health-promotion opportunities offered by endocarditis. Working as a researcher seeking to decrease hepatitis C transmission rates, there was great appeal of linking the risk of endocarditis with the need for improved injecting practice: that endocarditis is a serious infection and can be fatal but can be avoided by practices similar to those that would reduce the risk of hepatitis C transmission. However, the broader social and economic experience of PWID means that sometimes other factors have higher priority in their lives. Remaining "well" includes being able to access drugs (and hence money to purchase these) to avoid the daily risk of withdrawal (Mateu-Gelabert, Sandoval, Meylakhs, Wendel, & Friedman, 2010). This was a situation in which close work with a peer researcher provided the means to identify my premature commitment to a singular interpretation and then transform my perspective to produce new insight.

What Is on the Horizon for Hepatitis C Prevention?

Mindful, conditional language and other strategies need to be employed in both communication about hepatitis C prevention and treatment. As Suzanne Fraser and Kate Seear have eloquently argued, hepatitis C is still "under construction" (Fraser & Seear, 2011). The social, political, and historical positions of hepatitis C are not fixed but continuing to emerge, as is knowledge of its biology and possibilities for medical treatment. Currently, treatment for hepatitis C sits at the nexus of a number of disciplines—*infectious disease, gastroenterology, and hepatology*. There are efforts in Australia and a number of other countries to involve drug-treatment providers (especially those providing opiate-substitution therapies such as methadone) in providing hepatitis C treatment (Novick & Kreek, 2008; Sylvestre & Zweben, 2007). Some general practitioners have undertaken specialized training to be able to provide

hepatitis C treatment in shared care arrangement with specialist physicians, or in limited circumstances to initiate and manage treatment in general practice (Hellard & Wang, 2009). Hepatitis C treatment remains a long endeavour (6 or 12 months depending on genotype) with an unfavorable side-effect profile (Grebely et al., 2008; McNally, Temple-Smith, Sievert, & Pitts, 2006). Uptake of treatment is low (Grebely et al., 2007, 2012) with barriers relating to concerns about side effects and the possibility of treatment effecting unwanted disclosure of a stigmatized condition (Hopwood & Treloar, 2005). Those who do consider treatment are required to undertake social and psychological assessment and preparation (Hopwood & Treloar, 2007). Hence, those people who have been treated tend to be those who are not currently injecting drugs (Swan et al., 2010).

However, advances in hepatitis C treatment in the next 5–10 years will include much more efficacious, tolerable, and shorter treatments (Grebely & Dore, 2012). This revolution in treatment technologies has the potential for a profound recategorization of hepatitis C. People may no longer have to endure decades of living with a socially maligned infection if they can access treatment from general practitioners with a duration not much longer than an antibiotic schedule. People who currently inject drugs and who undertake treatment may have a significant contribution to make to prevention efforts (that is, limiting the onward transmission of infection). How hepatitis C is presented in prevention and health-promotion materials may require radical change.

The importance of mindful, continual categorization of hepatitis C treatment is obvious here. To prepare the affected community and the health workforce for such change and communicate the shifting possibilities of treatment, there is a need to encourage people living with hepatitis C to check in periodically with the latest developments and to make informed decisions about their care.

Research on mindlessness in the area of injecting-drug use also requires careful handling not to unintentionally provide a further stick with which to beat people who live at the margins of society or those who work with them. Mindlessness can be interpreted as a pejorative term and one that can further stigmatize and alienate those who may experience multiple levels of marginalization from mainstream society. Hence, mindless research requires promoting a mindful acceptance of the concept, without premature cognitive commitment to a misinterpretation. Further, it is also important in communicating about mindlessness to emphasise that it is rather a mundane thing—it has been shown to occur in so many different settings and be applicable to so many different behaviors; why should injecting-drug use be considered different to any other oft-repeated practice? Hepatitis C prevention deserves all the possible tools it can employ to effect better outcomes. If mindfulness research can contribute to hepatitis C prevention, then shouldn't we exploit this opportunity but mindfully repackage the concepts into language that avoids any further negative labeling?

Conclusions

Injecting-drug use is a complex and illegal practice that, in some situations, requires people to manage many concurrent risks which may lead people to prematurely commit to one way of injecting to avoid looking vulnerable or inexperienced. Participants in the studies presented here described and demonstrated practices that they

continued for years, or decades, since initiation of injecting-drug use. Promoting a culture of continual learning and being open to new categories of experience is important, and these studies demonstrated a number of ways in which such continual category formation could be supported—through peer education, through information and education provided by health authorities, and in organizational terms in the design and delivery of injecting equipment. Mindfulness can be a very helpful tool to use in various ways to promote better health outcomes for PWID and who live with hepatitis C. However, in a complex world, there is no easy, linear, or definitive relationship between mindful practice and hepatitis C status. That is, those research participants who described mindful practice were not always those who had avoided hepatitis C infection or vice versa.

Theories derived from psychology have received bad press in the field of injecting-drug use, as paying little or no attention to the broader context in which injecting-drug use is practiced. Indeed, there is rich scholarship regarding the risk environment of injecting-drug use (Moore & Dietze, 2005; Rhodes, 2002, 2009). Mindfulness allows the bridging of individual cognitive processes with broader contextual factors. What is safe in one episode of injecting may or may not be safe in another because of the influence of other people present, access to sterile equipment, the physical environment, the drug used, the pressures to inject quickly or secretly, and so on. In this way, mindfulness is coherent with a risk and enabling environment approach; it is the environment that should determine the specific practices of injecting in each episode.

Using concepts from mindfulness theory in hepatitis C prevention carries some risks, particularly in offending the target group of PWID who experience significant marginalization and vulnerability. Further, the workforce in this sector is also often maligned by other professionals for its association with a stigmatized group. It is these circumstances that raise the importance of providing this sector with sophisticated tools to tackle complex and unpopular issues.

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Mindfulness for Chronic Pain and Psychophysiological Disorders

Combining Eastern and Western Concepts

Howard Schubiner

Introduction

Efforts to fully understand the etiologies of physical ailments have long occupied a central place in the history of medicine. Practitioners of healing in ancient times looked to the environment for spirits and humors that upset the balance of the natural order (Finger, 1994). In these early cultures, the mind and body were seen as equally important in understanding illness. Even the poet, Ovid, is quoted as saying, “The mind ill at ease, the body suffers also” (Ovid, n.d.).

This view prevailed until the rise of scientific methods produced evidence of pathological breakdowns in tissue structures, resulting in new theories of organ dysfunction as the primary cause of disease states. The 17th-century rationalist philosopher, Descartes, is credited with conducting formal analyses that separated mind and body (Damasio, 1994). In the first half of the twentieth century, however, the role the mind plays in illness underwent a brief renaissance with the publication of the works of Sigmund Freud (1999) and the rise of the Christian Science religion (Gardner, 1993). Despite these insights, in the second half of that century, a tremendous increase in scientific discoveries undermined the idea that the mind played any role in such disorders as peptic ulcer disease (a bacterial infection), asthma (inflammatory disorder), and rheumatoid arthritis (an autoimmune disorder).

Today, scientists continue to debate whether the mind plays a significant role in human illness. Despite an upsurge in gurus who espouse positive thinking and champion mental powers for healing cancer and other serious disorders, little scientific evidence has been produced to prove the efficacy of these approaches (Ehrenreich, 2009). The new field of psychoneuroimmunology has blossomed in research settings, generating studies showing that mental and psychological stimuli can produce significant changes in physical functioning (Glaser & Kiecolt-Glaser, 1994). Thus far, it should

be noted, these research findings have not been applied in any significant way to common physical conditions. At the same time, however, the field of psychiatry itself has left behind any vestiges of Freud's work and morphed into biological psychiatry, with a focus on neurotransmitters and pharmacologic agents. Anxiety and depression are now considered to be pathologic disorders of the brain, rather than transient alterations in mental outlook and affect (Whitaker, 2010).

There are, of course, certain disorders that are known to be purely psychophysiological, that is, consisting of physical symptoms caused solely by psychological processes in the absence of any pathologic disease process in the body. The DSM-IV delineates several psychophysiological disorders under the category of conversion disorders, which include such syndromes as pseudoseizures, psychogenic paralysis, and globus hystericus (American Psychiatric Association, 2000). These disorders have become less common and are infrequently diagnosed in modern times (Shorter, 1993). Psychiatry also recognizes a category of somatoform disorders, which includes patients presenting with physical symptoms in the presence of a significant anxiety disorder (American Psychiatric Association, 2000). In the absence of a diagnosis of anxiety, however, purely psychophysiological or psychosomatic disorders are rarely recognized in modern medical or psychiatric practice.

Despite this, careful reviews reveal that psychosomatic disorders have appeared quite commonly throughout recorded medical history (Shorter, 1993). There are several possibilities for this disconnect between current and past practices:

- 1 Most of the disorders thought to be psychosomatic are now understood to be primarily structural or pathological in nature.
- 2 Fewer psychosomatic disorders exist as a result of improvements in standards of living and a decrease in the number of stressful life events.
- 3 Psychophysiological disorders continue to exist, but their manifestations have changed.
- 4 Physicians mistake psychophysiological disorders for structural, pathological disorders.

As previously mentioned, several disorders, such as peptic ulcers and asthma, which were initially thought to be psychosomatic, have more recently been identified as having structural components. It still seems unlikely, however, that fewer psychosomatic disorders exist, given today's cultural-medical climate. For example, rates of anxiety and depression are clearly rising despite changes in standards of living, so stress-related disorders have not decreased (Whitaker, 2010). Shorter (1993) has documented changes that appear to be culturally related in how psychosomatic ailments manifest themselves in patients over the course of several centuries. If stress-induced illnesses are still prevalent or even increasing, and if their manifestations have changed over time, it is likely that the medical community is underrecognizing these disorders and diagnosing them primarily as structural disease processes.

There are a number of common physical disorders for which evidence of structural pathologic processes is lacking. These disorders have been lumped into a category sometimes called "central sensitization syndromes" (Yunus, 2007). Some examples include whiplash, fibromyalgia, migraine and tension headaches, low-back pain,

temporomandibular joint (TMJ) disorders, irritable bladder and bowel syndromes, and chronic fatigue syndrome. These disorders have a number of features in common, such as chronicity, lack of a structural process in the presumed disease site, a documented relationship between symptom onset/exacerbations and stressful events (both in childhood and adulthood), and evidence of central nervous system (CNS) involvement (although those processes are ill defined). In addition, these disorders frequently appear in the same individuals as comorbidities (Yunus, 2007). Another common denominator of these syndromes is a dearth of evidence that they can be treated effectively with traditional biomedical treatment modalities (Deyo, Mirza, Turner, & Martin, 2009; Goldenberg, Burckhardt, & Crofford, 2004; Malleson, 2002).

Given that there are a significant number of syndromes for which there is a relationship between the symptom onset and stressful events but for which there are no clear structural pathologic processes, the author posits that the disorders currently categorized as somatoform disorders, conversion disorders, and functional disorders are best grouped under a category that may be called psychophysiologic disorders. This chapter will present (1) a model for categorizing and understanding psychophysiologic syndromes, (2) a treatment approach that has been shown to be effective in preliminary studies, and (3) a rationale for the use of both Eastern and Western concepts of mindfulness.

Model for Psychophysiologic Disorders

As described above, a psychophysiologic disorder (PPD) consists of physical symptoms that are caused solely by psychological processes in the absence of any pathologic disease process in the body. For example, neck, back, head, and jaw pain commonly occur in the setting of a normal medical evaluation (Deyo et al., 2009). And despite huge increases in biomedical treatment for back pain, disability is actually rising in the United States (Martin et al., 2008). Likewise, there is no clear evidence for tissue disease processes in the body of individuals with fibromyalgia, irritable bowel or bladder syndromes, and chronic fatigue syndrome. In these situations, current medical therapies have been found to be relatively ineffective. As a group, in fact, those diagnosed with fibromyalgia show little or no improvement in pain over time (Walitt et al., 2011). There are numerous medical treatments for irritable bowel syndrome, yet none have been shown to be consistently effective (Wald, n.d.).

It is important to recognize, of course, that every symptom, including pain, autonomic nervous system disorders (such as diarrhea, urinary frequency, and tachycardia), neurologic symptoms (such as fainting, dizziness, fatigue, and paresthesias), and psychological symptoms (such as anxiety and depression), can be a result of pathologic entities. Endocrine disorders, cancer, vascular disorders, traumatic disorders, and infectious diseases are common causes of disease processes that require biomedical interventions. However, when a complete medical evaluation does not identify clear evidence of a structural disease process, it is highly likely that there is no structural pathology in the body and that a psychophysiologic disorder exists. Although not the purview of this chapter, many physical disorders, including coronary artery disease, asthma, and rheumatoid arthritis, can be attenuated by psychological interventions (Guarneri, 2006; Smyth, Stone, Hurewitz, & Kaell, 1999).

Chronic pain syndromes

A prime example of the above-mentioned central sensitization syndromes is chronic pain, which has become endemic in Western societies and for which the cost of treatment keeps rising. In the United States alone, as of this writing, approximately 116 million patients are affected, and treatment costs are estimated at \$600 billion per year (Institute of Medicine, 2011). As previously mentioned, treatment options for individuals with chronic pain are limited. Analgesic medications have not been found to confer long-term benefits, and opioid medications bring additional disadvantages, including potential addiction and inducing hyperalgesia, that is, an increased sensitivity to pain (Deyo et al., 2009; Mitra, 2008; Silverman, 2009). In a similar vein, injections and surgical approaches have similarly not been found to be particularly effective (Deyo et al., 2009). In fact, the dominant model of care for patients treated in dedicated pain clinics is based on the following assumptions: (1) chronic pain is, in and of itself, a disease; (2) "curing pain" completely is not typically possible; and (3) the primary goal of pain management is palliation of symptoms and techniques designed to help patients cope with pain to achieve improved functioning (Ballantyne, Fishman, & Abdi, 2002).

In the realm of alternative therapies, few of these modalities have been studied for their effectiveness in treating chronic pain. Psychological approaches to chronic pain have shown promising results, but the positive outcomes have been primarily functional ones, rather than actual pain relief (Eccleston, Williams & Morley, 2009). Mindfulness meditation has been shown to be effective in some studies, but not in others (Grossman, Tiefenthaler-Gilmer, Raysz, & Kesper, 2007; Schmidt et al., 2011). Studies of acupuncture are mixed (Cherkin et al., 2001; Goldman et al., 2008), as are Tai Chi (Wang et al., 2010) and other energy medicine modalities (Lee, Pittler, & Ernst, 2007). Even in positive studies, the magnitude of the reduction in pain is relatively small.

Learned nerve pathways

An alternative explanation for symptoms due to functional or nonstructural disorders is that the symptoms are a result of learned nerve pathways. Nerve pathways are a result of neuroplastic changes in the brain that create a mechanism for responding to specific situations. Whether one is learning to ride a bicycle, sign one's name, or swing a tennis racquet, a nerve pathway is created as thousands of neurons develop the capacity to accomplish each task. In addition, the task is memorized and can be reactivated when triggered by appropriate life circumstances.

Of course, physical acts are not the only things that are learned and remembered. Emotional memory is stored in implicit memory centers (notably in the amygdala and other limbic structures) and is easily activated by specific life events (LeDoux, 1996). It is now recognized that emotional responses occur not only in the brain but also in the body. Damasio (2003) has argued that emotional events trigger the subconscious mind to create a physical reaction in the body prior to being recognized by conscious awareness. It should be understood that nerve pathways can be the cause of pain and other physical symptoms. Thus, it is likely that this

process underlies the symptom complexes that occur in this group of psychophysiological disorders.

The Genesis of Psychophysiological Disorders

There are two primary mechanisms responsible for the development of psychophysiological disorders. When a physical injury occurs, a pain pathway in the brain and body is created and remembered. These pain pathways can be activated later in life by a second injury or by an emotionally charged life event. For example, a woman injured her back as a teenager after falling from a horse and had back pain for a week before it resolved. Twelve years later, she developed pain in the same area when her fiancé backed out of their engagement just days before the wedding. A soldier sustained a shrapnel injury to his left leg in a bloody battle during the Vietnam War. The resultant pain resolved after several weeks. Twenty years later, however, he developed pain in the same area as he walked down the street when a helicopter appeared in the sky.

The second mechanism in the origin of PPD is simply that an emotionally traumatic event can directly cause physical symptoms to emerge, just as it can cause the expression of strong emotions. In one case, a high school student developed migraine headaches after learning of a sexual affair between her father and one of her friends. In another, an Indian woman developed fibromyalgia after her husband took a second job, leaving her with more responsibilities for their three children; her mother-in-law moved in and was frequently critical of her cooking and child-raising practices; and her brother also moved in and demanded that she wait on him. Her response to these changes was to accede to the increased pressures.

Emotionally charged events are more likely to trigger the development of PPD when the situation mirrors or activates emotional memories. As an example, a woman developed chronic daily headache after she was placed under the supervision of a boss who frequently yelled at her. Her childhood was remarkable for an aloof and unsupportive mother and an unpredictable father who frequently yelled at her. A man developed neck pain after an episode during which his father became so depressed and potentially suicidal that the man needed to remove his father's guns. In his childhood, the man's mother was also severely depressed, and on more than one occasion, he had to physically remove a loaded gun from her hand to prevent her suicide.

In addition, life events often form a pattern that leads to several manifestations of PPD. A patient who had an unsupportive, emotionally abusive, and controlling father developed headaches at age 15 after a boyfriend broke up with her and became emotionally abusive. In her twenties, she developed irritable bowel syndrome and pelvic pain when her husband had an affair and became physically abusive. Although she divorced her husband in her thirties, he refused to pay child support and tried to turn her children against her while, concurrently, she had a controlling boss. The combination of these circumstances led to the development of fibromyalgia and chronic fatigue in this patient.

It has been demonstrated that the brain can create pain identical to the pain that is induced by peripheral nociceptive inputs (Derbyshire, Whalley, Stenger, & Oakley,

2004). In fact, physical injuries activate the same areas of the brain as do emotional insults (Eisenberger, Jarcho, Lieberman, & Naliboff, 2006; Kross, Berman, Mischel, Smith, & Wager, 2011), and emotional insults have been demonstrated to cause a decrease in the pain threshold (Eisenberger et al., 2006; Eisenberger, Lieberman, & Williams, 2003). In addition, emotions that are suppressed are more likely to create physical symptoms and lower pain thresholds (Burns et al., 2008; LeDoux, 1996).

Physical symptoms that occur as a consequence of stressful life events are the result not of structural tissue damage but of learned nerve pathways. These pathways can become persistently activated and continue for years or decades (even if the inciting incident has receded into the background), resulting in chronic pain and other symptoms. The mechanisms responsible for this phenomenon are the following: Ongoing or new stressful situations continue to activate brain areas (such as the anterior cingulate cortex [ACC], amygdala, and others) that stimulate pain pathways. When medical treatment fails to alleviate the symptoms, emotional reactions that include fear, grief, and resentment further activate these pain pathways, leading to exacerbations of symptoms. Labeling of PPD symptoms as a structural disease process often leads to increased worry and fear. This creates a nocebo effect, which can be a powerful mechanism fueling increased pain and other symptoms. Nerve pathways that are continually activated by emotional and behavioral mechanisms become automatic the more they occur (in essence, the more they are “practiced”), resulting in chronic symptoms that are rarely recognized as being psychophysiological.

When a thorough medical evaluation fails to identify a disease process, the lack of tissue damage should prompt the search for an etiology of illness within the province of the psychological and social events and milieu of the patient. Detailed histories almost always elucidate narratives that clearly demonstrate (recognizing that clinical data like these always have some degree of uncertainty) that adverse life events and emotional reactions are causally linked to the onset of PPD symptoms (Schubiner & Betzold, 2012). It is important to recognize that there are disorders for which both etiologies (pathological and psychophysiological) are present, as often occurs in asthma, rheumatoid arthritis, and other autoimmune disorders, and in some individuals with musculoskeletal pain. Every patient requires a careful medical examination and workup to determine as much as possible what proportion of their symptoms are likely to be caused by physical disease, by psychophysiological disorders, or by a combination of the two. This process forms the basis for an evaluation that can empower the patient to understand the condition and opens the door to effective treatment. In PPD, this treatment often leads to complete resolution of symptoms and the restoration of full activity.

Ample evidence demonstrates that childhood adverse events are more common in those with PPD in comparison to structural disorders (Anda et al., 2006). Stressful life events are often temporally related to the onset of PPD symptoms. Likewise, symptoms of PPD are frequently exacerbated by stressful life events and emotional reactions. Individuals who present with PPD are typically those who habitually suppress emotions and exhibit high degrees of worry, guilt, and self-criticism as well as people-pleasing and self-sacrificing behaviors (Molnar, Flett, Sadava, & Colautti, 2012). Finally, the most convincing evidence that fibromyalgia, chronic fatigue syndrome, and other disorders listed above are caused by PPD is that they can show

dramatic responses to a combination of educational, behavioral, and emotional therapies as described in the section “A Treatment Approach for Psychophysiological Disorders.”

A note about fibromyalgia and chronic fatigue syndrome

Scientists and physicians are engaged in an ongoing debate regarding the underlying mechanisms of fibromyalgia and chronic fatigue syndrome. On one hand, some scientists take the position that these disorders represent biological disease processes that have little or no relation to stressful life events or to emotional reactions to these events. On the other hand, many physicians continue to believe that the symptoms experienced by patients are not real and are imagined or “all in their heads.” This latter position has led to a movement among sufferers of these conditions to deny any role of stress in the illness and to lobby for research to develop biological, not psychological, treatment options.

The author believes that the evidence points to a middle ground. The physical symptoms of fibromyalgia and chronic fatigue are clearly real (Gracely, Petzke, Wolf, & Clauw, 2002). All pain and other symptoms experienced by an individual are real, and the severity or chronicity of these symptoms is not indicative of the etiology. As explained above, pain caused by a PPD can be every bit as severe and unrelenting as that caused by structural processes. However, when there is no evidence of a tissue disease process in the body, as is the case with these disorders, it should be assumed that nerve pathways are the underlying etiology.

A Treatment Approach for Psychophysiological Disorders

The author has developed a manualized, four-step treatment program designed to empower patients to understand and resolve symptoms caused by psychophysiological disorders (Schubiner & Betzold, 2012).

First step: Assessment

The first step is educational and begins with an assessment of the role that psychosocial stressors have played in the development and persistence of PPD. By understanding the concept that early life experiences create learned nerve pathways that condition an individual to respond to future life experiences with pain responses, the specific circumstances leading to the development of PPD symptoms can be more easily discerned. Early experiences of abuse, neglect, abandonment, conditional love, and other negative occurrences prime the danger or alarm signal in the brain to be sensitive to similar experiences going forward. These learned pathways are primarily subconscious, yet they can produce powerful reactions in the body. Sometimes the emotional stressors that trigger PPD symptoms are relatively small, but when they activate the emotional pathways learned from significant early life events, the resultant response can be very powerful. There are many individual variations on this theme; it is only with a detailed,

open, and honest assessment that the specific pattern of life events and emotional reactions causing PPD will emerge. Such assessments invariably create a patient narrative that explains PPD. This becomes a powerful component of treatment because successful treatment of psychophysiological disorders begins with a clear understanding of this very common but frequently misunderstood phenomenon.

A typical life narrative of someone with severe PPD symptoms is: "I have had a difficult life; I've had bad breaks; I've developed several severe physical diseases; and the doctors haven't been able to fix me." In this narrative, the patient is the victim, and the presumed "hero" of the story (the physician) cannot solve the problems. To heal from PPD, a different narrative is required: "I have had a difficult life; I've had bad breaks; and those occurrences have led to the development of symptoms of PPD. But now I know that this problem is curable, that I am healthy and able to heal, and that I am the one who will be primarily responsible for this healing." This narrative more accurately states the truth for those with PPD, and it activates powerful healing mechanisms in the brain (including activation of the dorsolateral prefrontal cortex [DLPFC]) that can lead to resolution of the symptoms and the ability to take control of one's life.

The three attributes necessary for this step in the healing process are:

- 1 understanding the condition ("I have PPD; there is no physical disease process in the body; the symptoms are real and are caused by adverse life events, and they are reversible");
- 2 belief that this understanding represents the truth about the condition; and
- 3 confidence that the individual can make these changes and bring about healing, that is, a high degree of self-efficacy ("This condition is not due to a problem with me as a person and I will be able to overcome it").

This component of treatment for PPD draws upon the concept of mindfulness as described by Langer (1989), which will be expanded on below.

Second step: Emotion-based therapy

The second step in the process consists of doing emotionally based treatment to deal with nerve pathways that have been learned. As previously mentioned, powerful emotional events (particularly in childhood) create learned nerve pathways that are remembered in the amygdala and are easily activated later in life by similar events. For example, if one had been attacked by a vicious dog as a child, it would be understandable to tense up when walking past a loud, barking dog later in life. Children who suffer from adverse childhood experiences are typically powerless and incapable of processing events such as abuse, abandonment, or neglect. Emotions such as fear, anger and resentment, guilt or shame, and grief are generated but often are not expressed or released. The brain becomes sensitized to these emotions, and they persist in implicit memory. This process is similar to that of posttraumatic stress disorder (PTSD), where fear becomes the dominant symptom. Individuals with fibromyalgia and irritable bowel syndrome have high rates of PTSD, and U.S. combat veterans

with PTSD have very high rates of chronic pain (Amir et al., 1997; Beckham et al., 1997; Sherman, Turk, & Okifuji, 2000). Remembering that learned emotional pathways create learned physical pathways and vice versa explains this process. Fortunately, there are emerging data that the primary emotional pathways that create the genesis of these disorders can be alleviated (Burger et al., 2011; Hsu et al., 2010).

Many psychotherapeutic modalities activate emotions with the intent of reversing the behavioral pathways that they create. Some of the early methods of dealing directly with emotions include Gestalt therapy, psychodrama, and others (Janov, 1970; Lowen, 1975; Moreno, 1946; Perls, 1969). Over the past several decades, however, cognitive-behavioral therapy (CBT) has become the most widely used psychotherapeutic modality. While CBT has been shown to be effective for a wide variety of psychiatric and medical disorders, it is generally most effective for coping with the effects of psychophysiologic disorders (Eccleston et al., 2009). Since PPD is caused by the activation of nerve pathways due to emotional reactions to stressful life events, the therapies that directly address emotions and emotional reactions have the potential to resolve psychophysiologic disorders.

The emotion-based therapy currently being used by the author is derived from Intensive Short-Term Dynamic Psychotherapy (ISTDP). The essence of ISTDP is to guide patients to fully experience and express emotions (primarily anger, guilt, and grief) in order to release them and reduce the powerful role they play in the production of chronic pain and other associated symptoms. This therapy was developed by Dr. Habib Davanloo (1978, 1990, 1999), a psychiatrist from Montreal, as a method of uncovering and resolving deeply buried emotions of anger, guilt, and grief that can create anxiety, depression, and chronic pain. He recognized that people tend to cover up and suppress these emotions because they are uncomfortable, so they develop a variety of defenses (techniques for blocking anger and guilt). Davanloo discovered that uncovering and releasing these deeply held emotions were healing and that often the healing could occur very rapidly once these emotions had been mobilized. Abbass, one of Davanloo's protégés, has conducted several research studies that document the efficacy of this therapeutic approach (Abbass, 2002, 2003; Abbass, Kisely, & Kroenke, 2009; Abbass, Lovas, & Purdy, 2008; Abbass et al., 2010). The clinical application of ISTDP is articulated by Coughlin in two books (Coughlin, 1996; Coughlin & Malan, 2006) and by ten Have-de Labije and Neborsky (2012).

Third step: Behavior-based therapy

The third step in treating psychophysiologic disorders consists of behavioral therapy. A great deal of data supports these therapies, notably CBT and some of its offshoots, such as acceptance and commitment therapy (ACT; Dahl & Lundgren, 2006; Ebert & Kerns, 2011; Otis, 2007). These treatments have been shown to decrease pain, anxiety, and depression, but the effect sizes are typically small (Eccleston et al., 2009). The author has found, however, that these therapies can be useful components of a comprehensive program for PPD, as they complement the educational and emotional treatments.

Two key mental elements serve to exacerbate and prolong PPD symptoms: preoccupation with and fear of PPD symptoms (especially pain). Since pain is often an overwhelming symptom and ostensibly a sign of imminent danger of some kind, it is often difficult for individuals to disengage from these mental constructs. As with most perceptions, the primary source is the subconscious mind, and these reactions to chronic pain are frequently seen as outside of an individual's control. Fortunately, a variety of cognitive and behavioral exercises have been devised to help overcome fear and preoccupation (Sarno, 1998; Schubiner & Betzold, 2012). Examples include consciously taking control of pain by some combination of talking to it, yelling at it, laughing at it, and ignoring it. Likewise, activities, sounds, smells, places, or people frequently trigger PPD symptoms. Patients are encouraged to recognize that these are triggers of nerve pathways rather than events that actually cause tissue damage. If patients fully embrace this concept, they can begin to engage with the triggers in a progressive fashion to extinguish the reactive symptoms.

Meditative exercises, including mindfulness and visualization, are important program components that help to create the ability to tolerate symptoms and emotions, to envision health and well-being, and to enhance loving-kindness. A discussion of concepts of mindfulness and its application to PPD is provided below.

Fourth step: Making life changes

The fourth component of the author's PPD treatment program consists of the patient identifying and making any necessary changes in their life. Ongoing situations that cause negative emotions, particularly events similar to those experienced earlier in life, are often powerful impediments to healing PPD. Patients with PPD (as with most individuals with adverse childhood events) are more likely to have personality traits that include having high expectations for self; having low self-esteem; and being overly conscientious, perfectionistic, and self-sacrificing (Molnar et al., 2012). These individuals tend to be less assertive and to internalize emotions rather than expressing them in action. They may thus find themselves in situations that reinforce their inability to be assertive in personal or work relationships. It is often important for these patients to take action to address unhealthy life situations. In one instance, for example, a female patient with knee pain that had persisted for two years had resolution of the pain as soon as she separated from her abusive husband. Another woman experienced relief from fibromyalgia symptoms after confronting a relative who was spreading false rumors about her.

Effectiveness

The author has completed two studies evaluating the effectiveness of the PPD treatment program described above. A small, randomized controlled trial was conducted with individuals diagnosed with fibromyalgia (Hsu et al., 2010). In this study, 45 female patients were randomized to this intervention or to a wait-list control group. Those in the intervention group had an initial evaluation during which the author

reviewed their medical history, conducted a physical exam, reviewed their psychosocial history in detail to search for correlations between the onset of fibromyalgia and associated symptoms, and described the PPD model of fibromyalgia symptoms as they apply in each individual situation. Assessments were conducted by a blinded evaluator and consisted of a pain measure, a locus-of-control measure, and a validated assessment of the sensitivity of fibromyalgia tender points. Using intention-to-treat analysis, the PPD intervention group had highly significant pain reduction (Brief Pain Inventory 10-point Likert-type scale difference of 1.8, $p < 0.001$, effect size 1.46), improved locus of control (Beliefs about Pain Control Questionnaire 24-point scale difference of 2.17, $p < 0.001$), and a decrease in tender point sensitivity (increased pain threshold by 0.61 kg, $p = 0.02$) at a 6-month follow-up assessment.

The second study consists of outcome data from a 4-week PPD treatment program for patients seeking care for neck and back pain, fibromyalgia, headaches, and other associated disorders (Burger et al., 2011). As in the previous study, research personnel conducted the outcome assessments. The sample consisted of 75 individuals with chronic pain (primarily back or neck pain and fibromyalgia) with a mean duration of pain of 8.6 years. Using the Brief Pain Inventory and intention-to-treat analysis, the average pain scores decreased from 5.03 to 2.89 at a 6-month assessment ($p < 0.01$, effect size 1.13). In addition, the 10-point Likert disability scale of the Brief Pain Inventory revealed decreases from 5.39 to 2.68 ($p < 0.01$, effect size 1.21). Finally, 47% of those entering the program (15 participants did not complete the program) had a 50% or greater reduction in pain. There were no differences in outcome measures between the subgroups with fibromyalgia and back or neck pain.

Mindlessness and Mindfulness

Modern medical care is driven by an approach that is primarily biotechnological, that is, based upon a careful search for physical disease processes and treatment with medications or surgery. This approach largely ignores the possibility of psychophysiological processes. For disorders that are primarily structural disease processes, this biotechnological approach is very appropriate. For psychophysiological disorders, a purely biotechnological approach has been shown to be generally ineffective and can also cause short-term side effects and adversely affect the long-term course of the disorder (Martin et al., 2008; Walitt et al., 2011).

“Mindlessness”: The biomedical approach

In the biomedical paradigm, patients with neck or back pain are typically given the message that these symptoms are caused by a disease process in the area where the pain is being felt—even though these conclusions are usually not supported by the available evidence. In fact, imaging studies such as MRIs frequently demonstrate physical changes that, incidentally, also occur in individuals who do not have pain (Boos et al., 2000; Borenstein et al., 2001). Such findings, which include degenerative disc

disease, bulging or herniated discs, facet changes, and mild degrees of spinal stenosis or spondylolisthesis, have not been demonstrated to cause pain (Hadler, 2009). This understanding however, is neither known nor accepted within the general medical community. Similarly, disorders such as fibromyalgia, irritable bowel syndrome, migraine headaches, and TMJ syndrome are typically described by physicians as being due to a structural disease process.

When individuals are diagnosed with one of these disorders, a cascade of events typically occurs. The absence of a psychophysiologic approach results in treatment with medications, injections, and/or surgery, which have been shown to have limited benefits for those with chronic or severe forms of these disorders (Wald, n.d.; Walitt et al., 2011). In addition, this medical mindset tends to foster helplessness, decreases in self-efficacy, and dependence on medical personnel and interventions. Finally, being diagnosed with a chronic disorder that is poorly understood and inadequately treated by conventional medical approaches frequently leads to negative emotions, such as fear, frustration, anxiety, and depression, as well as social situations of isolation, inability to work, loneliness, and difficulties in marital and other relationships. As mentioned earlier, several studies have shown that negative emotions activate the same pathways as physical pain, resulting in increased pain rather than relief (Eisenberger et al., 2003, 2006; Kross et al., 2011). For all of these reasons, individuals with these disorders who have been diagnosed and treated with a biomedical approach often worsen over time.

Since psychophysiologic disorders commonly cooccur, individuals with these disorders are frequently diagnosed over the course of their lifetime with up to 10 or even 20 of these disorders; they typically suffer from several painful disorders as well as chronic fatigue, insomnia, anxiety, and depression. Due to the fragmentation of modern medical care, individuals with this array of psychophysiologic disorders typically see many different specialists (surgeons, pain clinics, psychiatrists, rheumatologists, gastroenterologists, mental health providers, and so on) who each focus on one of these disorders to the exclusion of the others.

This depiction of the mindset of modern medicine exemplifies mindlessness as described by Langer (1989). It is a narrow view of illness that interprets each symptom as a separate entity unrelated to the whole person. In addition, it does not identify or attribute significance to correlations between stressful life events and the onset or exacerbation of psychophysiologic symptoms. Because of this lack of understanding of psychophysiologic illness, medical practitioners tend to treat patients as either imagining or exaggerating their symptoms or as being a victim of unfortunate disease processes that have no effective treatment. For the former group of patients, this often leads to active resistance to any form of psychological explanations for their symptoms, thus precluding approaches that may be effective. For the latter group, this often leads to frustration and helplessness. The comment of one woman who considered enrolling in a research study on fibromyalgia is telling: "Are you not aware that people with fibromyalgia are unable to go out to attend group sessions?"

The biotechnological model of illness frequently leads the patient on a long and exhaustive search for cures. This often includes pursuing complementary and alternative medical practices, which may reinforce the biomedical mindset that the pain is the result of a purely physical process but simply substitutes natural treatments for

allopathic ones. In these situations, the patient's narrative is often: "I have had a difficult life filled with challenges. In addition to that (but unrelated to it), I have suffered from a long list of medical disorders. I am committed to getting better and have spent a great deal of time, energy, and money to find a cure. However, nothing has really worked, and I am stuck."

Mindfulness: The healing approach

To reverse psychophysiologic disorders, it is necessary to adopt a mindful point of view. There are two approaches to mindfulness, which for the purposes of this chapter will be termed the "Eastern" and "Western" approaches. Both of these visions of mindfulness are important and necessary for the process of healing psychophysiological disorders.

As described by Langer (1989), the Western approach to mindfulness is the process of looking beneath the surface of situations with "fresh eyes" in order to develop new ways to conceptualize a problem or situation. For patients with PPD, as already demonstrated, a biotechnological approach is not effective. Rather, a mind–body approach offers the possibility of discerning the root causes of these disorders in the connection between life events and psychophysiologic reactions that occur due to neuroplastic processes in the brain and body. This conceptualization not only offers a hopeful explanation for these disorders but also is a critical ingredient of effective treatment.

As previously described, the initial step in the treatment of PPD consists of an educational process to alter the patient's mindset from a biotechnological disease-based model to a mind–body model. This model posits a different life narrative: "I have had many challenges in my life. I can now see that these situations have created symptoms of PPD. Medical and mental-health professionals have been caring but have not been able to reverse these disorders. I do have real symptoms that are caused by PPD, but I do not have an incurable disease. I am healthy and strong, and I can recover from this disorder. I am responsible for my healing; I have the tools to accomplish reversal of symptoms; and I will do whatever is necessary to heal. I am the hero of this narrative." In the author's experience, patients who adopt this mindset have high rates of resolution of symptoms.

The Eastern approach to mindfulness is also an integral component of treatment for psychophysiological disorders. Key elements of mindfulness meditation that are helpful for individuals with PPD include: the concept of impermanence, focused attention with a nonjudgmental "beginner's" mind, acceptance of the present moment, letting go of the past, and an emphasis on loving-kindness (Goldstein, 1993; Kabat-Zinn, 1990). The philosophy of Eastern mindfulness that everything is transient combined with the ability to step back and observe events occurring in the moment with less reactivity allows an individual to decrease the automatic reactions of the amygdala that perpetuate chronic pain and associated symptoms. Studies have shown that mindfulness training decreases amygdala responses (Lieberman et al., 2007) and can decrease pain (Zeidan et al., 2011). This practice teaches individuals to better tolerate emotions and uncomfortable situations rather than avoiding them or pushing them away. Allowing emotions to be experienced and processed as opposed to avoiding them

has been shown to be of value (Gillis, Lumley, Mosley-Williams, Leisen, & Roehrs, 2006; Lumley et al., 2011). A recent fMRI study found that emotional reactivity in the nucleus accumbens and limbic system predicts the development of chronic back pain after an injury (Baliki et al., 2012).

Acceptance of the moment, no matter what events or situations are occurring, is another facet of mindfulness training that allows an individual to temper emotional reactions that can activate pain pathways and provides training in letting go of prior events to focus more fully in the present. Finally, loving-kindness training that leads to increased affection for self and for others as well as forgiveness for self and others is an integral component of treatment for PPD. Positive emotions such as these activate the dorsolateral prefrontal cortex and other brain regions that can modulate brain regions (such as the amygdala and anterior cingulate cortex) that are activated in individuals with psychophysiological based pain and associated symptoms (Brewer et al., 2011).

Conclusion

Physicians generally view the psychophysiological disorders that are endemic to modern society as structural disease processes. Current medical training emphasizes physical disorders and is “blind” to the powerful role that the mind plays in the production and perpetuation of symptoms of PPD. This leads to diagnostic testing that obfuscates the actual underlying cause and to medical interventions that are ineffective or, even worse, that can prolong and exacerbate the disorder. This chapter posits the view that, by not taking the mind into account when diagnosing and treating psychophysiological disorders, the traditional medical approach to PPD is essentially “mindless.”

The first and most important step in an effective approach to psychophysiological disorders is to change viewpoints and to become “mindful.” A mindful approach takes into consideration the interaction between the mind and the body as well as the correlations between stressful life events and the onset and/or exacerbation of symptoms of PPD. When physicians, mental-health professionals, and patients adopt this viewpoint, the stage is set for the possibility of effective treatment. In fact, simply implementing this approach is sufficient to cause significant or complete resolution of symptoms in a small but significant subset of patients (approximately 5–10%).

For the majority of patients with PPD, however, it is necessary to utilize additional modalities for healing. These modalities consist of (1) behavioral methods, such as decreasing fear of symptoms; actively taking control over them; and reflective techniques, such as imagery and visualization; (2) mindfulness meditation, which includes such proven concepts and techniques as practicing interested and nonjudgmental attention, accepting impermanence, learning to let go, and practicing loving-kindness; (3) emotional exposure therapies, such as ISTDP, that promote healing of past and present traumatic life events; and (4) instituting life changes to act upon a new identity as a healthier and more assertive individual. Such a comprehensive treatment approach has been shown to be effective in preliminary data. There is now hope that a significant proportion of patients with psychophysiological disorders can reverse their symptoms and thus that a great deal of suffering can come to an end.

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A Mindful Approach to Chronic Illness

Deborah Phillips and Francesco Pagnini

Strength does not come from physical capacity. It comes from an indomitable will.

—Mahatma Gandhi

It is a sign of the times that the combination of our aging demographic and our increased longevity produces a group of diseases that cannot be cured and are not imminently terminal. Trusted health practitioners tell us that the progression of our chronic disease is predictable over the long term but variable in the short term; that its course may be continuous or intermittent in its downward slope. Suddenly, life is irreversibly altered, and in this paradigm, with no cure in sight, medication and emotional support constitute the foundation for achieving optimal wellness. Questions naturally turn to the adjustments needed, to understand “How is my disease going to progress—over what time, with what symptoms?” The medical community provides us with a roadmap for adjusting to and decreasing symptoms of illnesses that medical science says are incurable, long-lasting and often progressive, even when remitting. We struggle to redefine ourselves within that context.

These are the terms of chronic disease, a class of illnesses that include persistent infections (e.g., hepatitis) and systemic conditions (e.g., diabetes, hypertension, multiple sclerosis).¹ They represent the leading causes of death and disability in the U.S., accounting for seven out of every 10 deaths and impacting the quality of life of 90 million others (NY State Department of Health, 2012). They have an overall presence in the general population of approximately 133 million, representing 45% of the total U.S. population (Wu & Green, 2000). By 2020, that number is projected to be approximately 157 million, with 81 million having multiple conditions (“Tackling the burden of chronic diseases in the USA,” 2009). While medical science has made great advances in developing effective treatments for the physical symptoms of these diseases, patients often face substantial challenges to their emotional well-being. Depression, anxiety, and stress often arise after the diagnosis as well as during the course of

the disease. It is estimated that up to one-third of individuals with a serious medical condition experience symptoms of depression (Simon, Von Korff, & Lin, 2005). The presence of a depressive disorder is two to three times more common in people with a chronic disease than in people who have good physical health (Katon, 2011).

Over the past three decades, a broad range of psychological interventions have been developed to help people cope with the range of emotions that emerge with a diagnosis of chronic illness (Sansom-Daly, Peate, Wakefield, Bryant, & Cohn, 2012). Many of these interventions—both individual and group—seek to improve quality of life and/or change disease outcomes by modulating psychosocial and behavioral processes with techniques such as lifestyle management, stress management, patient education, social support, and coping skills training (Petrie, Broadbent, & Meechan, 2003). They tend to provide new ways of understanding the condition so as not to be overwhelmed by it, encouraging the expression of emotions like fear, anxiety, and sadness while focusing on new ways to relate to these feelings. The more successful psychosocial interventions share similar elements, a key one being the ability to consider a different point of view towards the illness (Kerns, Sellinger, & Goodin, 2011). This new perspective may come from the therapist, from identifying with other people who seem to cope with the disease better, or even from solitary cognitive reflection. Our objective in this chapter is to provide readers with some insights in their efforts to look at chronic disease in a new and, we believe, more mindful way.

The Mind and Body As One

Western philosophy has a predominantly dualistic view of mind and body, suggesting that disorders have either a physical or mental etiology, a separation that is more or less meaningless when it relies on an artificial distinction between them. We can find ample evidence that mind and body are interrelated, that such a relationship is often advantageous to moderating symptoms of illness, and that we need to consider the context for cues to understand our situation in multiple ways. For example, we know that emotional responses can significantly influence cardiovascular and immune system responses (Ho, Neo, Chua, Cheak, & Mak, 2010); fatigue (Holgate, Komaroff, Mangan, & Wessely, 2011), intoxication (Peacock, Bruno, & Martin, 2012), pain (McBeth, Macfarlane, & Silman, 2002), and other seemingly physiological events can, and often do, impact an individual's psychological experience.

Instead of conceiving mind and body as distinct psychological and physical entities, it is more helpful to see them as mutually advantageous. We can see this in Langer's early studies on the psychology of possibility demonstrating a link between longevity and engagement. In this study, a nursing home cohort showed that when one group of residents was encouraged to make choices about various aspects of their lives and another was told that the staff would provide for their care, the first group had both a happier, more cheerful disposition, and less than half as many of them had died than in the control group. This suggested that making choices results in increased personal control (Langer & Rodin, 1976). Subsequent research on the connection between mind and body revealed that a healthy mind would put the body in a healthier place (Langer, 1989), forming the basis for the 1979 "counterclockwise study," in which

Langer and her students studied what effects of turning back the clock *psychologically* would have on the physiological states of the participants. The results of this study changed the way we view not only aging (the cohort being elderly men) but also traditional Western notions of “limits”—that biology is not destiny, that “it is not primarily our physical selves that limit us but rather our mindset about our physical limits” (Langer, 1989, p. 10).

In the case of chronic disease, then, the mind/body relationship is often exemplified by physiological reactions to psychological stressors (e.g., diabetes, chronic pain). In this sense, a key construct associated with the mind/body relationship is what we term mindfulness.

Langer’s Sociocognitive Mindfulness

While different in its orientation from Buddhist-based mindfulness, Dr. Langer’s construct agrees with the Eastern-based focus on the present, articulating mindfulness as a state of mind achieved by drawing novel distinctions in one’s situation and the environment, above all concerned with the contextual aspects of the present (Alexander, Langer, Newman, Chandler, & Davies, 1989b; Carson & Langer, 2000; Grant, Langer, Falk, & Capodilupo, 2004; Langer, 1993, 2009; Langer & Moldoveanu, 2000). In this framework, we are more acutely aware of the different aspects of a situation at multiple levels of consciousness. We are conscious of rules and are guided by them, but not as absolutes that ignore the circumstantial aspects of our situation in favor of some prior conception of what is right. The more we are able to perceive our situation from the different perspectives of others, and of the changing circumstances over time, the more mindful we are of the variable nature of our situation. We are less certain about the “correctness” of a particular approach, and we are more mindful of the possibilities or opportunities of several approaches. One’s ability to “recategorize” and “revalue” events (Carson & Langer, 2000) by not confusing the “stability of the mind-set with the stability of the underlying phenomenon” (Carson & Langer, 2000, p. 175) provides the basis for responding to a situation opportunistically rather than with a predetermined set of actions. It is one’s inability to respond to the context of the situation and the lack of attention to its variability, and to instead “play by the rules,” that fall within the Langer construct of mindlessness.

Mindlessness, Stress, and Chronic Disease

In the Langer framework, mindlessness is the reverse of mindfulness. Mindlessness occurs when one considers only a single perspective, by automatic, repetitive thought processes, judgments, and behavior. We are mindless when we operate on autopilot, as when we drive somewhere and upon arrival can’t recall how we got there; when we do not pay attention to the context of a problematic situation, and our decision is interpreted as insensitive rather than responsive; and when we use stereotypical or categorical thinking (Langer, 1989; Langer & Moldoveanu, 2000; Langer, Pirson, & Delizonna, 2010). Mindless constructs are reflected in social and clinical attitudes,

such as ingroup–outgroup stereotypes (e.g., all Chinese people are similar); buying a particular product because of the mindless adherence to a habitual brand; crossing the street without noticing that the light is red; and in thinking that a chronic disease diagnosis is a death sentence or a life of pain and accompanying misery.

Mindlessness is strongly related to psychological stress, anxiety, and suffering, both in the general population (Langer, 1989) and for people with a severe pathology. In one ongoing study by the Langer Mindfulness Lab at Harvard University, preliminary findings indicate that the mindfulness of people with Amyotrophic Lateral Sclerosis (ALS) is strongly related to their psychological well-being, and that depression and anxiety, assessed with the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), tend to increase together with the level of mindlessness. This appears to be true for both ALS patients and their caregivers. Interestingly, there was a negative correlation between mindfulness and the level of physical impairment. Although not causal, it suggests a strong relationship between mindfulness and physical symptoms. When looking at differences between ALS patients and caregivers, patients' scores on the Langer Mindfulness Scale are significantly higher than those of caregivers. This difference has been found in quality-of-life scores as well, assessed with the ALS Specific Quality of Life Revised (Simmons et al., 2006) and a revised McGill QOL Inventory (Cohen, Mount, Strobel, & Bui, 1995) consistent with the relationship previously indicated. This result is difficult to interpret but suggests that the diagnosis of the chronic condition itself helps to encourage the person with ALS to change their perspective, paying more attention to the variability of symptoms and trying to adapt and cope with the negative perception of the illness. The mindlessness of people with ALS results has also correlated with psychological symptoms such as anxiety, depression, and the burden experienced by their caregivers. Increasing mindfulness of people who have been diagnosed as having ALS may have a positive impact on both the patient and the caregiver.

Preliminary data are very exciting, but the seriousness of chronic diseases requires more research to understand better the parameters of our mindfulness training. We are now more formally testing the attention to variability hypothesis with depression, asthma, multiple sclerosis, and cancer. These studies address our work in attention to variability and to deepen our knowledge of stressful factors that heighten the difficulties experienced by the person with a chronic disorder.

Mindlessness and Stress

Dr. Langer posits that stress is caused by mindless views of events and situations, that stress relies on two thoughts: first, that an undesired event will occur, and second, that when it does, it will be awful. However, in a mindful construct, events and situations do not cause stress. Rather, *it is the view that one takes of the event* that causes stress. Consider a situation in which a person's bus is late, making the person correspondingly late for an appointment. We can imagine two reactions: one in which the delay will have only negative consequences (e.g., it will be considered rude by the person waiting; or the person will not wait so a job opportunity or a doctor's appointment is lost). In another context, the person missing the bus could reason, in a more positive

way, that being late will mean a bit more exercise by walking; or that the reaction of the potential employer to such a mishap provides the tardy person with some insight into the potential employer's flexibility, making the lost opportunity less valuable. The same event seems to be stressful in one case, nonstressful (even pleasant or at least informative) in another. In this way, we see that the event itself is not the cause of the stress; rather, it is our view and the negative emotions that elicit the stress reaction.

These considerations have been useful in the reduction of anxiety, stress, and depressive symptoms, particularly when employing a cognitive therapy approach (Beck, 1979; Wells, 1997) and application to chronic disease. In the latter, reasonable worries related to medical conditions may be viewed mindlessly; in which only one way of viewing the situation results in significant stress that itself exacerbates the physiological symptoms. For example, a small mole can be seen as a sign of cancer, with possible catastrophic thinking and evoking severe scenarios, even without medical evidence.

Correspondingly, how we experience any disease is largely subject to our attention to its symptoms. Symptoms are all too often mindlessly perceived as markers of chronic illness rather than as conditional occurrences. This is reflected in our own language and our tendency to employ the terms *disease* and *illness* instead of *condition* when describing clusters of negative symptoms. Little attention is paid to the day-to-day variability of symptoms, and instead, symptoms are viewed as stable and unmanageable, and are managed in a consistent, predictable fashion. Such views are debilitating insofar as they mindlessly ascribe a self-defining and uncontrollable nature to symptoms that exacerbates the experience of disease; such a conceptualization of their symptoms renders the disease a constant in their lives. As a simple example, people who experience chronic pain often do not track down the situational and psychological triggers of their pain. While we accept pain can feel constant, it is also possible that pain reflects a mindless adherence to repetition such as the constant use of improper typing or writing techniques for the individual suffering from arthritis, fibromyalgia, or carpal tunnel syndrome. In other words, the perception of pain might be a mindless expectation that comes with an unconditional view of their condition. Pain might also result from the (mindless) belief that there is only one way to do something, and even if that results in pain, there is no attempt to do the same thing *in a different way*, so that the task is accomplished but the pain is eliminated or reduced. Individuals with symptoms of depression and pain tend to cling to the familiarity and routine nature of their symptoms in a manner that becomes comforting. Further, the prescription and use of pharmaceutical interventions, even if clinically very useful and important, fuel the illusion of symptoms as stable and beyond individuals' control.

One of the biggest fears associated with a chronic illness is the uncertainty associated with the future. The condition may be sporadic, lasting only a short while, or it could be permanent, gradually worsening over time. The lifestyle changes associated with the condition, such as giving up cherished activities, adapting to new physical limitations and special needs, and paying for expensive medications and treatments, are often highly stressful. This uncertainty-fueled stress dynamic is based on a need for stability in the situation, itself an illusion. No one can predict the future entirely. Whether by chronic illness or accident, anyone can die at any time. We can feel a sense of control

through an illusion that an illness is being managed, and that may temporarily help our stress if it is based on our stable and unchanging connection to the illness. With chronic disease, and the uncertainty of its progress, we are forced to relinquish this illusion of control while often desiring it as an outcome. If I believe that control is based on the predictability of my disease or my ability to gain control over its course by managing it, I am likely to suffer more. It is a process of mindless self-deception.

Finally, a word on labeling itself: Receiving a diagnosis of chronic illness is often a devastating label, the negative impact imparted by the label itself. The labels *chronic* and *major* often encourage people to overlook day-to-day fluctuations in their physical states, in turn priming states of low personal control. A person who receives such a diagnosis often experiences a shift in his sense of identity: “Marc, the cancer patient” becomes his primary identity. This label appears fixed, stable, and unchangeable. However, this ignores the label as only a word, among many that describe the person. We often give these labels more power than they should have, defining ourselves through them, instead of considering them for what they are: words whose purposes are to support medical decisions and define treatment paradigms. As we allow the label to redefine our primary identity, stress and mindless adherence to a predetermined roadmap take over. Consider the study, cited above, that took the traditional view of aging with its accompanying expectations of cognitive and physical decline. In this 1979 study, a small group of elderly men were taken to a remote monastery in New Hampshire where, for a period of one week, they were transformed from the then-current year to a time 20 years prior—magazines, books, radio, television, and furnishings as well as photographs and discussion topics all were presented *and discussed* as if the men were 20 years younger. The men were asked not just to think about the year 1959, but also to live as though it were that year, and as if they were 20 years younger. At the end of that week, the notions of typical aging were turned around by the remarkable psychological and physiological changes experienced by the participants who had been part of the “counterclockwise” experiment, compared to a similarly aged demographic control group who, while spending a week at the same retreat, were simply asked to reminisce about life 20 years prior (Langer, 1989). The expectations and stresses associated with a predetermined set of expectations about aging were replaced with a new understanding of what Langer refers to as the “psychology of possibility” (Langer, 2009).

Mindfulness and Chronic Disease

Over the past 35 years, Langer’s work has greatly informed our understanding about how we can productively view health issues within the theoretical framework of mindfulness and mindlessness. Her research articulates what we understand as an illusion of stability in diagnosis, and in disease progress, the opportunity to challenge traditional views and to reflect further on one’s own views by understanding and attending to the variability of one’s symptoms.

Once diagnosed with a chronic illness, people tend to view themselves as ill and often, even when the illness has remitted, continue to view the physiological symptoms

of the disease as present. As suggested above, there is no recognition of variability in their symptomology or in the activities of daily living in which they still participate when the disease is in an active state. This adherence to a stability of disease, to a stability of mindset, forms the stage for one's well-being. However, as Dr. Langer points out:

People read the results of studies such as this and think, "That's interesting, but that can't have much to do with me." The idea that our beliefs might be one of the most important determinants of our life span goes too much against the grain of what we "know" to be true. We have to put aside our mindless belief in what we "know" in order to understand that while we can know that something is, we cannot know that something cannot be. (Langer, 2009, p. 23)

In this theory, diagnoses are valuable but not a substitute for a mindful understanding or perspective about what at the smallest level is going on with one's body. While not in conflict, this framework is not the same as a meditation-based mindfulness concept; rather, it is a way of looking at experience and understanding that more than one perspective is possible, the more one can learn, with a particular appreciation that small changes can be important over time.

The application of this concept of mindfulness in chronic illness directly targets the concept of an illusion of stability in diagnosis—that is, that people take for granted what they are told by health-care practitioners as unconditional, losing an opportunity to challenge traditional views and reflect further on one's own views. In this conceptual framework, diagnoses are valuable but are not a substitute for a mindful understanding about what is going on with one's body, in other words, attention to the variability of symptoms of illness (Langer, 1993). Such attention to variability has the potential to bring our physiological as well as emotional and behavioral responses under control (Langer, 2009). In the situation of chronic illness, the unintended consequence of ignoring variability—the grouping together of symptoms as part of the disease when in fact the symptom might be attributed to something else entirely— inhibits our ability to exert control: "We are not our disorders, and we shouldn't be defined or constrained by them" (Langer, 2009, p. 47).

To date, some of the most promising clinical treatments for the reduction of stress, improvement of psychological well-being, and help for people trying to deal with a chronic disorder are based on the principles of meditation-based mindfulness. Through the practice of meditative mindfulness, a more serene and balanced emotional and affective state can be achieved, which in turn is a good precondition for stress resistance and resilience (Teasdale, Segal, & Williams, 1995). Most of the research in this field uses standardized protocols, such as the Mindfulness-Based Stress Reduction or the Mindfulness-Based Cognitive Therapy. These practices require relatively large blocks of time and a great engagement by the people who join them. As reported by Siegel (2007), the other way to improve its own mindfulness level is presented by Langer, with a less time-requiring, active-learning educative approach, that may be more suitable for people who do not have the time, the opportunity, or

the inclination to participate in such an intensive training program. Since some people do not feel comfortable with meditation, from a personal or religious perspective, Langer's "meditationless" form of mindfulness provides a useful alternative.

The effects of increased mindful attention to variability and to the distinct circumstances that give rise to symptoms has the potential to bring physiological responses, emotions, and behaviors within people's control (Langer, 2009). Recently, Delizonna, Williams, and Langer assessed whether people could be taught to recognize contextual variations in their heart rate, a bodily process that is typically seen as relatively unchanging (on a daily basis), and to use this information to change their heart rate using their mind without altering their muscle tension or breathing (Delizonna, Williams, & Langer, 2009). Experimental groups monitored their heart rate every 3 hr ("high attention to variability group"), twice a day ("moderate attention to variability group"), and once before going to bed and upon waking each morning ("stability group"). A control group was not asked to monitor their heart rate at all. Participants instructed to pay high attention to variability observed a greater degree of variation in their heart rates and were significantly better at increasing and decreasing their heart rate. Participants whose attention was directed to the stable nature of their heart rates performed the worst on the increase phase of the heart-rate-control task. These results suggested that instructing people to notice variability provoked mindfulness and consequently invoked greater control over their autonomic processes.

Take one final hidden decision to make the point even clearer. When told we have a chronic disease, how likely is the public or the medical professional, for that matter, to ask how chronic is chronic? If we display the symptoms for 10 min every other day, 1 hr a week, 3 hr a month, is it chronic? Who decided, and based on what other hidden decisions? We have mindlessly learned that the diagnosis of "chronic" means that whatever we have cannot be cured by any currently known medication. Therefore, we give up. Giving up may lead to depression and premature death. The determination of chronic versus acute is indeed, consequential.

Mindfulness Exercises for People With a Chronic Disease

At this point, we turn to a discussion of what mindfulness means and how we can help others increase their mindfulness. We have seen in other research (Alexander, Langer, Newman, Chandler, & Davies, 1989a; Delizonna et al., 2009; Langer, 1989, 2009) that improving mindfulness, for example, through viewing a situation in a novel way, paying attention to variability of feelings and symptoms, improves quality of life. Even when mindfulness may not influence symptoms per se, it can reduce the negative response toward a chronic illness, lower stress, and result in a more positive impact on overall health.

The primary goal of a mindfulness intervention is to help the patient learn the importance of conceptualizing their current experience in different ways, or with different interpretations; the ability to see one's situation in different ways is mindful (Carson & Langer, 2000). If mindful, health-care practitioners and other caretakers can help the patient define the world with more possibilities than the experience of

being a patient and by how they have been labeled by others in and outside of the medical profession.

The Langer Mindfulness Lab is developing a more comprehensive program based on extensive research with a specific focus on chronic diseases and quality of life. We provide some practical suggestions below.

- *Pay attention to variability.* The world around us is always changing. If you can notice subtle changes in the external word, as well as in how you feel, you will see that the negative feelings, whether psychological or physical, are not always present. There is a tendency to hold things as if they are unchanging mindlessly, despite our changing environment. Simple exercises can help to change this mindset: for example: “identify five ways in which you look different from yesterday”; or “think about how you felt after waking up in the morning on the weekend last week and this week: how are they different?” Similar exercises can be very helpful in reducing the perception that symptoms are unchanging: “Think about discomforts or pains you are having today. Think about how they feel different from an hour ago, or from yesterday, or from 2 days ago.”
- *Seek and produce novelty.* The attitude of paying attention to new elements involves the tendency to have an open and curious orientation toward the world and towards oneself. Novelty seeking is facilitated by an individual’s propensity to interact and actively attend to changes, from both the internal and the external worlds. An individual with an inclination for novelty production actively creates new categories rather than relying on previously constructed categories and distinctions (Langer, 1989). Novelty seeking is also related to the concept of flexibility, using feedback from the environment to make any necessary adaptations to one’s behavior. These aptitudes may be improved in an effort to be more mindful. Examples of exercises with this purpose may be: “Take a new route to get from your house to your workplace,” or “A blue ketchup is a product that failed from a commercial point of view. Imagine other possible applications of this product.” People with a chronic disease may find this attitude particularly useful, as it helps create a positive way of reassessing a previously perceived disheartening symptom of the disease: “Imagine a friend whose arms are paralyzed. Suggest a new way that he can brush his teeth.”
- *Understand that many, if not most, events can be viewed as both positive and negative.* We act as if objects, events, and even people are intrinsically either good or bad. This is a function of our need to evaluate, and not an absolute in the external world. The same event may be seen as either positive or negative, depending on our perspective, or both positive and negative. In the event that we miss the bus, we may consider it a negative event; after all, we might miss that important job interview. However, if we change our point of view and perceive it from a different perspective, we may find that this event can be seen as positive (e.g., we may end up with a much better opportunity while on our walk, a good form of exercise). Every negative perception of an event may be reframed by answering a simple question: “In what ways might this seemingly bad event be good for me? In other words, find three ways in which it could be seen as positive.” A similar perspective can be maintained with a chronic disorder. We can be sympathetic to pain and suffering,

and simultaneously try to find a different perspective about the illness. Once that is achieved we can see that our experience of the illness is a reflection of the view we take rather than of the illness itself. This may seem counterintuitive at first, but we can find many individuals who are able to reframe their experiences of their own illnesses by framing their views to include what the illness has brought to their lives (e.g., a focus on the important things they missed, whether it be family, philanthropy, or art). This perspective-shifting is a very mindful exercise.

- *Accepting and playing with unpredictability.* The absence of predictability and loss of control are key stressors of chronic disease. However, this uncertainty about the future can be a resource, as described in the exercises above. Just as the future is unpredictable, so is the course of every individual's illness, opening up the possibilities for a more positive future than had been anticipated or communicated by others. "Playing" with our perceptions of the future may help us not be overwhelmed by the present, whenever in a difficult situation. One exercise that helps us to retrain ourselves is: "Try to find three reasons that explain that a certain event might occur, and three other reasons that it might not, and why all of these reasons are both positive and negative."
- *Making sense of symptoms.* Illness and symptoms tend to be perceived as something still or progressively getting worse. Attention to variability and sense-making exercises can help achieve a more mindful perspective. It is unlikely that all symptoms are always present, at the same intensity, and/or, perhaps, at the same level of impairment. Reflecting about symptoms allows for understanding their variability, and sense-making can help in understanding that there are often many reasons for their variability. Once we can identify even a few reasons, feelings of increased control and awareness follow. For example, one can ask "Why is today better or worse than yesterday or last week? In what ways?"
- *Add humor.* Humor relies on mindfulness, because it forces us to see another side of the situation, in an unexpected mode. It allows us to be less centered on ourselves and on our points of view, helping us to provide different interpretations of situations.

A Final Consideration: Mindful Perspective About Diagnoses

Social constructions of health can become self-fulfilling by shaping the very ideas and experiences of illness among individuals. Scientific investigations generate the profiles of various diseases, including their commonly experienced symptoms, prognoses, and successful forms of therapeutic interventions. Generally, profiles of diseases are based on mere associations, on "averages," "tendencies," or "probabilities"; they cannot provide information about the moment-to-moment experiences of those conditions nor, in many cases, their paths. Despite the reality that most health information is obtained through correlational research, there is a tendency among researchers to transform probabilities into absolutes (Langer, 2009). Medical advice rooted in probability is not presented in a conditional way, but rather is applied cross-situationally by the media, teachers, parents, and business managers. The mindless consumption of health information by the general public further contributes to the mindless experience

of health information in so far as inaccurate conceptions of the course of a particular illness have the power to prime “false” symptoms and to hinder the effects of less popular, but otherwise successful, therapeutic methods (e.g., mindset-shift training).

Note

1. See, for example: http://www.rightdiagnosis.com/s/systemic_disorders/subtypes.htm

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Applications of Mindfulness in the Treatment of Women's Sexual Dysfunction

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Overview of Sexual Difficulties in Women

Sexual difficulties are highly prevalent worldwide and affect individuals across all ages, races, cultures, socioeconomic classes, and health statuses. Population-based estimates suggest that up to 43% of women and 31% of men aged 18–59 have experienced problems in sexual function over the past year (Laumann, Paik, & Rosen, 1999).

The DSM-5 (American Psychiatric Association, 2013) lists three major subtypes of female sexual dysfunction: (1) Female Sexual Interest/Arousal Disorder (SIAD), (2) Female Orgasmic Disorder (FOD), and (3) Genito-Pelvic Pain/Penetration Disorder (GPPPD).

SIAD is diagnosed when a woman experiences at least 6 months of difficulties with reduced or absent: interest in sexual activity, sexual/erotic thoughts, initiation or receptivity to sex, sexual excitement/pleasure during sex, sexual interest or arousal to erotic stimuli, and genital or nongenital sensations during sex (Brotto, 2010). At least three of these indicators must be present and create distress for the woman to meet SIAD criteria. Population-based studies indicate that approximately 9.5% of women older than 18 years of age have distressing sexual desire concerns, and 5.1% of women have distressing sexual arousal concerns (Shifren, Monz, Russo, Segreti, & Johannes, 2008). Data from Middle Eastern and Southeast Asian countries indicate even higher rates of sexual-desire difficulties (Laumann et al., 2005). Indeed, concerns about low or lack of interest in sex and associated pleasure are the number one reason women seek sex-therapy services. Although lack of testosterone has been speculated for many decades as being the root cause for a loss of interest in sex, numerous studies now conclude that testosterone plays only a very minimal role in affecting women's sexual desire/arousal (Basson, Brotto, Petkau, & Labrie, 2010; Davis, Davison, Donath, & Bell, 2005; Dennerstein, Dudley, & Burger, 2001) and that motivation for sex is much more influenced by mood, relationship factors, and historical factors in the

woman's past and early development (Brotto, Petkau, Labrie, & Basson, 2011). Difficulties with low desire and arousal also trigger an array of distressing emotions and create clinically significant distress for women and their partners (Nobre & Pinto-Gouveia, 2006a). There are no approved pharmaceutical treatments in North America for the treatment of SIAD symptoms, although off-label prescribing practices are exceedingly common. Estimates suggest that over four million off-label prescriptions for testosterone for women's low desire were made in 2009 alone. However, there are concerns about long-term safety with testosterone in regards to the potential risk of metabolic disease and breast cancer. Other pharmaceutical agents used off-label for desire and arousal concerns have included sildenafil citrate (Viagra), bremelanotide, flibanserin, bupropion (Wellbutrin), Lybrido (testosterone plus Viagra), and Lybridos (testosterone plus buspirone). To date, the only FDA-approved medical device for the treatment of sexual-arousal difficulties is the Eros clitoral therapy device, a hand-held vacuum placed over the clitoris that elicits congestion of the surrounding tissue. Because anxiety and the phenomenon of "spectatoring" (i.e., monitoring and evaluating one's own performance during sexual activity) are identified variables that negatively impact upon a woman's sexual response, cognitive behavioral therapy (CBT) has been a highly effective treatment for improving sexual desire and arousal (Hurlbert, 1993; Meston, Rellini, & Telch, 2008; Morokoff & Heiman, 1980; Trudel et al., 2001).

FOD in the DSM-5 is defined as the presence of a marked delay in, marked infrequency, or absence of orgasm, or a markedly reduced intensity of orgasmic sensation, over at least 6 months that leads to significant personal distress (American Psychiatric Association, 2013; Graham, 2010). The population prevalence in women older than 18 years of age is approximately 4.6% (Shifren et al., 2008), and these figures were as high as 41.2% in Southeast Asian countries (Laumann et al., 2005). In lifelong FOD, inadequate stimulation or lack of information about the appropriate technique necessary for orgasm often underlies symptoms. As such, Directed Masturbation, a skills-oriented behavioral treatment program has a high degree of efficacy (Heiman & Meston, 1997). When behavioral techniques are combined with sex education, anxiety reduction, and CBT, this remains a first-line treatment for lifelong FOD. In many cases of acquired FOD, medication onset or discontinuation may contribute to a loss of orgasmic capacity. In some cases of SSRI-induced FOD, sildenafil citrate may be useful (Nurnberg et al., 2008).

GPPPD is diagnosed when a woman experiences persistent or recurrent difficulties with: having vaginal intercourse/penetration; pain during vaginal intercourse/penetration attempts; fear or anxiety about penetration; or tensing or tightening of the pelvic floor muscles during attempted penetration (American Psychiatric Association, 2013; Binik, 2010). Like SIAD and FOD, symptoms must be experienced for a minimum of 6 months and lead to significant personal distress for the woman. The most common reason for genital pain is a condition called "Provoked Vestibulodynia" (PVD), which is characterized by sharp, stinging, burning pain around the opening of the vagina and which affects 12–20% of reproductive-aged women (Harlow, Wise, & Stewart, 2001; Landry & Bergeron, 2009). Because the woman's pain interferes with sexual activity and relationship intimacy, PVD can have distressing consequences on psychosocial well-being and sexual satisfaction (Danielsson, Sjöberg,

& Wikman, 2000; Gates & Galask, 2001; Meana, Binik, Khalifé, & Cohen, 1997). There has been intense study of the causes of PVD, and its etiology is likely multifactorial with involvement of pain-regulatory pathways, pelvic floor muscles, psychological, and sex-related contributors (Damsted-Petersen, Boyer, & Pukall, 2009). Because women with genital pain will initially seek treatment from their primary care or gynecology-specialist providers, treatments to date have focused on pharmacological approaches (Landry, Bergeron, Dupuis, & Desrochers, 2008). However, a review of the literature shows a marked paucity of randomized controlled trials, a very low rate of treatment efficacy, and a high (and often intolerable) rate of side effects with the use of oral and topical drugs for PVD. Pelvic-floor physiotherapy with biofeedback is often an important aspect of management, and, for a very select sample of women with specifically provoked (not unprovoked) pain and minimal involvement of pelvic floor hypertonicity, surgical excision of the vestibular tissue can also be very effective. Because of the long history of the usefulness of CBT in the treatment of nonsexual chronic pain, and because of the significant anxiety that characterizes women with PVD (Desrochers, Bergeron, Khalifé, Dupuis, & Jodoin, 2009), there is a strong rationale for the use of CBT in women with genital pain. Cognitions such as: "I am afraid that I will panic during penetration," "I think about everything that will fail during penetration," and "I am afraid that my vagina is too narrow for penetration" are common. Accordingly, CBT significantly reduces pain during penetration and pain-related sequelae including psychological symptoms and sexual adjustment (Bergeron et al., 2001), and women are able to maintain their gains even 2.5 years later (Bergeron, Khalifé, Glazer, & Binik, 2008).

Development of a Mindfulness-Based Intervention for Women With Loss of Desire/Arousal

Women in the clinical setting have often described their desire/arousal symptoms as being like a "disconnect" between their mind and their body, and they will often report an absence of pleasure despite the presence of a robust genital arousal response. Mindfulness, which aims to cultivate active awareness of the body in an accepting, nonjudgmental, and compassionate manner, might be ideally suited to address complaints of sexual desire and arousal in women (Brotto & Heiman, 2007). Furthermore, women often report significant negative self-judgment during sex that has a bearing on their unfolding sexual response, and this is not always addressed in traditional CBT. For example, thoughts such as "Why can't I be normal?" and "My lack of desire is just not fair" do not lend themselves well to cognitive challenging. Accordingly, researchers have incorporated mindfulness skills from the Vipassana (insight) tradition into CBT and sex therapy.

Sensate focus has a long history in sex therapy and involves structured and progressive touching exercises in which the recipient of a partner's touch practices tuning their full awareness to the experience of the sensations evoked during touch. This bears some resemblance to what is being cultivated during mindfulness practice in that the individual practices moment-by-moment, nonjudgmental awareness of the unfolding

sensations. However, sensate focus is always practiced together with a partner and usually in the privacy of one's bedroom, whereas mindfulness can be practiced even by an unpartnered individual and in many different settings. Because mindfulness as a skill in insight practice involves viewing negative, judgmental, or otherwise intrusive thoughts as "mental events," it is particularly appropriate for women with sexual difficulties who often report high levels of distress from worries about a partner's reaction, or extreme dissatisfaction with oneself for being "abnormal." Many of the mindfulness skills adopted in the following studies were borrowed and adapted from Mindfulness-Based Stress Reduction (Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (Segal, Williams, & Teasdale, 2002). Mindfulness exercises were, in some cases, adapted to address women with sexual concerns. Although much has been written about the use of both insight and concentration forms of mindfulness practice in the western literature, we deliberately used the former in our sessions with women experiencing sexual difficulties. Within the Vipassana tradition, we are encouraging women to practice skills in momentary concentration by encouraging them to become aware of thoughts and sensations as they occur in each moment, and to be mindful of the ever-changing stream of thoughts, emotions, and sensations.

In 2003, Brotto and Heiman applied mindfulness skills to the treatment of women with distressing loss of sexual arousal and desire secondary to their treatment for gynecological cancer. Because surgical treatments for gynecologic cancer may involve damaging important autonomic nerves that provide sensation when genital tissues are stimulated, reports of "feeling nothing down there" are common. Chemotherapy may also result in permanent changes in ovarian function that influence a woman's ability to lubricate. Changes in sexual desire are very common following cancer and its treatment, and many women may not resume their previous sexual frequency or practices even well beyond their physical recovery from treatment. In an effort to evaluate whether skills in present-moment awareness in a nonjudgmental manner may improve women's distress and sexual response, we developed a three-session individual psychoeducational program that included mindfulness skills as well as some of the traditional components of sex therapy. Psychoeducation focused on norms about sexual response with age and relationship duration, and the known physiological and psychological effects of cancer; instruction on the association between negative thoughts, emotions, and behaviors; and mindfulness skills. The latter were introduced by having the woman spend 10 min each day engaged in mindful self-awareness during another activity, such as walking or eating. Exercises were then focused on the woman's body, such as mindful self-awareness while taking a bath when the woman was encouraged to notice the sensations of water and soap against her skin while simultaneously taking note of any negative self-talk that emerged. Mindfulness exercises then became more intimate as the woman was encouraged to use a hand-held mirror to explore her own genitals while practicing mindful breathing. Finally, women were introduced to erotic tools such as visual erotica, fantasy, and vibrators as reliable methods of boosting the sexual arousal response, and they would then practice the Body Scan immediately following sexual arousal enhancement as a means of taking note of any triggered arousal sensations in the body.

In the first published study utilizing this methodology, 22 heterosexually partnered women (mean age 49.4 yrs) treated for cervical ($n = 13$) or endometrial

($n = 9$) cancer participated in three individual monthly sessions (Brotto, Heiman, Goff, et al., 2008). Before and after treatment, women completed self-report measures of mood and sexual function, and participated in a psychophysiological test of sexual response to erotica in a private laboratory. Many domains of sexual function, including desire, arousal, orgasm, and satisfaction, significantly improved, and there was a near-significant improvement in physiological sexual response when measured with a vaginal photoplethysmograph. Mood and overall subjective well-being also significantly improved. Although mindfulness skills comprised only a portion of the treatment, qualitative interviews with participants suggested that it was specifically the mindfulness aspect of the sessions that they found the most beneficial (Brotto & Heiman, 2007). Particularly notable improvements in mental sexual excitement, perception of genital throbbing, and actual physiological sexual arousal suggested that treatment was effective at decreasing both the subjective and physiological impairments in sexual response that often characterize cancer survivors. Recently, this beneficial effect of a mindfulness-based sex therapy treatment for cancer survivors was replicated and found to be more beneficial than a wait-list control condition (Brotto et al., 2012).

Following up on these positive findings, we next tested our mindfulness-based sex therapy in a more heterogeneous sample of 26 women (mean age 37 years), 77% of whom were heterosexually partnered, who were seeking treatment for low or absent sexual desire unrelated to cancer. The contents of the intervention remained the same except that treatment was now administered to groups of four to eight women by two or three facilitators (Brotto, Basson, & Luria, 2008). There was a significant increase in sexual desire and a significant decrease in sex-related distress following treatment. Although women's physiological sexual arousal increased from 82% (at pretreatment) to 126% (at posttreatment), this effect was not statistically significant. During exposure to an erotic film, there was also a significant increase in women's self-reported physical sexual arousal, subjective arousal, and positive affect. In particular, those women with a history of sexual assault, and who were therefore highly prone to distraction or intrusive thoughts during sexual activity, responded the most on sex-related end-points.

Building on these findings that mindfulness skills might be particularly helpful for women with a history of sexual abuse who are prone to negative affect during current consensual sexual encounters, we then compared two sessions of mindfulness skills practice ($n = 12$) to two sessions of thought challenging ($n = 8$) in 20 women (mean age 35.8 years) with a history of sexual abuse and current sex-related distress (Brotto, Seal, & Rellini, 2012). Women were included in this study if they attributed their current sexual concerns primarily to their history of sexual abuse. The mindfulness intervention involved introducing women to mindfulness theory and teaching mindfulness "How" and "What" skills (Linehan, 1993) followed by in-session practice of mindful breathing and the Body Scan. Women in the CBT arm were introduced to Cognitive Behavioral Theory and the nature of cognitive errors, and provided with Thought Records to allow them to challenge problematic thoughts. The primary endpoint was "concordance" or the degree of association between physiological and self-reported sexual arousal during exposure to erotic stimuli. Although both treatments were hypothesized to significantly improve sexual response, we expected that genital-subjective concordance would increase in the mindfulness group but not necessarily in the CBT group given the nature of the mindfulness exercises and women's practice

with moment-by-moment experiencing of bodily sensations that may allow them to be more in tune with genital response and integrate that information into their subjective arousal. Indeed, both groups led to a significant and clinically meaningful decrease in sex-related distress. However, only the mindfulness group experienced a significant increase in genital–subjective concordance from pre- to posttreatment compared to CBT.

Mechanisms

The precise mechanisms by which mindfulness may be effective for women with sexual desire and arousal concerns are likely multifactorial. Our work is guided by a conceptualization of mindfulness that has been proposed by Bishop et al. (2004) consisting of two components: (1) regulation of attention in order to keep it focused on the immediate experience, and (2) approaching one's experience with curiosity, openness, and acceptance. These facets of mindfulness are made explicitly apparent in our treatment, first through in-session experiential practice followed by discussion and a detailed inquiry. Mindfulness, as defined according to Langer (2009), involves drawing novel distinctions in a familiar setting to challenge "mindlessness" or the reliance on old, outdated categories that reduce awareness. Because sexual activity that has become devoid of anticipation, pleasure, and novelty encourages reduced awareness of the person's experience and context, Langer's conceptualization of mindfulness suggests that a different approach, one of mindful awareness in which mindless repetition is challenged, might offer an alternative modality of functioning for those with sexual concerns. In support of this view, couples therapist Perel (2006) has argued that the monotony and predictability of sex that evolve over the course of a long-term partnership stifle erotic sexual desire. Mindfulness, therefore, offers a different way of dealing with this stagnation.

In an elegant review of the mechanisms of mindfulness, Hölzel and colleagues (2010) described four possible components of mindfulness meditation; some or all of these mechanisms may be operating to improve sexual function among the women we have worked with.

Attention regulation

Distressing sexual interactions easily pull a woman into an endless stream of negative thoughts and judgments. She may find herself recalling past memories of unsatisfying sexual attempts, or worrying about how the interaction will unfold, including worrying about her partner's response. By repeatedly refocusing attention on one object, such distractions may be minimized, and the ability to notice the sensations taking place in the present moment is enhanced.

Body awareness

Body awareness is the ability to detect subtle changes in bodily sensations. Many women with sexual dysfunction will state that they are completely unaware of

sexual excitement in their body during a sexual encounter. Certainly a large body of psychophysiological research shows this discordance between a woman's psychophysiological sexual arousal and her subjective feelings of pleasure or arousal (Chivers, Seto, Lalumière, Laan, & Grimbos, 2010). Repeated practicing of the Body Scan in our programs allowed women to take note of subtle changes in bodily sensations, both within and outside of their sexual encounters, that may have contributed to the effectiveness of mindfulness in improving their overall sexual desire and arousal.

Emotion regulation

Sexual dysfunction is directly influenced by and impacts upon emotion (Nobre & Pinto-Gouveia, 2006b). It is possible that the benefits of mindfulness on sexual functioning in women may in part be due to participants' ability to regulate emotional distress through a variety of means, including reappraisal, exposure, extinction, or reconsolidation (Hölzel et al., 2011).

Change in perspective on the self

The heart of Buddhist meditation practice rests upon impermanence and not self. Within this view, identification with a static, unchanging self is directly related to psychological distress (Grabovac, Lau, & Willett, 2011). Although this concept was not directly addressed in sessions of mindfulness with patients, it is possible that some participants with extensive mindfulness practice may have experienced "not self" through their practice, and thus, liberated themselves from the attachment and aversion to experiences that is the heart of psychological suffering.

Although each of these four mechanisms may have been operating in the experiences of our participants, we are unable to conclude definitively on which mechanism may have been most likely contributing to improvements. Our hope is that future research applying mindfulness skills in the treatment of sexual dysfunction will explore these mechanisms further.

Mindfulness for Women With PVD

Earlier we noted that GPPPD is a new addition to the DSM-5 nomenclature. We also noted that one of the most common types of GPPPD is PVD in which women experience severe pain at the vaginal opening (i.e., vulvar vestibule) when the area is touched, most commonly during sexual penetration. The demonstration of both allodynia (pain from touch) and hyperalgesia (severe pain from a minor painful stimulus) in women with PVD is thought to reflect central sensitization. Referring to changes that occur in the central nervous system, central sensitization is defined as "an amplification of neural signaling within the central nervous system that elicits pain hypersensitivity" (Woolf, 2011, p. S5), and is a proposed mechanism for the development and maintenance of a number of chronic pain syndromes. With central sensitization, one's sensitivity to pain is altered so that nonpainful or minor pain stimuli now elicit pain;

other changes can include pain that lasts after a stimulus has ended and sensitivity in other areas of the body.

This hypersensitivity means that, in the case of PVD, touch or pressure in the vulvar vestibule results in pain from activities that would not typically be expected to provoke pain (or would be expected to cause only slight pain or discomfort). It is not uncommon, for example, for a woman with PVD to report that, in addition to vaginal penetration, riding a bicycle or wearing tight pants results in high levels of pain. Further evidence for central sensitization in women with PVD stems from studies that show heightened pain response in nongenital areas of the body compared to controls (e.g., Foster, Dworkin, & Wood, 2005; Pukall, Baron, Amsel, Khalifé, & Binik, 2006; Pukall, Binik, Khalifé, Amsel, & Abbott, 2002), as well as high rates of comorbidity with other chronic pain conditions (e.g., fibromyalgia; Reed et al., 2012).

Building on studies that document high levels of emotional distress, decreased cortisol response upon wakening (reflective of chronic stress-related hypothalamic-pituitary-adrenal axis dysregulation; Ehrstrom, Kornfeld, Rylander, & Bohm-Starke, 2009), and increased gray matter in stress-related areas of the brain among women with PVD (Schweinhardt, Kuchinad, Pukall, & Bushnell, 2008), a recent model developed by Basson (2012) illustrates how PVD may arise and persist. Specifically, this model posits that stress dysregulates the central nervous system, leading to central sensitization, while also inducing neuroendocrine changes in the skin that increase women's sensitivity to pain. In comparison to controls, some of the emotional traits reported more frequently by women with PVD include pessimism, insecurity, self-dislike, helplessness, and hopelessness (Ehrstrom et al., 2009; Lundqvist & Bergdahl, 2005). In addition, perfectionistic traits (Jantos & White, 1997), fear of negative evaluation by others (Brotto, Basson, & Gehring, 2003), hypervigilance to pain (Payne, Binik, Amsel, & Khalifé, 2005), and catastrophic thinking about pain (e.g., Pukall et al., 2006) have all been documented among women with PVD. Recent research has also found that, in comparison to controls, women with chronic vulvar pain were 10 times more likely to have an anxiety disorder and three times more likely to have major depression or dysthymia *before* the onset of genital pain (Khandker et al., 2011). Such emotional distress, including distress stemming from high self-standards, is hypothesized to induce changes in the central nervous system and skin that in turn may predispose a woman to developing PVD and other chronic pain syndromes (Basson, 2012).

Basson's model also illustrates how PVD-related sexual problems arise and how (often extreme) stress from living with genital pain plays a role in maintaining central nervous system/skin changes in PVD. While women with PVD often consciously avoid sexual activity in order to avoid pain, their brains may also become conditioned (at a level outside of conscious awareness) to pay less attention to sexual stimuli. Furthermore, pain itself may impair a woman's ability to process sexual cues in her environment. These factors contribute to what has been described as the "sexual shutting down" of women with PVD (Basson, 2012). This description reflects the fact that women with PVD often experience loss of sexual desire and motivation, impaired arousal, and difficulties with orgasm (Desrochers, Bergeron, Landry, & Jodoin, 2008), in addition to feelings of shame, inadequacy, and not being "real women" because they have painful intercourse (Ayling & Ussher, 2008; Kaler, 2006). The stress of feeling

sexually inadequate as a result of genital pain and associated sexual difficulties means that a woman with PVD may become even more critical and less accepting of herself; such stress then serves to increase pathophysiological changes in the nervous system and skin, and contributes to further loss of sexual desire/response. Stress, pain, and sexual dysfunction thus become entangled in an ongoing cycle (Basson, 2012).

By encouraging the practice of paying attention to the present moment in a non-judgmental and accepting manner, mindfulness may be optimally suited to address the suffering associated with PVD. Described as an “uncoupling” of the physical sensations from the emotional and cognitive reactions to pain (Kabat-Zinn, 1982), mindfulness cultivates awareness of responses that increase pain (e.g., fearful anticipation) and prompts one to engage differently with physical sensations, thoughts, and emotions. In mindfulness practice, one learns to observe that body sensations, thoughts, and feelings are temporary events that rise and pass with time, and that attachment or aversion to these ever-changing events results in suffering (Grabovac et al., 2011; Marlatt et al., 2004). By promoting acceptance and present-moment attention, mindfulness may reduce the stress, aversive reactions to pain, and feelings of inadequacy that can both fuel pathophysiological changes related to PVD and impede sexual response. For example, mindfulness may help a woman with PVD learn that pain comprises varying physical sensations and that she can choose to observe these sensations without reaction. This lack of reaction lessens the woman’s suffering and stress, which in turn may lessen her pain with time (Basson, 2012). Although researchers have only recently begun to evaluate mindfulness for PVD, it has demonstrated efficacy in the treatment of other chronic pain and stress-related conditions (Ludwig & Kabat-Zinn, 2008) that suggest its likely usefulness for PVD.

Based on the brief mindfulness-based treatment developed for women with sexual desire/arousal difficulties, Brotto and colleagues developed a four-session program called IMPROVED (Integrated Mindfulness for Provoked Vestibulodynia). IMPROVED integrated both mindfulness and CBT skills, and included: (1) psycho-education about PVD pathophysiology; (2) sex-therapy skills and discussion of non-penetrative pleasuring; (3) education regarding the link between thoughts, feelings, and behaviors, and instruction on cognitive challenging; (4) behavioral relaxation skills such as progressive muscle relaxation; and (5) mindfulness skills. Specifically, women were taught mindfulness skills that were based on MBCT and MBSR exercises, and that included mindful eating, mindful breathing, 10 min of daily mindfulness during regular activity, the Body Scan, and mindfulness of thoughts.

Our research evaluating the IMPROVED program has recently been completed and is the first study to evaluate a mindfulness-based intervention (MBI) for treating PVD-related pain and distress (Brotto, Basson, Smith, et al., in press). In this study, 85 women with PVD (approximate mean age = 40 years) participated in IMPROVED and completed assessments at three time points: pretreatment, 4–6 weeks posttreatment, and at 6 months’ follow-up. Assessment involved an in-person exam to assess vestibular pain sensitivity and a series of self-report questionnaires. There were significant improvements in women’s vestibular pain with treatment, as well as improvements in self-reports of pain catastrophizing and hypervigilance, pain self-efficacy, and sex-related distress. Importantly, women also reported an increased ability to observe sensations after IMPROVED.

Qualitative interviews with 14 of the group participants also provided evidence of numerous benefits associated with the intervention, including reduced genital pain and feelings of isolation, positive psychological outcomes, and an enhanced sense of self (Brotto, Basson, Carlson, & Zhu, 2013). Mindfulness skills were noted to help women address relationship challenges in a more accepting manner and to adopt more positive thinking by learning to view thoughts as just thoughts. Women also described feeling more accepting of themselves and their pain after the sessions. Importantly, barriers to continued skills practice, including barriers to continued mindfulness practice, were also identified in the qualitative interviews. For example, stress and not prioritizing skills practice were identified as two major barriers that hindered ongoing benefit from the sessions. Some women also reported feeling guilty with regard to their lack of practice, and some wanted ongoing assistance from a professional to increase their accountability for practicing the skills. Notably, only a small number of women reported regular skills practice at the time of the interviews (12–18 months following completion of the four sessions); most participants appeared to practice their skills during and immediately following the sessions, with practice dropping off over time.

Based on the promising findings from our four-session intervention, we have recently revised and expanded our mindfulness-based program for women with PVD. The expanded IMPROVED program is an MBCT that now includes eight 2.25-hr weekly sessions. Changes primarily involve more in-session mindfulness practice and extended practices (up to 40 min). The number of sessions in our new MBCT aligns with that of established mindfulness-based programs such as MBCT for depression and MBSR. The revised IMPROVED intervention integrates both mindfulness and cognitive therapy skills using an acceptance-based framework and follows the Vipassana (insight) tradition of meditation. In contrast to the concentration form of meditation in which attention is focused solely on an object (e.g., the breath) to the exclusion of all else, insight meditation encourages moment-to-moment observation of sensations, thoughts, and feelings, and awareness of their impermanent nature. A detailed overview of the treatment manual that accompanies the eight-session MBCT for PVD is described below.

Overview of an Eight-Session MBCT for PVD

Facilitators of the eight-session mindfulness-based program for women with PVD adhere to a detailed treatment manual that outlines educational content and specific mindfulness and cognitive therapy exercises on a session-by-session basis (Basson et al., 2012). Each session, with the exception of introductory Session 1, follows a similar format and begins with a brief arriving meditation, followed by review of the at-home exercises practiced over the previous week. The sessions are composed of a mix of didactic information and experiential practice—the intent being first to practice a skill and then to discuss its theoretical and empirical rationale; in this manner, a detailed inquiry is carried out after each in-session mindfulness practice in order to consolidate women's mindfulness experiences. Each session is guided by a specific mindfulness theme that informs the inquiry, and the inquiry itself is considered an extension of

the mindfulness practice. To close, home activities are assigned, and each session ends with a brief meditation.

Facilitators of this MBCT program are expected to have a committed personal practice of mindfulness and must attend ongoing supervision in mindfulness training. In addition to the treatment manual, detailed participant handouts and a CD with the various mindfulness practices have been developed and are provided to each participant. In line with other MBIs such as MBSR, women are typically assigned up to 45 min of homework per day. Table 44.1 provides a brief outline of the main educational content, mindfulness practices, and inquiry themes of our program.

Case Study

Jessie is a 29-year-old, heterosexual, married woman who presented to the Sexual Medicine Clinic with an 11-year history of pain with sexual intercourse. Jessie reported that she experienced pain with intercourse since her first intercourse attempt and with all of her sexual partners to date. She had been married to her current partner, Stephen, for 4 years and described him as supportive and caring.

While she had seen numerous physicians for her pain, Jessie had never received an accurate diagnosis, often being told that she was too inhibited about sex or that she should “go home and have a glass of wine before sex.” A well-informed gynecologist suspected that she may have PVD and referred Jessie to our clinic.

Jessie participated in two assessment interviews during which detailed pain, medical, sexual, and psychosocial histories were elicited. At the time of the second interview, a physical examination of the vulvar vestibule with a cotton swab confirmed that Jessie had PVD. Jessie reported no medical conditions other than her genital pain and migraine headaches. She did, however, describe a history of generalized anxiety and of being quite critical of herself. Jessie was a schoolteacher who reported that her stress level was elevated during the school year; she also reported that she often experienced migraine headaches and had some difficulties with sleep due to ruminative worries about her teaching performance and how her students viewed her. With regard to her sexual response, Jessie reported loss of sexual desire, particularly over the past 2 years, and difficulties with genital lubrication. While she and Stephen still engaged in sexual intercourse approximately once per month, Jessie reported that she wanted to increase their frequency of sexual contact in order both to please Stephen and to improve her chances of becoming pregnant.

Jessie was an ideal candidate for our clinic’s 8-week MBCT program. Although somewhat nervous about the idea of being in a group setting, Jessie had heard about the benefits of mindfulness from some of her teacher colleagues and decided to enroll. She was generally quiet during the sessions, yet participated in all of the in-session practices (see Table 44.1) and appeared to be regularly completing the home assignments. Upon completion of the sessions, Jessie returned for follow-up 6 months later. Remarkably, at this follow-up, she reported that she was free of her genital pain and was engaging in pain-free intercourse with her husband. When asked what skills may have contributed to the reduction in her pain, Jessie attributed her decrease in pain to greater self-acceptance and increased ability to view thoughts as ideas rather than

Table 44.1 Outline of contents for an eight-session MBCT program for women with PVD.

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- 1 Session begins with an overview and orientation to group. With the mindfulness rationale that opportunities for change emerge when one lets go of striving to make things different from how they are right now, we deliberately do not ask participants to express their goals for the group. Education on PVD terminology, prevalence, etiology and pathophysiology, as well as education on the role of stress in PVD, is provided. An eating meditation (with raisin) is practiced and is followed by a detailed inquiry that is guided by the theme “focusing on the present moment.” Next is an opportunity for women to share stories of their own personal timeline of experiencing PVD. We encourage women to discontinue painful penetrative activities and have a discussion about communication skills and nonpenetrative pleasuring.
- 2 Session 2 reviews common challenges to mindfulness practice (e.g., fatigue) and various approaches for meeting such challenges. Further information on pain neurophysiology and the relationship of thoughts, emotions, and physical sensations to pain is then provided, as is information on using mindfulness for chronic pain. A full Body Scan is practiced in session with the subsequent inquiry focused on the heightened awareness of emotions and physical sensations—we encourage participants to sense sensations with an attitude of curiosity and acceptance. Session 2 winds down with a discussion of practicing mindfulness during a regular activity. Home practice includes a daily Body Scan plus 10 min/day of mindfulness during a regular activity of women’s choice.
- 3 There is an extended mindfulness of breath practice and inquiry. The theme for this session is “noticing the sensation and the impression of the sensation (i.e., the mental impression of it).” The CBT model is also outlined in order to highlight the connection between thoughts, feelings, and behaviors; in contrast to the traditional change-oriented model of CBT, however, women are guided to view their thoughts as mental sensations, rather than as facts, and are not encouraged to actively change their thoughts. Participants are encouraged to read their handouts at home to understand what happens to the brain when chronic pain is experienced and to underscore why chronic pain can be so emotionally distressing.
- 4 Common cognitive biases are reviewed in order to help women recognize the different thoughts that may contribute to their pain experiences. We practice mindfulness of sounds and thoughts during which participants are particularly guided to observe their thoughts without following them, emphasizing that “thoughts are just thoughts” and that we can choose to relate to our thoughts without emotional attachment to them. The theme for the inquiry following the mindfulness practice is “heightening awareness of thoughts—to see them clearly without engaging in their content, or trying to suppress them or avoid them or modify them in any way, but being curious and accepting of all of them.” A discussion regarding how to work with thoughts in meditation ensues, and this session concludes with a discussion regarding the effects of stress on the skin.
- 5 We again practice an extended mindfulness of breath and bring awareness to the impermanence of the breath sensations. The theme for the inquiry following the mindfulness practice is again “noticing the sensation and the impression of the sensation (i.e., the mental impression of it).” The sexual response cycle as it relates to PVD is also discussed in this session.
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(continued)

Table 44.1 (*Continued*)

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- 6 In order to experience the individual, transient components that make up a physical sensation and to provide an opportunity to notice associated attachments, participants evoke a mild physical pain in session and spend time paying attention to it while observing the varying nature of the sensations and the thoughts/feelings that are associated with the sensations. This practice also guides participants to subsequently notice a pleasant sensation in their bodies. Next, the concept of the “Two Arrows” is introduced. This concept illustrates that there are two distinct parts of pain (i.e., two arrows of pain): physical sensations of pain and our reactions to those sensations. Women are then instructed to listen to a guided recording for home practice in which they intentionally provoke their genital pain and start to observe, without judgment and without striving to change their experience, their own two arrows. Women are encouraged to consider the pros and cons of reintroducing sexual penetration. Women are also encouraged to read information in their handouts at home regarding changes in brain function and brain anatomy associated with mindfulness meditation.
- 7 Another mindfulness practice in-session guides participants to stay with strong sensations in the body, with the inquiry theme being “to stay present with an increased awareness of physical sensations in the body—to see them clearly, to feel their briefest of components, label them, not judge them but sense them with an attitude of curiosity and acceptance.” This theme also encourages women to “bring awareness to any sensations associated with attachment or aversion to initial sensations.” In order to address concerns of single women and/or partnered women who may fear that PVD will dissolve their relationship, a discussion ensues using MBCT techniques (e.g., looking at maladaptive beliefs that are viewed as facts as mental sensations). The concept of Radical Acceptance is then introduced. A brief review of the CBT model follows. Women are also encouraged in this session to start thinking about their plans for long-term mindfulness practice.
- 8 The final session provides an overview of psychological treatments for PVD in order to consolidate the information provided throughout the sessions. A Loving-Kindness meditation is then practiced, with the inquiry focusing on the theme of “acceptance of all that is, in this moment—including self-acceptance leading to compassion to ourselves.” As women prepare for the end of the group, time is devoted to anticipating roadblocks that may impede future skills practice and discussing strategies to meet such challenges.
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as factual reflections of reality. Specifically, Jessie reported that she listened regularly to the Radical Acceptance audio recordings provided during the group and that in doing so, she noticed a shift in her ability to be more accepting and less demanding of herself. She also started to adopt some of the language used in the Radical Acceptance excerpts when talking to herself and started to gently question her firmly rooted beliefs about herself (e.g., What if I am ok and acceptable instead of thinking that I am not? What if my performance at school is good enough, even if it is imperfect?). By viewing thoughts as mental events, Jessie was also able to reduce her tendency to ruminate. In turn, her level of stress was reduced, and she viewed herself with more compassion. Her pain improved, and the frequency of her migraines lessened. Notably, Jessie described having incorporated the concepts and skills she learned in group into her daily life and

made a strong commitment to practice. Jessie was encouraged to maintain regular practice of her mindfulness skills and to explore different mindfulness avenues, such as workshops or a retreat that may continue to inform her practice.

Summary

Mindfulness-based approaches have wide applicability in the treatment of women's sexual dysfunction, including genital pain. Although there is an increasing body of research demonstrating their effectiveness for this population, research is still in its infancy, and the mechanisms by which these approaches may be helpful are, as yet, not understood. Although this chapter has focused on using mindfulness for women's sexual difficulties, there is clinical and anecdotal evidence to suggest that such skills may also be very useful for men with sexual dysfunction, for example, erectile dysfunction, delayed ejaculation, and early ejaculation—see special issue of the journal *Sexual and Relationship Therapy*, 28(1–2). In summary, mindfulness-based therapies offer a valuable alternative to conventional Western-based treatments, including pharmacological ones, for improving sexual function, reducing genital pain, and enhancing overall sexual satisfaction.

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The Effects of Mindfulness-Based Interventions During Pregnancy on Birth Outcomes and the Mother's Physical and Mental Health

Integrating Western and Eastern Perspectives

Sigal Zilcha-Mano

The vast majority of women consider their first pregnancy to be a life-altering time. Although it is a normal, healthy process, it is also a remarkably dynamic period of rapid change that poses many physical and psychological challenges. Not least among these challenges is the element of uncertainty regarding the outcomes of the birth for the mother, the newborn, the family, and life beyond. Studies have shown that women who tend to perceive this period as stressful are more vulnerable to adverse consequences for themselves and for their babies (for a review, see Glover, O'Connor, & O'Donnell, 2010). Despite mounting evidence that stress and anxiety during pregnancy present health risks to both the mother and the fetus, very few effective stress-reduction programs have been designed for pregnant women.

The limited body of research on effective interventions renders it difficult to offer practitioners simple, unequivocal recommendations. However, mindfulness perspectives, which might be easily implemented in order to discourage pregnant women from operating on "negative autopilot" during this dynamic period, have the potential to positively affect the physical and psychological well-being of the expectant mother and her newborn. This chapter reviews the existing findings on the effectiveness of both Eastern and Western mindfulness interventions, and, based on this review, a model comparing and integrating both perspectives is proposed.

The Dark Side of the Picture: Pregnancy and the Adverse Consequences of Negative Affect

Much of the existing literature emphasizes that pregnancy is a stressful, anxiety-provoking event. It has been documented that approximately 18% of expectant mothers suffer from depression (Gavin et al., 2005), and prevalence rates of depression in the different trimesters were found to be: 7% in the first trimester, 13% in the second trimester, and 12% in the third trimester (Bennett, Einarson, Taddio, Koren, & Einarson, 2004). Similarly, the average prevalence of postpartum depression is 13% (Gavin et al., 2005; O'Hara & Swain, 1996). In addition, prevalence rates for anxiety disorders during pregnancy lie between 6.6 and 21.7% (Andersson et al., 2003; Borri et al., 2008; Heron, O'Connor, Evans, Golding, & Glover, 2004), with methodological differences such as disorder-detection instruments and characteristics of studied samples accounting for the varied results of the studies (Alder, Urech, Fink, Bitzer, & Hoesli, 2011).

Maternal distress, anxiety, and depression pose a risk not only to the expectant mother's health and well-being, but also to that of the developing infant. An accumulating body of evidence from both animal and human studies has associated elevated levels of negative affect with numerous prenatal complications, negative birth outcomes, and long-term physiological, emotional, or behavioral disturbances for the babies (for reviews, see Glover et al., 2010; Lupien, McEwen, Gunnar, & Heim, 2009; Mastorci et al. 2009; Merlot, Couret, & Otten, 2008; O'Donnell, O'Connor, & Glover, 2009; Viltart & Vanbesien-Mailliot, 2007).

Some adverse birth outcomes associated with maternal negative affect include spontaneous abortions (e.g., Schaefer, Hiatt, Swan, & Windham, 1997), reduced duration of gestation and preterm birth (birth before 37 weeks' gestation, e.g., Dunkel-Schetter, 2009), pregnancy complications (e.g., Da Costa, Brender, & Larouche, 1998), low infant birth weight (birth weight <2,500 g, e.g., Field, Diego, & Hernandez-Reif, 2008) and lower Apgar scores (which assess the health of newborn children after birth; e.g., Pagel, Smilkstein, Regen, & Montano, 1990), smaller head circumference (e.g., Lou et al. 1994), neuroendocrine dysregulation (e.g., Wadhwa, Dunkel-Schetter, Chicz-DeMet, Porto, & Sandman, 1996), fetal heart-rate variability (e.g., DiPietro, Hodgson, Costigan, Hilton, & Johnson, 1996), increased use of neonatal intensive-care-unit services (e.g., Dole, Savitz, & Hertz-Pannier, 2003), more difficult labor and delivery (e.g., Nielsen-Forman, Videbech, Hedegaard, Dalby Salvig, & Secher, 2000; Ritter, Hobfoll, Lavin, Cameron, & Hulsizer, 2000), and postpartum depression (Da Costa, Dritsa, Larouche, & Brender, 2000). Maternal stress during pregnancy has also been shown to contribute significantly to deficits in the child's cognitive, linguistic, and behavioral functioning—effects that stretch through childhood into adolescence (e.g., Henrichs et al., 2011).

Prevention Interventions: Is There a Bright Side?

The adverse consequences of negative affect during pregnancy have underscored the need to develop effective psychosocial interventions, which would prevent stress,

depression, and anxiety during the perinatal period. Such interventions, which complement standard pharmacological and nutritional approaches, have garnered widespread attention in recent years. Despite this interest, however, there has been a lack of rigorous scientific research into the efficacy of such interventions (Flynn, Blow, & Marcus, 2006; Marcus, Flynn, Blow, & Barry, 2003). This lack is especially glaring, given that many women are reluctant to use drugs during pregnancy, fearing harm to the developing fetus.

A review of 16 trials examining the effects of providing social and emotional support to women at risk for delivering low-birth-weight babies failed to associate this support with improvements in physiological perinatal outcomes (though it did record a reduction in rates of cesarean section; see Hodnett & Fredericks, 2003; for similar results, see also Clatworthy, 2012), with even worse results when implemented with the general population (Clatworthy, 2012). Nevertheless, there have been a number of studies, aimed specifically at stress reduction, that showed some preliminary promising findings. Thus, it continues to be of great importance to invest resources in identifying effective interventions. These include supplying stress-reduction instructions (Urizar et al., 2004), weekly telephone support (Bullock, Wells, Duff, & Hornblow, 1995), and mind–body interventions, such as yoga (e.g., Beddoe, Yang, Kennedy, Weiss, & Lee, 2009).

Along with these psychosocial interventions, some preliminary findings suggest that mindfulness interventions might be effective in promoting well-being and reducing psychological stress among pregnant women. The existing findings on the effectiveness of both Eastern and Western mindfulness interventions are reviewed in the coming paragraphs. Based on this review, a model comparing and integrating both perspectives is proposed.

Eastern mindfulness-based intervention for pregnant women

Eastern mindfulness, derived from contemplative, cultural, and philosophical traditions such as Buddhism, involves the cultivation of moment-to-moment, non-judgmental awareness of one's present experience (Kabat-Zinn, 1994; Marlatt & Kristeller, 1999). Emphasis is placed on openness, curiosity, and accepting things as they are, without trying to change them. One basic premise underlying some of these practices is that excessive orientation towards the past or future, when dealing with stress factors, can lead to depression and anxiety. Therefore, focusing solely on the present moment, and perceiving it openly and nonjudgmentally, can counter the effects of such stress factors (e.g., Kabat-Zinn, 2003).

The ability to direct attention to the present moment can be gained through the practice of mindfulness, which focuses on observing one's mental and physiological states without trying to alter them (Goleman & Schwartz, 1976; Kabat-Zinn, 1982). Kabat-Zinn (1982) developed the Mindfulness-Based Stress Reduction (MBSR) program for this aim. MBSR, which is typically taught in an 8–10-week group-based program, has demonstrated efficacy in alleviating stress, anxiety, and depression and promoting positive mental and physical health to counter a wide array of stress-related and chronic medical conditions in diverse populations, including a variety of

vulnerable populations (e.g., Brown, Ryan, & Creswell, 2007; Davidson et al. 2003; Grossman, Niemann, Schmidt, & Walach, 2004; Kabat-Zinn, 2003; Lazar, 2005; Roth & Robbins, 2004).

Though mindfulness training during pregnancy has so far provided few scientifically documented effects, the little research that does exist in this field appears promising. Existing Eastern mindfulness interventions for pregnant women, mostly based on the same core components of MBSR (e.g., Duncan & Bardacke, 2010), taught participants how to practice staying in the present moment, to adopt the view that their unfolding experience is a process, and to mindfully acknowledge that each moment will pass and be replaced by the next throughout pregnancy, childbirth, and parenting. Class sessions included instructor-led group meditations, lectures on mindfulness practices, and time set aside for participants to share their experiences with one another and ask questions.

One such 8-week intervention was directed at reducing stress and improving mood in pregnancy and early postpartum periods (Vieten & Astin, 2008). Expectant mothers who received the intervention during their second and third trimesters showed significantly reduced anxiety and negative affect during the third trimester, in comparison with a waiting-list control group. No significant findings were gleaned with regard to the other measures examined—namely perceived stress, depression, positive affect and affect regulation—but the small sample size ($n = 31$, with $n = 13$ in the intervention group) may account for this lack. Another study, which also had a small sample size ($n = 10$ in the intervention group, with data available on just six participants), showed similar promising trends (Dunn, Hanieh, Roberts, & Powrie, 2012).

A third study, with a larger sample size, revealed a greater positive effect of mindfulness training in pregnant women. The study, which examined the effectiveness of 10 sessions of the Mindfulness-Based Childbirth and Parenting (MBCP) program (an adaptation of the MBSR based on *Full Catastrophe Living* by Jon Kabat-Zinn, 1990), also aimed to help pregnant women practice remaining in the present moment. The findings showed significant increases in mindfulness and positive affect, as well as decreases in anxiety, depression, and negative affect (Duncan & Bardacke, 2010). In addition to the larger sample size ($n = 27$ in the intervention group) the study included partners or other supportive persons who took part in the intervention, another factor that set it apart from the previous studies (Vieten & Astin, 2008). Thus, partner involvement could be an important component in Eastern mindfulness meditation (for a review of the importance of partner involvement during pregnancy, see Plantin, Olukoya, & Ny, 2011). Some support for this assumption also derives from the qualitative findings described in the Duncan and Bardacke (2010) study: One participant stated that, thanks to the intervention, she “felt very connected to my partner—the class taught us how to work as a team” (p. 198).

It is also important to stress that Duncan and Bardacke’s (2010) study included self-selected participants, with the majority having prior yoga or meditation experience, and did not include a control group. Therefore, it may not be practical to expect similar findings among the general population of pregnant women, as the intervention’s effects may be at least partly attributed to the participants’ preexisting experiences and tendencies as well as the time past. In addition, this intervention specifically allotted

time for social interactions to encourage a sense of community among the expectant parents and to reduce the potential negative impacts of social isolation. Qualitative findings from Dunn et al. (2012) also support this notion; for example, one participant in the study said “It was good to meet other people and know you weren’t the only person. Doing group discussions, it was good to know you were in a place where you felt comfortable to talk about it” (p. 142). Thus, it is difficult to isolate the specific effects of the mindfulness component in this intervention.

Two of the three studies described used qualitative methods of inquiry (Duncan & Bardacke, 2010; Dunn et al., 2012), and many participants reported through their diaries that they benefited from practicing mindfulness during the perinatal period. Many reported that the interventions helped them to stay in the present, foster an attitude of acceptance, and view their unfolding experience as a process, while fostering an attitude of acceptance. Although it may be premature to conclude that Eastern mindfulness interventions effectively prevent low birth weight and increase well-being—due to the studies’ methodological limitations—the preliminary findings, which integrated both qualitative and quantitative methods, appear promising.

Western mindfulness-based intervention for pregnant women

Western mindfulness encourages one to actively notice changes and create distinctions between phases of experiences, rather than to perceive these phases as one steadily worsening chain of events (Langer, 2005). Desired results include context sensitivity, a heightened awareness of alternative perspectives, and engagement with the present moment. Its contrasting counterpart, mindlessness, is based in the past. It occurs when an individual becomes locked into patterns of behavior, either over time or immediately, resulting in insensitivity to context and perspective. Mindlessness can lead to automatic reliance on preconceived categories that are no longer accessible to conscious consideration, as well as rigid behavior that is rule *governed* rather than rule *guided* (Langer, 2009).

For pregnant women, such mindless categories might include the view that they should be tired and unhappy, and have painful physical symptoms. Preconceptions formed by society about a pregnant woman’s physical status can become self-fulfilling prophecies, shaping the perceptions and experiences shared by pregnant women within these societies and leading to low personal control and learned helplessness (Seligman, 1974). In contrast, mindfulness allows one to engage actively in reconstructing one’s environment by creating new categories or distinctions, thus directing attention to novel contextual cues and eliminating preconceptions about the lack of ability to change one’s state.

Though Western perspective-based interventions have been implemented only recently in pregnant populations, the existing literature on other diverse populations might be of great use for divining its possible effects (for a review of the positive outcomes of Western mindfulness training and manipulation, see Chapter 1). Indeed, 30 years of research has revealed that simple mindfulness instructions may have dramatic effects on health and well-being (for a review, see Langer, 2009). Given the large body of research that has shown the beneficial effects of Western mindfulness

interventions, it is likely that such interventions may enhance women's ability to cope with stress during pregnancy.

My premise states that many unfavorable symptoms shared by pregnant women can be exacerbated by the perception of pregnancy as a time of fixed and unchanging negative emotions, which is characteristic of the mindless state. This premise is based in part on studies showing that people tend to approach situations mindlessly, as unalterable (for reviews, see Langer, 2005; Langer & Moldoveanu, 2000), which in turn has negative affects on their well-being (Delizonna, Williams, & Langer, 2009). This tendency would be particularly problematic during pregnancy and may lead each consecutive ache or foul mood to be seen as a sequence of progressively negative events, prolonging their influence.

Our study (Zilcha-Mano & Langer, 2013) was the first to empirically test these assumptions and constitutes the first step in examining a causal relation between Western mindful attention to variability and the expectant mother's well-being and birth outcomes. To this end, we examined the extent to which the mindfulness dispositional trait among women in their first pregnancy is associated with well-being and birth outcomes. We began our observations between weeks 25 and 30, and continued until 1 month after birth (altogether approximately 20 weeks). In addition, we examined, through both qualitative and quantitative analyses, the short-term effects of inducing a temporary mindfulness state on the expectant mother's well-being.

Overall, our findings suggest that a mindful view of life correlates with psychological well-being for women during their first pregnancy and serves as a predictor of positive birth outcomes. The mindfulness trait was found to correlate with mental health, positive and negative affect, life satisfaction, and even self-esteem during pregnancy as well as up to at least a month after birth. Mindfulness trait was also found to correlate positively with the newborn's health and delivery outcomes. Mindful women have babies with higher Apgar scores (in both points of measurements, immediately after birth and 5 min after birth), and they also have easier labor and deliveries (requiring less induction medication and experiencing shorter periods of labor). The Western mindfulness trait, therefore, emerged as a tremendously important resilience factor for both the mother and her child during the remarkably dynamic period of pregnancy and birth.

However, despite these promising results, no causality can be inferred from them. For example, it could be argued that well-being actually predicts mindful attention to variability, or that a third variable is responsible for this relationship (e.g., positive affect). Therefore, we conducted a supplementary study with the aim of examining the effects of a short-term mindfulness manipulation on pregnant women's well-being. The design was that of a randomized control trial, and the mindfulness training included focusing on the present moment and filling out a short checklist of current feelings and sensations for approximately 1 min at random times twice a day for 14 days (with a total of about half an hour for the entire intervention).

Our findings show that mindfulness enhances the pregnancy experience for mother and infant, and that this can be taught. Specifically, we found that temporarily manipulating a state of higher mindfulness level resulted in significant improvements in quantitatively assessed psychological distress and negative affect, when compared to a

control group that did not receive this mindfulness intervention. The qualitative findings illustrated that participants used mindfulness training to maintain awareness of the present moment and to draw novel distinctions between each experience during pregnancy, providing initial empirical support that the training raised their awareness to variability in sensations and feelings. This awareness, in turn, likely acted as a buffer against psychological distress and negative affect during the course of pregnancy.

In addition, compared with the control group, participants in the mindfulness training group reported being more often aware of multiple fluctuations in their sensations, acknowledging that each moment would pass and be replaced by the experience of the next moment throughout the pregnancy. They reported that this awareness helped them form a more comprehensive perception of their pregnancy, which in turn helped them cope with hard times and prepare for motherhood. In addition, the training rendered women more mindful of their fetuses, as it helped them discover connections between their behavior and the movements of the fetus as well as form an initial emotional relationship with the about-to-be-born baby. As one participant reported:

I began to feel my belly a lot more and everything that was going on in there, the changes my fetus and I were going through. I noticed the hours in which she was more active, the hours she slept, positions in which she was calm and positions that made her kick. Without a doubt I started to fall in love with my pregnancy, and of course with the fetus, too.

The Bright Side of the Picture

Although they derive from very different historical and cultural backgrounds, Western and Eastern mindfulness perspectives share several common core elements. Having reviewed the findings on each perspective separately, I now discuss their promising potential benefits and observe their key common components as well as the unique benefits each holds for pregnant women, and offer an integrative model that maximizes these benefits.

Both perspectives appear to be promising with regard to pregnant women for several reasons. First, both are based on wide-ranging theories and concepts that have been examined in numerous studies before being adapted for use with pregnant women. Both mindfulness perspectives have been found to have desirable effects in individuals from diverse populations, though research on each focuses on a different concept of change: While most Western mindfulness research centers on the influences of cognitive flexibility in dealing with a fixed mindset, Eastern mindfulness research tends to focus on acceptance and coping with an array of stress-related and chronic medical conditions.

Western mindfulness has been linked to improved performance (e.g., Gardner & Moore, 2004; Langer & Chanowitz, 1981; Langer & Imber, 1979), higher relationship satisfaction (e.g., Burpee & Langer, 2005), creativity (e.g., Langer, Hatem, Joss, & Howell, 1989; Langer & Piper, 1987), and better health (e.g., Alexander, Chandler, Langer, Newman, & Davies, 1989; Crum & Langer, 2007; Delizonna, Williams, & Langer, 2009; Langer & Rodin, 1976; Rodin & Langer, 1977). Eastern mindfulness

has also shown positive effects, having been linked to numerous aspects of mental and physical health (Kostanski & Hassed, 2008), including the treatment of chronic illness (Matchim & Armer, 2007; Sephton et al., 2007) and the facilitation of cardiovascular health (Barnes, Davis, Murzynowski, & Treiber, 2004), stress reduction (Carlson & Garland, 2005), and elevated psychological well-being (Teasdale et al., 2000).

Second, based on the fundamental theoretical assumptions of both perspectives, it is reasonable to expect that their documented desirable effects might be especially advantageous during pregnancy, a time in which women undergo transitions conducive to negative physical and emotional sensations that may arise from changes in hormonal fluctuations, health status, appearance, career changes, and finances. Mindlessness can exacerbate these sensations by causing them to appear fixed and can encourage dysfunctional coping styles such as catastrophizing and ruminating. These, in turn, pose risks to both mother's and child's health and well-being.

Mindfulness from both perspectives may ameliorate the impact of stress deriving from the challenges of pregnancy by encouraging attention to their variability. The two complementary perspectives offer mothers-to-be the opportunity to use the transformative time of pregnancy to learn how to deal intelligently with the stress, pain, and fear that are often central to it. The inner resources developed during this time may also condition women to navigate their entire life course, as well as that of their families, improving their abilities to deal with the demands of parenthood and increasing resilience to its many challenges.

Third, the available evidence, as reviewed above, suggests the importance of mindfulness, both as a state and as a trait for women during pregnancy. The similarities between the benefits of each perspective have led to a search for the basic common salutary mechanisms underlining them. Although each perspective was developed via different historical and cultural routes, and thus proposes unique theoretical principles, it seems that they indeed share significant similarities in their underlying mechanisms. The ultimate aim of both approaches is to cultivate a present-oriented mind, and actively engage in a "here and now" experience that is context-based, while assuming that things are constantly changing from one moment to the other. Both perspectives perceive mindlessness, their antithesis, as a state of auto-pilot and lack of conscious awareness to the present context, employing preconceived views about what should be happening, and what is "deserved" or socially accepted.

Qualitative data from both of the mindfulness perspective interventions reviewed above demonstrate the common feature of cultivating a present-oriented mind. Duncan and Bardacke's (2010) participants, who engaged in the Eastern mindfulness, reported being more present as a result of the intervention. "I did remind myself to be present often at the end of my pregnancy" (p. 197), one participant stated. Participants in our study, who were trained according to the Western perspective, reported actively engaging in the present, noticing new things and being sensitive to context. As one participant stated: "I had a very special experience over the last two weeks ... (the training) made me more aware of myself, my emotions, and of course the fetus growing inside me."

In both interventions, participants had a common insight: being present facilitated the formation of a more complex view of one's sensations and perceptions, which integrates both negative and positive elements of these experiences. These insights, in

turn, bring a sense of relief at discovering the fluctuation of negative sensations. Participants in Duncan and Bardacke's (2010) study reported observing changing mental and physiological states without trying to alter them, knowing that each moment would pass. As expressed in the words of one of the participants in their study:

I definitely am aware of trying to be in the moment and that each moment, good or bad, will pass. When I got really worried about the birth, I would just breathe to stop my mind from going all sorts of bad places. (p. 198)

Participants from our study described actively drawing novel distinctions, which helped them realize that things are always changing and may appear different from varied perspectives. As one participant in our study noted: "I discovered surprises for better and worse ... Sometimes it really felt like I was getting to know myself anew, for better and worse." Another said:

I understood that even if at a specific moment I feel annoyed, and as though my hormones are raging, in an hour I may feel totally different, calmer, and that if I just give it time things will pass by themselves.

In addition to cultivating a present-oriented mind, both perspectives may help focus attention on the positive aspects of pregnancy (as an end or "by-product"), which are of great importance during this period but can often be lost amidst the challenges. They may encourage women to perceive pregnancy and motherhood as a time of excitement, rich in enjoyable moments of joy, gratitude, creativity, and happiness. Such a positive affect may broaden and build the expectant mother's resources (Fredrickson & Cohn, 2008). Positive affect can prevent women from feeling overwhelmed and may help mothers develop new coping strategies for dealing with maternal strain and anxiety, which can adversely affect fetal health, and influence both short- and long-term developmental outcomes.

Qualitative data from both Eastern and Western mindfulness studies demonstrate this common feature of both mindfulness perspectives. For example, Duncan and Bardacke (2010) reported that participants maintained an expanded awareness that allowed many of them to experience positive emotions more frequently. As one of the participants wrote: "There would be a time of joy between contractions, and I was able to experience that" (p. 198). Participants in our study reported noticing the novel positive within the familiar negative experiences. As one participant reported:

Thanks to this study I have learned to listen to myself and be more aware and positive towards myself and the fetus ... that I don't have to feel bad all the time, and in actuality I really don't feel bad all the time.

There are also, however, unique core mechanisms that differ between Eastern and Western mindfulness. While both perspectives emphasize the cultivation of conscious awareness and attention on a moment-to moment basis, Eastern mindfulness interventions emphasize a component of accepting reality nonjudgmentally, while Western mindfulness emphasizes challenging what one perceives as reality by observing it from

alternative points of view. Although these two components, accepting and challenging, are not mutually exclusive, they may require and create different modes of living and being. Acceptance without judgment is the tendency to accept one's thoughts, feelings, and perceptions without subjective evaluation or the introduction of thoughts about what one *should* be thinking and feeling, all of which strengthens the mind by preventing it from suffering from things beyond one's control. In Eastern mindfulness meditation, participants accept their present thoughts and emotions, and are guided to consciously perceive and accept both internal and external stimuli (Kabat-Zinn et al., 1998). As one participant in Dunn et al.'s (2012) study reported:

He was a baby who screamed most of the time ... I think I clung to what I missed about what life was like before ... I've just had to surrender to that and that's the nature of how life is going to be and try to enjoy it for what it is. (p. 142)

In contrast to the Eastern emphasis on accepting reality nonjudgmentally, Western mindfulness places a central focus on challenging one's perception of reality. From the Western perspective, being mindful means seeing each situation as novel, creating new categories through which the situation may be understood, and viewing each situation from several alternative points of view. For example, one pregnant woman in our study reported that prior to her mindfulness training, she would refer to each situation during her pregnancy only as bad (while she was suffering from negative symptoms) or good (from her previous point of view: while she was free from negative symptoms). The training brought her to the realization that most situations are not binary (good or bad) but include a variety of feelings at once. She wrote:

Even when I was anxious, because I couldn't feel my baby moving all morning, I realized that I had been feeling not only anxiety but also a deep, loving care towards him. I also appreciated my boss's concern for me, who gave me chocolate (in order to get my baby moving), and I was angry at my husband for being so far away from me when I needed him ... And all those thoughts and feelings at once!

This excerpt shows that the participant has been steadily broadening her repertoire of cognitive categories and is able to view a situation from multiple perspectives. While Eastern mindfulness may also help in raising awareness to the different aspects of a situation, there is a fundamental difference: The Eastern perspective would have required this woman to accept her negative symptoms as beyond her control, while the Western perspective allows her to feel control, to a certain extent, by enabling her to cognitively manipulate her thinking about the situation and create new categories and alternative points of view.

There are two main reasons why it may be beneficial to focus on the unique therapeutic mechanisms at the core of each perspective: the first being matching and alignment, and the second integration. First, acknowledging the different mechanisms may help caretakers make educated decisions about which intervention to employ, depending on the woman's personal characteristics and motives as well as the specific context. Although many pregnant women could likely benefit from both perspectives, it seems likely that they might prefer one over the other. The qualitative materials from both

Eastern and Western mindfulness studies suggest core differences in the implementation of each one in daily life. The data from our study show that women are more aware of their cognitive processes when adopting the Western mindful mindset. Examples include reports such as: "When I'm feeling down I ask myself when it started, do I really feel bad all day? And do I really take everything into account, or do I just stick to one specific thing and forget everything else?" In contrast, while implementing the Eastern mindset, women refer more often to physical sensations: "When I get annoyed with them [family], I've learned to take a step back and just breathe" (Dunn et al., 2012, p. 142).

These essential differences in daily implementation of both mindfulness perspectives could be helpful in matching the proper intervention to each woman, a process that would also benefit from models of individual differences in coping preferences (e.g., Lazarus, 1973). Moreover, technical issues may be relevant to the matching process as well. Although research on undergraduate students shows that even short-term training in Eastern mindfulness meditation might be valuable (e.g., Tang et al., 2010), the studies examining this perspective in pregnant women used more intensive and time-consuming interventions than those examining Western mindfulness. More specifically, one of the Eastern mindfulness MBCP included 37 hr of group meetings and at least 27 hr of formal homework assignments, for a total of at least 64 hr (Duncan & Bardacke, 2010). In contrast, the Western mindfulness manipulation included filling out a short checklist of current feelings and sensations for approximately 1 min, at random times, twice daily for 14 days, for a total of about half an hour. In addition, the Eastern interventions for pregnant women were group-based and thus frequently more difficult to execute. All in all, it seems that the Eastern interventions required more commitment during the training phase than the Western intervention. Future studies should further examine this fascinating issue of matching the most beneficial intervention to each pregnant woman, based on individual differences and practical factors, as it has important ramifications for implementation. For example, it would be interesting to examine whether more intensive training may have more prolonged effects.

Second, focusing on the unique mechanisms of each of the two mindfulness perspectives is crucial in order to synergize them, with the aim of further improving pregnant women's health and well-being. For example, future studies could examine the added value of integrating the Eastern acceptance component into the Western mindfulness perspective or, alternatively, assess the effectiveness of incorporating the Western-style adoption of multiple viewpoints into Eastern mindfulness. It is important to take into account the profound concepts underlying each perspective, and to study the most effective way of performing an integration without comprising the essential principles of each perspective. For example, it would be necessary to create a model encouraging the creation and adoption of multiple viewpoints without relinquishing the principle of nonjudgment.

One way to integrate both perspectives of mindfulness is by asking pregnant women to accept the various aspects and novel distinctions, which had been actively drawn up for each situation through Western mindfulness. Namely, as they write down the different emotions and sensations they are experiencing in a specific moment, the women may be asked to show acceptance of these sensations despite their possible

flaws as well as the possible contradictions between them. The practitioner should explain that each aspect of the present moment has its place and importance, and ask participants to accept this moment with all its richness and alternative points of views. Optional instructions might be to welcome all the different points of view one can raise at a particular moment, and be grateful for each one.

The practitioner may also suggest that a lack of acceptance for each aspect of the present moment might have negative consequences. Optional instructions entail the explanation that attempts to suppress or eliminate an unwanted aspect of the present moment may only serve to make this aspect more intense and distressing. Instead of attempting to change it, the women should be asked simply to notice their experiences and the many alternative ways to view a specific moment, and to accept them as they are (an adaptation of the Acceptance and Commitment Therapy; Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

In addition to integrating the essential elements of both perspectives, each tradition may also benefit from other, nonessential components of the other. For example, Western mindfulness can also be implemented in a group context (like the Eastern interventions for pregnant women) and, in this way, encourage a sense of community among the expectant mothers. Or, similarly to Duncan and Bardacke's (2010) study, the intervention may also be implemented with partners. Both mindfulness-based interventions, when delivered to the family unit during pregnancy, may provide an efficient way to influence the paternal and maternal stress responses that can in turn impact fetal health and family relationships. Future studies may shed more light on the unique effects of each mindfulness intervention's different components.

Future studies should strive to overcome methodological difficulties, such as the use of small and nonrepresentative samples, that have characterized many of the studies to date, especially those that examined Eastern mindfulness. Randomized and controlled trials of each of the mindfulness components (Eastern and Western) should be conducted, including empirical tests of the effects of integrated mindfulness methods on psychosocial and psychophysiological stress mechanisms (e.g., through the use of cortisol levels in saliva samples). These studies should examine effects on birth outcomes, child development outcomes, and family relationships and function. Through these studies, it remains to be seen whether integrative mindfulness interventions will result in better childbirth and child-development outcomes.

Future studies may look at a broader variety of populations, such as single-parent families and single-sex families, in order to increase the generalization of the findings. It would be interesting, as well, to assess the influences of the husband's mindfulness level on his wife's well-being and child development. Results from such future studies can help to guide the development of a large-scale intervention that incorporates both Eastern and Western mindfulness perspectives.

Conclusions

Despite the multiple and steadily increasing conceptions of mindfulness, various uses of the term still have much in common. Both Eastern and Western perspectives may

reduce negative affect and elevate well-being by facilitating the cultivation of a present-oriented mind and changing one's perception of life, thus mitigating dysfunctional coping styles such as catastrophizing and ruminating. The importance of such interventions would lie not only in their reduction of negative affect and promotion of well-being, but also in their nonpharmaceutical nature and simple application. Using both perspectives of mindfulness, independently or in a combined fashion, may effectively provide new families with healthier, happier, and more aware lives.

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Mindfulness

A Nonpharmacological Approach to Diabetes Management

Cynthia R. Gross and Diane K. Reibel

Diabetes is a serious chronic disease that occurs throughout the world, and its prevalence is rising, driven by an epidemic of obesity, more sedentary lifestyles, widespread urbanization, and an aging population. Type 2 diabetes, which accounts for about 90–95% of all cases, is strongly linked to obesity. Rates of diabetes are highest in developed countries such as the United States, where according to the National Center for Health Statistics, about 68% of the population is either obese or overweight. Worldwide, over 285 million adults now live with diabetes, and by 2030, this number is expected to reach 439 million, based on patterns of excess weight gain (Shaw, Sicree, & Zimmet, 2010). Type 2 was formerly referred to as adult-onset diabetes, but due to childhood obesity, greater numbers of teens and children are diagnosed with type 2 diabetes each year. Diabetes currently affects 8.3% of Americans (over 25 million persons), and an additional 35% of American adults can be classified as having prediabetes, based on their blood glucose levels. About one out of four persons with prediabetes is expected to develop type 2 diabetes within the next 5 years (Pratley & Matfin, 2007).

Burden of Comorbidities, Complications, and Costs

Diabetes is a group of metabolic disorders characterized by high levels of blood glucose caused by impaired insulin production and utilization. Type 1 diabetes results from the inability to secrete insulin, and type 2 diabetes occurs when insulin function is inadequate, a condition termed insulin resistance. Diabetes is the seventh leading cause of death in the United States, responsible for over 220,000 deaths annually. Diabetes damages large and small blood vessels, causing cardiovascular and neurovascular problems. Persons with diabetes have two to four times the risk of dying from heart disease or suffering a stroke than those without diabetes. Diabetes causes serious microvascular complications including retinopathy, neuropathy, and nephropathy, and

is the leading cause of blindness, nontraumatic limb amputations, and kidney failure. The total health-care costs of a person with diabetes in the United States are over twice that of a person without diabetes. In 2007, the direct medical costs for diabetes in the United States were estimated to be \$174 billion (Centers for Disease Control and Prevention, 2011). The burden of diabetes—excess mortality, morbidity, and health care costs—is staggering.

The comorbidities and serious complications of diabetes are related to hyperglycemia, high levels of glucose in the blood. Clinical trials have shown that complications can be prevented or delayed, and risks of heart disease and stroke reduced, by maintaining levels of blood glucose at normal or near-normal levels. In the 1990s, two landmark clinical trials, the Diabetes Complications and Control Trial, and the United Kingdom Prospective Diabetes Study, proved that intensive therapy, a combination of medication and lifestyle changes (primarily diet and exercise), reduced serious microvascular complications in the kidneys, eyes, and nerves for patients with type 1 or type 2 diabetes (Nathan et al., 2005; Stratton et al., 2000; UK Prospective Diabetes Study Group, 1998). Each 1% reduction in hyperglycemia measured by hemoglobin A_{1c} (HbA_{1c}) represented a 14–37% reduction in risk of serious diabetes-related complications. Long-term risks of myocardial infarction and death were also reduced (Holman, Paul, Bethel, Mathews, & Neil, 2008; Nathan et al., 2005). Large studies like the Nurses' Health Study and the Diabetes Prevention Program have shown that 90% of new cases of diabetes are due to excess body weight, lack of exercise, cigarette smoking, and other behaviors, but losing weight with diet and exercise can delay or prevent type 2 diabetes (Hu et al., 2001; Knowler et al., 2002; Pratley & Matfin, 2007). Although practice guidelines have widely disseminated these findings, and programs for education and training of patients to maintain glycemic control have been created, these efforts have not been sufficient to stem the diabetes epidemic, because maintaining glycemic control is difficult (Fisher, Thorpe, Devellis, & Devellis, 2007; Grey, Knafl, & McCorkle, 2006; Peyrot, McMurry, & Kruger, 1999).

Living With Diabetes

Diabetes management is an ever-present responsibility, time-consuming, and taxing, and impacts essentially all areas of a patient's life. Losing weight and adhering to diet and exercise plans are the most difficult behaviors to sustain. Diabetes Attitudes, Wishes and Needs (DAWN), a 13-country study of patients and health-care providers, found almost 80% of patients took their medications as prescribed, but only 35–37% reported adhering to their diet and exercise plan (Peyrot et al., 2005). The DAWN study also found that about 40% of patients reported poor psychological well-being, and providers reported that patients' psychological problems often adversely affected regimen adherence. Moreover, providers did not feel confident in their ability to identify psychological problems in their patients and felt unable to provide the psychological support their patients needed. Instead, providers often rely on psychotropic medications (i.e., antidepressants, mood stabilizers, and antipsychotic drugs) to enhance psychological well-being in these individuals. Unfortunately, these medications are associated with weight gain and other metabolic disturbances that can worsen glycemic

control and contribute to poly-pharmacy, another factor associated with nonadherence (Tschoner et al., 2007).

Self-management behaviors take place within the context of daily life, and therefore successful self-management can be enabled or impeded by factors relating to the individual (e.g., age, gender, genetics), their disease (e.g., severity, complications), and their treatment regimen (e.g., dose, frequency, poly-pharmacy). Seven behaviors are considered essential for effective diabetes self-management: (1) eating a healthy diet; (2) being physically active; (3) monitoring blood glucose and knowing how to interpret results; (4) medication adherence; (5) problem-solving; (6) reducing risks (e.g., quit smoking, obtain ongoing eye, foot, and dental care); and (7) healthy coping (American Association of Diabetes Educators, 2012). Identifying potentially malleable factors that enable or obstruct these behaviors is the first step in developing effective interventions to control diabetes (Fisher et al., 2007; Jack, 2007).

Mindfulness and positive affect are newly recognized enablers of self-management. Positive affect has been shown to promote healthy problem-focused coping and predict lower levels of blood glucose over time in older women (Tsenkova, Dienberg Love, Singer, & Ryff, 2008). The connection between positive affect, mindfulness, and healthy coping is consistent with Fredrickson's Broaden-and-Build Theory of Positive Emotions and experimental evidence that experiencing positive emotions serves to broaden awareness, enhance memory, facilitate information-seeking, and aid problem-solving and improve decision-making, and that individuals gain resilience and build durable personal resources from these experiences (Fredrickson, 2004).

On the other hand, stress is a notorious barrier to effective self-management of diabetes. Stress impedes glycemic control through multiple pathways. Symptoms of psychological distress reduce motivation to engage in health-promoting behaviors and trigger unhealthy behaviors (e.g., overeating, smoking), and the "fight or flight" stress response can itself raise glucose levels (Surwit et al., 2002). Under stressful situations, people tend to adopt a narrow mindset and rely on automatic responses without fully evaluating their options (Fredrickson, 2004). Moreover, chronic stress accelerates aging of the brain (Epel et al., 2004), and persons with diabetes are at increased risk of cognitive deficits (Kodl & Seaquist, 2008). Stress and cognitive impairment conspire to impede healthy coping behaviors and to foster maladaptive coping, which leads to poor glycemic control (Fisher et al., 2007). Higher levels of stress have been shown to be related to adherence problems (Peyrot et al., 1999), and meta-analyses have strongly linked distress from depression and anxiety symptoms to nonadherence with diabetes self-management (De Groot, Anderson, Freedland, Clouse, & Lustman, 2001; Lustman et al., 2000). Educational interventions are effective in improving diabetes management in the short term, but program impact on self-management wanes with time, and evidence suggests that patients often lack the coping and psychosocial skills to maintain healthy self-care behaviors for the long term (Norris, Lau, Smith, Schmid, & Engelgau, 2002; Peyrot et al., 2005).

Mindfulness training may be a uniquely beneficial adjunct to educational interventions for diabetes, because of its potential to decrease barriers and strengthen enablers of glycemic control. Langer describes mindfulness as pivotal to becoming a "health learner," a fully engaged expert on one's own health (Langer, 2009). Langer's research has shown that being mindful (and not mindless) enhances the capacity to learn, to

problem-solve, to make choices, and to attend to what is happening in one's body as well as in one's social and physical world. Langer asserted that "noticing variability is the key to mindfulness," and her experiments demonstrated that mindful attention to variability enables the learning needed to assert control over one's emotions, behaviors, and even physiologic responses (Langer, 2009). As Langer has written, there is an overwhelming tendency to confuse the stability of one's mindsets with the stability of the underlying phenomenon. Especially for those with diabetes, noticing variability in symptom intensity, duration, and presence is critical to gaining knowledge about one's own body, can foster earlier awareness of cues for action, and can increase openness to mindfully choosing the most timely self-care behaviors.

Complementary therapies that enhance mindfulness are rising in popularity, accompanied by evidence that increased mindfulness is linked to stress reduction, adherence, early self-diagnosis, and healthy-lifestyle choices. About 40% of Americans use complementary therapies, spending \$33.9 billion annually (Barnes, Bloom, & Nahin, 2008) and people with diabetes are more likely to use these therapies than the general population (Egede, Ye, Zheng, & Silverstein, 2002). In the sections that follow, we further explain why adding mindfulness training to conventional diabetes education and treatment programs is a promising avenue to improve self-management of diabetes.

Mindfulness Training for Persons With Chronic Conditions

Mindfulness has been described by Susan Bauer-Wu as

our capacity to intentionally bring awareness to present-moment experience with an attitude of openness and curiosity. It is being awake to the fullness of our lives right now, through engaging the five senses and noticing the changing landscapes of our minds without holding on to or pushing away from any of it. (Bauer-Wu, 2011)

Over 30 years ago, Kabat-Zinn developed the Mindfulness-Based Stress Reduction (MBSR) program to reduce suffering and enable patients to better adjust to the stressors of living with chronic illnesses. Participants were taught mindfulness meditation techniques with the goal of bringing mindfulness into everyday life, and using mindfulness skills for lifelong self-management. MBSR was originally described in *Full Catastrophe Living* (Kabat-Zinn, 1990), and current teaching and clinical practices are described in books by Baer (2006) and McCown, Reibel, and Micozzi (2010). Briefly, the standard MBSR program consists of eight weekly 2.5-hr skills-based sessions led by an instructor in a class format, and a one-day retreat. Sessions include information about stress, cognition, and health, but primarily concentrate on learning a variety of meditative techniques (e.g., focusing on the breath, body scan, sitting and walking meditations, and gentle yoga). Participants are trained to perceive their immediate emotional and physical state, including pain or discomfort, and to let thoughts come and go in awareness with an attitude of self-compassion, and no attempt to change, suppress, or elaborate on thoughts. Through mindfulness training, participants come to view their thoughts as mental events rather than facts, become exposed to the positive and negative content of their thoughts, and do not get absorbed in thought,

caught up in planning for the future, or worrying about the past. By incorporating mindfulness techniques into their daily lives, the practitioners learn to “find breathing space” in order to respond skillfully to stressors with appropriate action, as opposed to reacting “on automatic pilot” with conditioned responses that can be emotionally arousing or unhelpful.

There is substantial evidence suggesting that MBSR is effective in reducing symptoms and psychological distress, and able to enhance positive affect and quality of life among patients coping with chronic illness, with the most reproducible impact on stress-related disorders (i.e., anxiety and depression symptoms; Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; Gross et al., 2010; Reibel, Greeson, Brainard, & Rosenzweig, 2001). The mechanisms of action responsible for the health impacts of mindfulness have not been established, but several have been hypothesized.

Mechanisms of Mindfulness

Increased mindfulness had been linked to important mental- and physical-health outcomes including stress reduction, adherence, symptom improvements, and enhanced quality of life. Mindfulness is hypothesized to interrupt the automatic, conditioned reactions, and cognitive activities that trigger emotions such as depressed mood (Teasdale, Segal, & Williams, 1995); to “break up” rumination by suspending the flow of ordinary thinking and inhibiting elaborative secondary processes that generate anxiety (Bishop, 2002); to reduce cognitive arousal that stems from “verbal overregulation” (Lundh, 2005); and to enable recognition and exposure to painful states or discomfort without heightened arousal from “catastrophizing” (Kabat-Zinn, 1990). The cognitive and behavioral mechanisms that may account for the impact of mindfulness on health outcomes include attention control, attention switching, metacognition (how one views one’s thoughts) and metacognitive awareness (insight about one’s attitudes and beliefs), cognitive restructuring (changing one’s perspective on events/thoughts), exposure and desensitization (as opposed to avoidance behaviors), acceptance, and present-moment orientation (Baer, 2003; Teasdale et al., 1995).

Figure 46.1 presents a model of how we hypothesize that mindfulness training can build capacity for effective diabetes self-management, improve blood glucose levels, and positively impact health outcomes. Attention, emotional regulation, awareness of body and mind, acceptance, and insight or perspective on the self are the primary mechanisms of action for mindfulness training. These mechanisms are interrelated and synergistic. Attention, acceptance, and awareness are foundations of mindfulness. They are explicit or implicit in most definitions of mindfulness (e.g., paying attention, open, nonjudgmental attitude, not pushing away). Emotional regulation and insight or perspective on the self (e.g., thoughts are not facts, I am not my thoughts, I am not my pain) evolve out of this foundation. The difference between reacting and responding to a difficult situation is an example of emotional regulation. When confronted with a painful or unpleasant event, a visceral or behavioral response can be arousal or lashing out verbally. With emotional regulation, such events can be recognized, reflected upon, and responded to thoughtfully, potentially without the accompanying somatic symptoms and unhelpful behaviors. Of course, attention, awareness, and

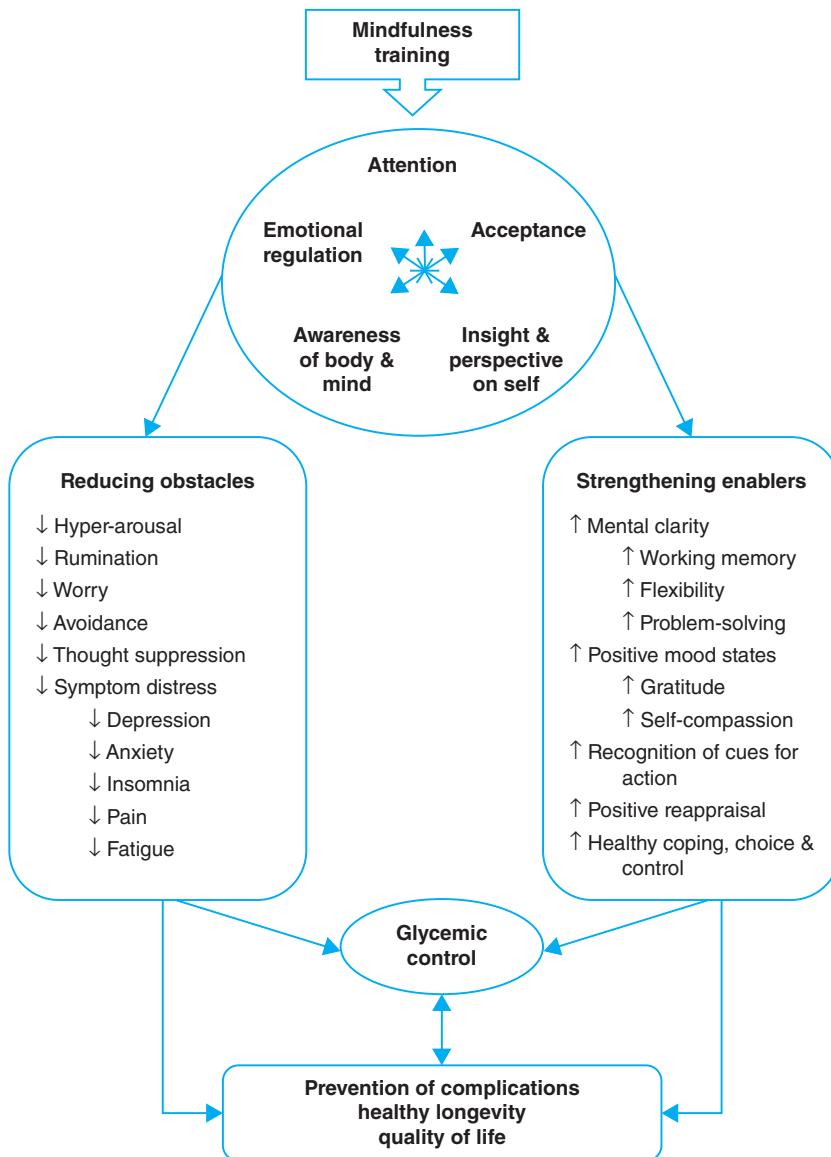


Figure 46.1 Model of mechanisms of mindfulness for diabetes self-management. © 2012 Cynthia Gross & Diane Reibel.

insight/perspective are part of this cascade. Through feedback and synergy among these mechanisms, thought patterns and somatic responses change, feelings of distress abate, and feelings of well-being and positive health behaviors emerge. Hölzel and colleagues (2011) recently summarized self-report, brain imaging, and experimental evidence for four mechanisms of action for mindfulness: attention regulation, body awareness, emotional regulation, and change in perspective on the self.

There is limited evidence on the role of acceptance as a mechanism of mindfulness and on the impact of mindfulness on positive emotions as shown in Figure 46.1. However, work by Fredrickson, Cohn, Coffey, Pek, and Finkel (2008), such as their study of loving-kindness meditation and its impact on positive emotion, is filling this gap.

Our model is influenced by the writings of Brown and Ryan (2003) and Fredrickson's (2004) Broaden-and-Build Theory of Positive Emotions. In presenting their rationale for creating a measure of mindfulness for use in research and clinical practice, Brown and Ryan explained how mindfulness could build capacity to self-regulate behavior and motivate healthy coping in order to attain positive health outcomes. They noted that mindfulness enables recognition of automatic thoughts and behavior patterns, and is therefore a first step to disengaging from unhealthy habits. Brown and Ryan noted that by being open, curious, and attentive, mindful individuals can gather and interpret factual information more effectively to guide their health behaviors. This is also consistent with the Broaden-and-Build Theory. Through mindful attention, individuals can be more sensitive to prompts such as bodily sensations, psychological feelings, or environmental changes. Through attention, mindful individuals can recognize cues and perceive their needs in a timely manner. Through awareness, mindful individuals can choose behaviors (like healthy foods or exercise) that are consistent with one's knowledge and values, as opposed to reacting on automatic pilot and relying on unhealthy habits. Insight and perspective on the self include developing a broader perspective on one's self and others, and viewing one's thoughts as temporary and not necessarily true reflections on the self; this has been termed "decentering," and this ability is posited to be important for healthy cognitive, psychological, and social development (Fresco, Moore, & van Dulmen, 2007).

Research on the Effects of Mindfulness Training on Physiological and Psychological Symptoms in Patients With Diabetes

To date, there are surprisingly few studies on the use of mindfulness training for diabetes management. Rosenzweig et al. (2007) investigated glycemic control (HbA_{1c}), weight, blood pressure, and stress-related psychological symptoms in a prospective observational study. Patients with type 2 diabetes on oral medication participated in an MBSR program ($n = 14$; mean age 59.2 ± 2.57 ; $\text{HbA}_{1c} 6.5\text{--}8.5\%$; fasting blood glucose <275 mg/dl; no change in medication, diet, or exercise <12 weeks prior to or during the intervention). Subjects participated in a standard 8-week MBSR intervention (2.5 hr per week, plus one 7-hr weekend session) for heterogeneous patient populations at an academic health center. The home-practice requirement was 25–30 min of formal meditation a day, 6 days per week. Outcome measures were taken at three time points: baseline (week preceding MBSR), program completion (week 8), and 1-month follow-up (week 12). Variables included: HbA_{1c} ; blood pressure; weight; and selected subscales from the Symptom Checklist 90-Revised (Depression, Anxiety, Somatization, General Severity Index).

Table 46.1 Treatment-related changes in glycemic control, weight, and blood pressure.

Outcome variable	Baseline (Week 0)	Postintervention (Week 8)		Follow-up (Week 12)			
		p	d*	p	d*		
Glycemic control (HbA _{1c} %)	7.50 ± 0.51	7.23 ± 0.67	.14	0.46	7.02 [†] ± 0.58	.03	0.88
Weight (lbs)	236 ± 48	238 ± 50	.20	0.04	240 ± 46	.10	0.09
Mean arterial pressure (mm Hg)	100 ± 12	97 [‡] ± 10	.07	0.27	94 [†] ± 13	.009	0.48

Note. Data are reported as mean ± SD. This table has been modified with permission from *Alternative Therapies in Health and Medicine* (Rosenzweig et al., 2007).

*Interpretative ranges: 0.20 = small, 0.50 = medium, 0.80 = large.

[†]p < .05 for paired, two-tailed t-test with preintervention mean.

[‡]p < .10 for paired, two-tailed t-test with preintervention mean.

As shown in Table 46.1, a downward trend in HbA_{1c} was observed after 8 weeks, at completion of the intervention ($d = 0.46$, $p = .14$). A statistically significant reduction in HbA_{1c} of 0.48% was found at 1-month follow-up, representing a large magnitude effect size ($d = 0.88$, $p = .03$). A downward trend in mean arterial pressure was also seen at 8 weeks ($d = 0.27$, $p = .07$), reaching statistical significance at 1-month follow-up ($d = 0.48$, $p = .009$). Symptoms of depression, anxiety, and general psychological distress decreased by 43%, 37%, and 35%, respectively, upon completion of the intervention (depression: $d = 0.86$, $p = .03$; anxiety: $d = 0.43$, $p = .33$); general severity index: $d = 0.60$, $p = .07$). No change in somatization was detected. Follow-up means at 12 weeks were not significantly different compared to postintervention means.

Results of this pilot study support the hypothesis that MBSR training is associated with improved glycemic regulation in type 2 diabetes patients. Patients were asked not to change their diet, exercise, or medication for this study, and there were no reported changes in these variables that could account for improved glycemic control. Mean body weight did not change, making unreported significant changes in diet or exercise unlikely. A proposed mechanism for the change in HbA_{1c} is that mindfulness practice reduces stress reactivity and its associated counterregulatory effects on glucose. Reduction in mean arterial pressure may be another physiological marker of stress-response modulation. Trends in psychological symptom reduction support a stress-reduction hypothesis. Psychometric data were generally consistent with those reported for heterogeneous subjects participating in MBSR (Reibel et al., 2001); statistical significance may not have been reached due to the small sample size. Limitations of Rosenzweig's study include the absence of a control group and small cohort size.

Gregg, Callaghan, Hayes, and Glenn-Lawson (2007) conducted a randomized clinical trial evaluating the efficacy of an acceptance and commitment therapy approach to coping with diabetes. Patients in a low-income community health center with type 2 diabetes ($n = 81$; mean age 50.9) were randomized to one of two concurrent workshops: education alone ($n = 38$) or education plus acceptance and commitment

therapy (ACT; $n = 43$). Education consisted of a 7-hr workshop based upon American Diabetes Association diabetes education principles. The experimental arm of the workshop included the same education in an abbreviated form (4 hr), plus ACT mindfulness and acceptance training regarding difficult thoughts and feelings about diabetes, exploration of personal values related to diabetes, and a focus on the ability to act in a valued direction while contacting difficult experiences. The primary outcome was HbA_{1c}. Secondary outcomes included an understanding of diabetes and satisfaction with treatment. After 3 months, patients randomized to ACT treatment were more likely to use coping strategies, to report better diabetes self-care, and to have HbA_{1c} levels in the appropriate range ($p = .009$). Gregg et al. concluded that it is possible to build coping strategies rapidly through a psychoeducational intervention. These results provide preliminary support for the significance of an acceptance and mindfulness therapeutic approach to aid patients in developing the psychological abilities to manage diabetes.

Young, Cappola, and Baime (2009) conducted a retrospective analysis to evaluate the impact of MBSR training on mood states in 25 individuals with diabetes, the majority of whom had enrolled in the MBSR program to improve stress management. Prior to MBSR training, these individuals reported higher levels of distress measured by the total mood score (TMS) of the Profile of Mood States Short Form (POMS-SR) compared to population means. After completing 8 weeks of MBSR training, overall mood as measured by the TMS score and the subscales tension/anxiety, depression/dejection, anger/hostility, fatigue/inertia, confusion/bewilderment, and vigor/activity was significantly improved from baseline. The authors concluded that group-based MBSR training is a promising intervention that can be used to decrease psychological distress in people with diabetes who perceive a need for stress management.

A pilot study by Teixeira (2010) explored the effect of mindfulness training for patients with diabetic neuropathy. Twenty-two adults with diabetes (type 1 or 2) reporting symptoms of painful diabetic peripheral neuropathy were randomized into a 4-week mindfulness group or an attention control group. The intervention group received instruction in mindfulness meditation and was asked to listen to guided meditation practices 5 days per week. The control group received nutritional information and was asked to maintain food diaries. Data were collected using the Neuropathic Pain Scale, NeuroQuality of Life Scale (NeuroQOL), and Pittsburgh Sleep Quality Index. No significant differences were found between the groups in the outcomes measured. The limitations of this study include the small sample size and short duration of the intervention. Future studies warrant a longer intervention and larger sample size.

Gross and Kasper conducted a secondary analysis of data for vitality and pain outcomes in patients with diabetes who participated in a randomized controlled trial of MBSR for solid-organ-transplant recipients (Gross et al., 2010). Thirty-eight patients with diabetes (type 1, $n = 14$ and type 2, $n = 24$) were randomized to MBSR or an education control, attended at least one intervention class, and had baseline and 1-year follow-up data for the SF-36 vitality and bodily pain subscales. As shown in Table 46.2, patients with type 1 and type 2 diabetes in the MBSR group reported significantly greater vitality at 1 year compared to their baseline ($p = .01$ and $p = .03$,

Table 46.2 Pre- to 1-year posttreatment changes in vitality and bodily pain for the MBSR and health-education groups in the Wellness Interventions After Transplant Trial.

<i>Outcome</i> <i>Diabetes type</i>	<i>Treatment</i>	<i>Baseline</i>	<i>1 year</i>	<i>Change over time p value</i>	<i>Treatment difference p value</i>
Vitality T-score, SF-36v2					
Type 2	MBSR, <i>n</i> = 12	47.7 ± 12.3	54.2 ± 9.8	0.03	0.04
	Control, <i>n</i> = 12	49.5 ± 10.5	46.6 ± 13.5		
Type 1	MBSR, <i>n</i> = 9	42.0 ± 13.7	50.7 ± 12.9	0.01	
	Control, <i>n</i> = 5	48.3 ± 10.2	44.0 ± 14.4		
No diabetes	MBSR, <i>n</i> = 33	46.6 ± 8.6	52.1 ± 8.2	0.001	
	Control, <i>n</i> = 35	45.0 ± 10.9	48.5 ± 10.4	0.02	
Bodily Pain T-score, SF-36v2					
Type 2	MBSR, <i>n</i> = 12	45.0 ± 10.0	46.7 ± 6.9		0.048
	Control, <i>n</i> = 12	48.3 ± 10.3	44.4 ± 12.2	0.038	
Type 1	MBSR, <i>n</i> = 8	48.8 ± 8.9	46.9 ± 11.0		
	Control, <i>n</i> = 5	46.1 ± 3.4	46.1 ± 13.3		
No diabetes	MBSR, <i>n</i> = 33	45.7 ± 8.9	47.3 ± 11.7		
	Control, <i>n</i> = 35	47.7 ± 11.3	48.8 ± 11.5		

Note. Vitality and pain scores are norm-based *T*-scores (mean 50, *SD* = 10). Higher scores are better (more vitality, less pain). Data are mean ± *SD*; *p* values > .05 are not shown. Results are a secondary analysis conducted by Gross and Kasper (unpublished) of data from the Wellness Interventions after Transplant Trial (Gross et al., 2010).

respectively). In contrast, the vitality scores for patients with diabetes in the control group slightly declined (worsened). Vitality outcomes were significantly better with MBSR than in the education control for patients with type 2 diabetes (*p* = .04). Bodily pain scores did not improve for patients with diabetes in the MBSR group; however, pain scores were significantly worse at 1 year for patients with diabetes in the control group. For type 2 patients, pain outcomes were better with MBSR than with the education control (*p* < .05). Although secondary analyses must be interpreted cautiously, these results suggest that MBSR can benefit two of the most distressing symptoms of diabetes, fatigue and pain, and may be particularly beneficial for those with type 2 diabetes.

The results of a randomized controlled clinical trial evaluating the effectiveness of a new diabetes-specific, mindfulness-based psychological intervention (DiaMind) were recently published by van Son and colleagues (2013). DiaMind was based upon MBSR and Mindfulness-Based Cognitive Therapy programs (van Son, Nyklicek, Pop, & Pouwer, 2011). It consists of eight weekly 2-hr sessions led by mindfulness instructors who are also psychologists with a personal mindfulness practice. Participants are asked to commit to 30 min of home practice 5 days per week. For the trial, patients with diabetes and low levels of emotional well-being were randomized to DiaMind groups (*n* = 70) of four to eight persons each or to treatment as usual (*n* = 69). Patients in both groups received standard diabetes care. Results indicated better outcomes for

the DiaMind group compared to controls for measures of stress, depression, anxiety, fatigue, and health-related quality of life. Most outcomes showed some improvement by 4 weeks (mid intervention) and significant improvement by 8 weeks, the end of the intervention period. HbA_{1c} results were not significant. Inability to detect improvements in HbA_{1c} levels may be partly explained by relatively good glycemic control at baseline (mean HbA_{1c} = 7.6%), considerable missing data for HbA_{1c}, and no longer-term follow-up. Recruitment for this trial was challenging, as about 80% of those eligible declined to participate, and one out of every four participants (26%) dropped out before completing DiaMind. Based on their short-term findings, these authors concluded that mindfulness training adapted for diabetes may be effective in reducing emotional distress and enhancing health-related quality of life for patients with diabetes.

Hartmann et al. have recently published 1-year outcomes from the Heidelberger Diabetes and Stress Study (Hartmann et al., 2012) showing sustained effects of an MBSR intervention for persons with type 2 diabetes. The study was designed as a 5-year randomized controlled trial for patients at high risk for diabetic complications. The main inclusion criterion was type 2 diabetes with albuminuria, which is a known risk factor for cardiovascular and microvascular disease. Patients were randomized to MBSR ($n = 53$) or to a treatment as usual control group ($n = 57$). MBSR was adapted for the study to include practices for working with difficult thoughts and feelings related to diabetes. Outcome measurements included albuminuria, HbA_{1c} and blood pressure, levels of depression and stress (Patient Health Questionnaire), and mental- and physical-health status (SF-12). No significant effects were found immediately after the 8-week intervention. However, at 1-year follow-up, there was a significantly lower level of depression and improved mental-health status in the MBSR group. No difference was seen in physical-health status or stress. No significant effect was found for MBSR on the progression of albuminuria or HbA_{1c}, but diastolic blood pressure was reduced in the MBSR group. This study is ongoing with outcomes being examined yearly for 5 years.

Thus far, there have not been any qualitative studies reporting the effects of mindfulness training in patients with diabetes. We propose that such studies can supplement and enhance the quantitative studies. Below is a quote from a 2012 MBSR course participant that describes the richness of his experience (quoted with permission):

I've been a diet/exercise diabetic for 10 years. The last few years my morning blood sugars have run in the 130–140 range with a Hemoglobin A1C bouncing between 6.8 and 7.1. Since about May 1, my blood sugars have been in the 120 range most days, and my last Hemoglobin A1C taken on May 21 was 6.4. My doctor wrote "great" on my lab report. I've been watching what I eat for 10 years and perhaps was more earnest about it recently than I have been sometimes, but I've had other times of being more earnest and did not get results. The exercise level was probably less in April and May because of the time to do the body scan, mindful yoga, and class reading. I tend to be a skeptic. When the class ended, I was very reluctant to say mindfulness changed my blood chemistry. It was a short time and could have been a blip. Now, my skepticism is fading. Thank you for the class and teaching me mindfulness tools.—John

In summary, studies on the effects of mindfulness training in patients with diabetes have found promising results. Improvements in psychological symptomatology, including anxiety and depression, have been reported after an 8-week MBSR course and an 8-week diabetes-specific mindfulness intervention. In another study, no changes were seen in depression and mental- and physical-health status immediately following an MBSR program, but at 1-year follow-up, depressive symptoms and mental-health status improved significantly, suggesting possible long-term benefits for diabetics participating in MBSR. In the latter study, no changes were found in HbA_{1c} or albuminuria levels while diastolic blood pressure was reduced. Yearly follow-up is continuing in this study. Two studies reported a reduction in HbA_{1c} levels in diabetics. A 0.48% (large effect size) drop in HbA_{1c} was found in type 2 diabetics 1 month after participating in an MBSR program. The mean arterial blood pressure was also reduced. Persons with diabetes participating in an ACT workshop that included mindfulness and acceptance training plus diabetes education were evaluated 3 months postintervention and found to be more likely to use coping strategies, to report better diabetes self-care, and to be more likely to have HbA_{1c} levels in the appropriate range when compared to a diabetes education alone group.

Future Directions

Randomized trials with larger sample sizes, active controls, and long-term follow-up of self-report outcomes and physiologic changes are needed. A model of potential mechanisms of mindfulness for diabetes self-management is suggested. Qualitative research on the effects of mindfulness training is also warranted and can supplement and enhance quantitative studies.

With the prevalence of diabetes among children and adults on the rise, coupled with the burden of the disease—including morbidity, excess mortality, and high healthcare costs—it is imperative to find interventions to enhance diabetes self-management. Mindfulness-based programs are cost-effective interventions that show promise in improving mental and physical health in people living with and managing the effects of diabetes.

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Mindful Eating and Mindless Eating

The Science and the Practice

Jean L. Kristeller and Elissa Epel

Introduction

Eating can be a largely automatic and mindless behavior. Mindful eating is eating while fully aware of the process, noticing both the pleasantness and the internal and external states influencing hunger and satiety, and desire for food. Humans can eat mindfully naturally, but tend not to under the influence of habitual patterns, if they are in emotional states or even slightly distracted (Wansink, 2007). Thus, mindless eating is the more common mode, and in the contemporary food-abundant environment, mindless food choices and overeating can be argued to be contributing substantially to the current epidemic of obesity. Engaging in mindful eating, regardless of how this is cultivated, is a critical aspect of healthy balanced eating and, presumably, weight management.

Here we present a theoretical framework applying the concept of mindfulness to eating behavior and review key studies that address the different ways we regulate eating, including conscious efforts and unconscious influences. We focus on several key factors that contribute to mindless eating—limited interoceptive awareness, poor emotion regulation and emotional eating, negative self-judgments, and other limits of self-control.

The training programs that have been developed and applied to mindful eating, described later, include formal meditation practice, guided mindful eating exercises, other guided mindfulness experiences, and informal ways to engage qualities of mindfulness focused on awareness of one's internal experience, external context (both social and environmental), nutritional knowledge, and cultivating a self-compassionate attitude. Aspects of the mindful state, such as awareness of bodily cues and emotions and a kind attitude toward oneself, can uniquely target these aspects of eating.

Mindfulness as described by Langer (1992) is the ability to be present and engaged and sensitive to aspects of one's current environment. This leads to openness to new

experiences, flexible problem solving, and low levels of automatic thinking or mindlessness. There is substantial overlap between the natural state of mindfulness and the cultivation of mindfulness through meditative practices. The emergent qualities from the natural state of mindfulness such as openness to new experiences and creative problem solving are likely important factors in mindful-eating treatment effects. Indeed, taking a mindful approach to eating can lead to insight and emergent wisdom in making novel and healthier choices. Such training encourages individuals to become more aware in the moment of their experiences of eating in regard to the flavor and appeal of food; of their decisions about when to initiate eating and when to stop; and of their choices regarding what to eat for both psychological and physiological value.

Training in mindful eating shows powerful potential to transform problematic overeating into more optimal self-regulated behavior. Anecdotally, participants in our mindful-eating programs report shifts in their awareness of their experience of food, from noticing that only a few bites, rather than a huge serving, of a favorite binge food may produce an even higher level of satisfaction, to recognizing that emotions, from anger to boredom, trigger much of their eating and that when they are mindful, they can rely on physical feedback signals to know when to stop eating.

By now, several clinical studies have shown that mindful-eating training can help with binge eating, eating regulation in nonbingers, and at least short-term weight loss. We provide a description of the most well-studied program, Mindfulness-Based Eating Awareness Training (MB-EAT; Kristeller & Bolinskey, 2013; Kristeller & Hallett, 1999; Kristeller, Wolever, & Sheets, 2013). We explain how this program enhances self-regulation of eating and review the studies in relation to key elements of mindful eating. Eating provides an important example of a health behavior that can be mindless or mindful and serves as a prototype of how shifts toward mindfulness can even change a behavior that has been shaped by life-long patterns, characterized by struggle and conflict, to a salutary experience of pleasure in eating healthier and smaller amounts of food. When guided, most people can have a pleasant experience of mindful eating on their first focused attempt. The challenge is often in guiding people to notice mindless eating and infuse their daily routines with more mindful eating. While specific aspects of mindful eating can become more habitual, by definition it will always be flexible, rather than "automatic"; however, engaging mindful eating can eventually become fluid and require little sense of effortful attention.

Factors Affecting Eating Behavior

Eating is complex and often mindless

Creating a balance between physical and psychological needs for food is inherently complex, and has become even more so in our contemporary society, marked by increasing food abundance and marketing manipulation. Eating is well regulated by homeostatic signals that maintain caloric balance, but these signals are easily overridden for survival purposes. Indeed, it can be argued that among bio-behavioral processes that can be self-regulated (e.g., need for sleep, hydration, temperature balance),

eating is the most flexible and most easily taken to extreme levels in regard to both overeating and undereating.

Eating regulation follows the model of *allostasis* rather than homeostasis. Allostasis refers to the biological or behavioral fluctuations to maintain stability with the dynamic environment. Allostatic systems have a wide “operating range” rather than a narrowly maintained setpoint, as in homeostatic regulation of systems such as temperature. The mean and range of caloric intake are influenced by internal signals in interaction with the environment, and by factors such as chronic stress (Björntorp, 2001). There are different patterns of dysregulated “eating allostasis”—caloric intake can become chronically elevated, or disordered—with many ups and downs. Both can create metabolic strain and allostatic load, the damage due in part to elevated or fluctuating peaks of insulin and glucose, and sometimes cortisol. Trying to eat markedly less, or dieting, can be stressful and may promote further dysregulation of eating and allostatic load (Cottone et al., 2009; Tomiyama et al., 2010; Tremblay & Chaput, 2012), and is even linked to immune cell aging, a marker of allostatic load (Kiefer, Lin, Blackburn, & Epel, 2008).

Certainly, prior to the modern age, food and feasting have been used for celebration, to mark social occasions, and as representative of abundance. Obesity was considered a hallmark of well-being, often depicted in classic art as a desirable state, and even religious statues of the Buddha often represent him as morbidly obese. Ability to gain weight conveyed survival benefits during the course of human development (King, 2013). One difference in contemporary society is that much of the obesity today is associated with mindless overeating of the cheap but highly palatable, low-quality food dominating the food choices in many communities today. Many of those who live in poorer urban neighborhoods are exposed daily to the potent combination of primarily unhealthy food and high stress. In modern times, in the United States and increasingly elsewhere, a highly sophisticated food industry has taken advantage of the science of making inexpensive food maximally palatable in regard to high fat and sugar. Such stimulating food, and fast food in general, can trigger even more rapid and mindless eating (Adam & Epel, 2007; Garber & Lustig, 2011). These days, most people *need* to exert some level of dietary restraint over their behavior, in order to maintain a healthy adult weight. The power of modern advertising, which shapes our behavior in ways we aren’t aware of (Harris, Bargh, & Brownell, 2009), the food-rich environment, and triggers for mindlessness, like frequent stress and multitasking, create powerful conditions for frequent overeating in the United States, impacting even those not necessarily genetically prone to obesity, to join in more mindless eating and to develop what we might term “mindless obesity.”

Interoceptive awareness

Effectively balanced eating is based in part on appropriate use of interoceptive awareness. This includes awareness of bodily sensations related to both eating (hunger, sensory-specific satiety, stomach fullness, and “body” satiety) and other physical experiences (muscle tension, breathing, fatigue, thirst), as well as awareness of relevant mental states (emotions, cognitions). Interoceptive awareness can be blunted in

people with eating disorders, including obesity, but may be modulated by attention (Brondel et al., 2007; Raynor & Epstein, 2001; Remick, Polivy, & Pliner, 2009; Sørensen, Møller, Flint, Martens, & Raben, 2003). Core elements of training in mindful eating focus on cultivating awareness of physical hunger experience, taste “satisfaction,” and various types of satiety signals. We suggest that the phenotype of dysregulated eating is driven in large part by *attentional dysfunction*—a lack of mindful attention. Mindfulness training helps promote sensitivity to interoceptive feedback signals and helps individuals become more aware of how their bodies may reflect stress (muscle tension, rapid breathing) and the types of emotional states (such as the distinction between anxiety and anger) or cognitive patterns (“I deserve this [food]” or “I have blown my diet anyway”) that often drive overeating. Recently, imaging studies have shown that mindfulness training can alter functional connectivity between the dorsomedial prefrontal cortex and the posterior insula, an area thought to regulate the perception of bodily awareness (Farb, Segal, & Anderson, 2013).

Stress, emotion regulation, and emotional eating

One common reason people overeat is in response to negative emotions, that is, emotional eating. “Stress-eating” largely overlaps with emotional eating—in that it refers to eating in response to a discrete stressor with negative affect implied whether consciously experienced or not. Some degree of emotional eating may be normative or even adaptive; for example, most individuals will acknowledge eating more in response to stress without related weight or eating dysregulation problems (Kristeller & Rodin, 1989). Emotional eating may also occur in response to positive emotions, for pleasure, for celebration, or to relax without any particular stressor present. However, excessive levels of emotional eating (including “stress eating”) are part of a larger profile of maladaptive habitual coping, or ineffective emotion regulation attempts. The coping literature describes passive coping as a set of strategies that may temporarily manage emotions but do not help solve the situation, in contrast to the range of active coping options. Eating and substance use are a form of “passive coping”—they tend to blunt negative emotions but in themselves do not improve adaptation to situations. For example, in one study, unsupportive social interactions, a particularly potent social stressor, induced more passive coping behavior including emotional eating (Raspopow, Matheson, Abizaid, & Anisman, 2013).

Emotion-regulation strategies, like coping, tend to be categorized into more adaptive strategies, such as reappraisal, and more ineffective strategies, such as denial and avoidance. Emotional eating may also be part of an avoidant strategy. Indeed, one experimental study examined reappraisal, suppression, and no coping in response to a negative mood induction. Those who were assigned to use suppression or no emotion-regulation strategy ate much more in the lab (Taut, Renner, & Baban, 2012). Eating is often the coping method of choice when no other options feel available.

The experiential avoidance of negative affect is thought to be an important driver of binge eating. The escape from aversive self-awareness may be one self-regulatory motive for emotional eating. Binge eating is associated with a narrowing of attention that allows one to overeat (Heatherton & Baumeister, 1991). Low self-awareness is

associated with eating more after a distressing task (Heatherton, Polivy, Herman, & Baumeister, 1993). Weight-loss treatments focused on increasing acceptance of negative affect have been promising so far (Lillis, Hayes, & Levin, 2011). For people who are restricting food intake in order to lose weight, emotional eating is usually a particularly ineffective coping strategy because it triggers so much distress and self-recriminating thoughts associated with eating “comfort foods” (such as sweets or high-fat snacks) that cancel out the transient relief one may have felt during eating that even more stress is created.

There is growing empirical evidence that stress or stress eating promotes weight gain, a concept that seems self-apparent to those who struggle with overeating. The relationship is complex, depending in part on whether one views oneself as a stress eater, rather than stress operating as a “main effect” across people. A number of studies have found that people who self-report they are “stress eaters” do indeed tend to eat more when under stress (van Strien, Herman, Anschutz, Engels, & de Weerth, 2012). In adults, exposure to stress alone affects eating differently depending on initial weight status. For example, a large study across 13 European countries examined weight changes in those who were under high job stress. Those already overweight tended to gain weight, and those who were lean tended to lose weight, under high job stress (Nyberg et al., 2012). These findings might be explained in part by people’s individual tendencies for emotional eating.

Mindfulness can interrupt and help reregulate longstanding patterns of excessive emotional eating in several ways. First, simply bringing more awareness to the pattern may help someone better identify emotion-related triggers for craving or wanting certain foods. Second, bringing mindfulness to choice may help someone recognize the need to engage other coping strategies, whether to initially relax or to actually address the stress-related trigger. In addition, cultivating an appreciation of the comfort value of favorite foods counteracts the restrictive nature of more typical recommendations; comfort foods are no longer forbidden and can be eaten, but in much smaller quantities and with the intention of self-soothing—followed by more active coping strategies. Finally, mindfulness can bring balance to overeating as a source of pleasure or celebration, shifting the focus from quantity of food to cultivating an overall sense of enjoyment. All of these mindfulness strategies can enhance self-awareness to decrease inappropriate emotion-related eating and, in individuals with marked binge eating patterns, prevent full-blown lapses or the state of dissociation sometimes sought with binge eating.

Self-criticism

Self-judgment is another common theme underlying eating: “I’m a ‘good’ person for eating organic vegetables,” or more commonly, “I’m terrible for wanting another doughnut.” Such voices of judgment further separate people from immediate experience. Suspending such conditioned patterns allows space for alternative choices that may feel inherently more satisfying than if they feel prescribed by others. As noted above, a positive-feedback loop can develop where negative emotional responses trigger overeating. Guilt and shame about unhealthy eating behavior, regardless of how it

is triggered, naturally feed back into the positive cycle of triggering overeating, further causing negative feelings. This in turn triggers negative thoughts about the self that can spiral and lead to the “abstinence violation effect” (AVE), identified by Marlatt in relation to drug and alcohol addiction (Marlatt & Gordon, 1985), and is also applicable to eating behavior (Herman & Polivy, 2011; Polivy, 1976). Within the drug and alcohol arena, in which total abstinence is commonly sought, even a small “slip” may trigger intense negative self-appraisal, leading to a sense of futility and a subsequent “relapse.” In the arena of eating, the AVE response may be triggered by a wide variety of food that has been labeled “bad” and is therefore to be avoided. Often, such restrictions are highly unrealistic. Mindfulness can be engaged in several ways to assist with this very powerful and common reaction, both in individuals with eating disorders and in those who are trying to maintain restrictive diets, and can lead to more self-acceptance. Clearly, the formal practice of intentionally holding a kind attitude and an informal “cognitive” mindfulness can promote learning from one’s mistakes, as well as a more conscious acceptance of oneself (Carson & Langer, 2006).

Eating Behavior: From Automatic to Self-Regulated

On average, normal and overweight individuals make about 200 decisions per day regarding food intake, while those who are obese make more than 300 (Wansink & Sobal, 2007). These choices involve a wide range of decision-making, which might be considered to combine three modes of eating—mindless eating (automatic), self-control over eating (effortfully restraining), and self-regulation (flexibly regulating) of eating behavior.

The automaticity of eating

When we are mindless, we rely on automatic processing, where past knowledge or behaviors overly determine the present, and within which we are almost blind to the current context (see Chapter 1). This leads to the rigidity of habits like overeating. Automatic behavior is not necessarily dysfunctional *but may lead to choices that are experienced as uncontrollable and unconscious*. The fact that people are not in full control over their eating does not need a study citation, given the high rates of obesity. Eating behavior virtually always involves some level of automatic processes, and thus fits in the definition of mindless behavior (Langer, 1992). Eating behavior also includes many conscious choices, including choice regarding food purchases, what to eat, and how much to eat. It is striking, nevertheless, how much we are influenced by factors outside of our conscious awareness. For example, people’s eating behavior is influenced by food packaging and marketing, and television watching, but people often have no insight into their preferences (Boulos, Vikre, Oppenheimer, Chang, & Kanarek, 2012; Cohen & Babey, 2012; Wansink, 2010). Experimental studies have shown that when people eat, yet did not intend to, they create post-hoc stories about their behavior, thereby showing that the causes of their behavior are not fully conscious (Moldovan & David, 2012).

How do we shift from mindlessness to mindfulness? One important core aspect of training in mindful eating is simply training awareness. As awareness heightens, levels of frustration with seemingly unconscious patterns decrease. Individuals may note becoming more aware of a myriad of aspects of eating that had previously been largely automatic or unconscious, including specific triggers for overeating, whether emotional, social, or environmental; reasons for stopping eating, such as parental messages about “always cleaning your plate”; and making food choices, such as “supersizing” fast food meals, in order to save money. Without increased awareness, it is impossible to begin to interrupt these longstanding habits and patterns effectively.

Willpower, self-management, and self-regulation

We find it useful to differentiate between the concepts *willpower*, *self-management*, and *self-regulation*, particularly in relation to eating.

Willpower or self-control Willpower can be conceptualized as the most “mindless” approach, an effortful attempt to resist strong desires, often by using a structured diet very different from usual patterns of eating, and with little or no skill or use of self-management techniques. Willpower relies on “effortful vigilance,” the bare mental power of inhibiting an unwanted impulsive behavior. Exerting willpower may be essential for situations when one feels strong urges and cravings. People who are high on this capacity (trait self-control) tend to be more stress resistant in that they have more stable moods, which predicts more stable autonomic activity throughout the day (Daly, Baumeister, Delaney, & MacLachlan, 2012). So, in contrast to automatic behavior, when exerting willpower, one is paying attention and exerting effort to change or stop eating behavior. That is one step toward meeting one’s intention, but it is a tough road if that is one’s only way of regulating eating. Such inhibition attempts, or “resist” behaviors, take a lot of cognitive effort and can be disrupted by factors such as cognitive load or mere depletion from repeated earlier attempts at self-control (Muraven & Baumeister, 2000). Many lab studies have shown that this capacity is a limited resource, and a recent Ecological Momentary Assessment (EMA) study additionally demonstrated these effects in the real world. Specifically, cumulative efforts over the day lead to depletion of willpower or self-control. Throughout the day, the more people tried to resist a behavior, such as eating, the more likely they were to engage in the unwanted behavior later (Hofmann, Vohs, & Baumeister, 2012). This might help explain why people tend to overeat in the afternoon and evening, the time of day that provides a perfect storm of factors that lead to decreases in control, such as physical hunger (including low glucose), fatigue, stress, and cumulative depletion from earlier in the day.

What does loss of control look like in the brain? People with impulse-control problems with overconsumption of drugs or food have common neurological alterations in areas related to reward, incentive motivation, and stress reactivity (Sinha & Jastreboff, 2013). There are alterations, for example, in the dopaminergic ventral tegmental area, and reduced activity in areas of the prefrontal cortex, the master control center, as well as low interoceptive awareness (Volkow, Wang, Tomasi, & Baler, 2013).

However, whether such changes are causative or simply reflective of repeated dysfunctional regulation is less clear.

Obesity per se may be only a very crude proxy for poor self-control, as excess weight reflects a wide range of behavioral phenotypes. People with binge-eating disorder clinically show poor self-control, and this can be measured as reactivity in part to food or stress. They tend to have greater responses to food cues (Sobik, Hutchison, & Craighead, 2005). Obese binge eaters, but not obese nonbingers, show hypoactivity in areas important to impulse control (ventromedial prefrontal cortex and insula; Balodis et al., 2013). Obese nonbingers are often "grazers"; habitual overeating rather than extreme lack of control leads them to gain excess weight over a period of years.

We also know that people already low on self-control over eating, those with high levels of brittle or ineffective dietary restraint and high levels of disinhibition, tend to eat more when under cognitive load or exposed to a stressor (Gibson, 2012). Therefore, these aspects of poor control over eating are prime targets for mindfulness interventions. Efforts at self-control include avoidance of negative emotional experiences that takes up a lot of cognitive effort and can impede rather than promote behavioral change. Further, since cravings and impulses are not necessarily under personal control, trying not to have intrusive thoughts about a certain food can backfire and lead to more distress, cognitive load, and self-critical thoughts. Evidence is increasing that suppression or avoidance of particular experiences may actually strengthen the underlying associated conditioning (Wegner, Schneider, Carter, & White, 1987) and is more effortful than mindful acceptance (Alberts, Schneider, & Martijn, 2012). Mindfulness training can help reduce experiential avoidance, as well as defuse critical thoughts with loving-kindness practices.

Self-management We prefer to use the term self-management to describe a higher level of ability to manage behavior than through sheer willpower or self-control. Self-management, such as that encompassed by cognitive-behavioral approaches to changing eating behavior or weight loss, can be highly effective. Such self-management processes include a wide range of strategies, such as avoidance (putting the cookies away rather than just resisting their pull), substitution, reconditioning, or cognitive reframing. These approaches draw on learning theory but may be relatively fragile in the face of repeated challenges or until substantive relearning has occurred. Mindfulness can certainly be exercised to identify triggers and look for opportunities to interrupt or shift automatic patterns, until new patterns are learned. Mindfulness can also be powerful in identifying the need to engage self-management strategies, but we would argue that mindfulness approaches extend beyond self-management to encompass self-regulation processes.

Self-regulation In contrast to both willpower/self-control, and self-management, self-regulation refers to the flexible control that people can engage with little struggle. Self-regulation, based on integrating physiological and psychological homeostasis (Kristeller, in press; Schwartz, 1975), represents the ability to respond without being overly influenced by, for example, food cues, or emotional states. Self-regulation engages naturally occurring internal processes that are experienced as requiring relatively little effort to maintain. For example, one man enrolled in a mindful-eating

workshop found the first exercise of mindfully—and slowly—eating raisins was almost immediately powerful in changing life-long patterns of eating so rapidly that all of his family members teased him about it. He noted that he had tried many times to “slow down” using “willpower,” without success. One month after this brief exercise, he reported he was now eating all his food more slowly, with no additional effort, and enjoying it far more!

As Langer and others show, biological functioning is quite malleable based on attentional mindset. Obesity and binge eating now have been linked to a strong pattern of metabolic dysregulation and altered neural processing. One would think eating behavior would thus be somewhat immutable. While there is a growing literature showing neurological correlates of addictive-like behavioral disorders, it is remarkable that the experience of mindful eating can transform a struggle to control eating into one of eating with a high level of regulation and discernment, and can do so very quickly. For example, one woman in the MB-EAT program, upon mindfully eating several small pieces of a commercially available chocolate snack cake, was shocked to find them increasingly unappealing with each bite, as they were a food she had previously binged on, and indeed had had some anxiety about even trying. In an even more extreme example, we know that eating can be highly dysregulated in Prader-Willi Syndrome, due to neurological genetic reasons and aberrations in mechanisms that control satiety, such as low ghrelin. However, in a case study of an adolescent with PW syndrome, training in mindful eating promoted lower and much more regulated intake, followed by substantial weight loss, thus overriding a known biological driver of overeating (Singh et al., 2008).

What does optimal self-regulation look like? Highly self-regulated eating simply looks different. It includes a fine balance between functional eating based on caloric need, and eating based on important psychological, social, and cultural roles of food (Kristeller et al., 2013). The beauty of adaptive regulation over eating is that the amount and speed of eating in these contexts are flexible, moderate, and not rigidly controlled like the constraints of structured dieting, or the famine/feast patterns of a binge eater (restricting early in the day and then overeating in the afternoon/evening). Self-regulation also allows for substantial variability in food intake, like that required to meet fluctuating needs based on changes in activity, season, and menstrual cycle (Pliner & Fleming, 1983).

Natural triggers for eating, including hunger, cognition, or emotion, can be responded to either mindfully or mindlessly, as shown in Figure 47.1. Eating is triggered by hunger as well as external and other internal cues, such as social cues, seeing or smelling food, and experiencing stress or negative emotions. Habitual reactions to these triggers constitute much of mindless eating. Eating in response to negative emotions in particular involves prolonged reactivity and subsequent attempts to avoid negative affect. For some, especially those trying to restrain their eating, any of these triggers can lead to feelings of a lack of control. Mindful responses to triggers including intentional observation of thoughts, feelings, and bodily sensations, marked by a high level of interoceptive awareness of both feelings and bodily sensations of hunger and satiety. There is greater acceptance of negative emotions rather than attempts to avoid them with food or other means. When one then intentionally chooses to eat, the process of eating mindfully is a different

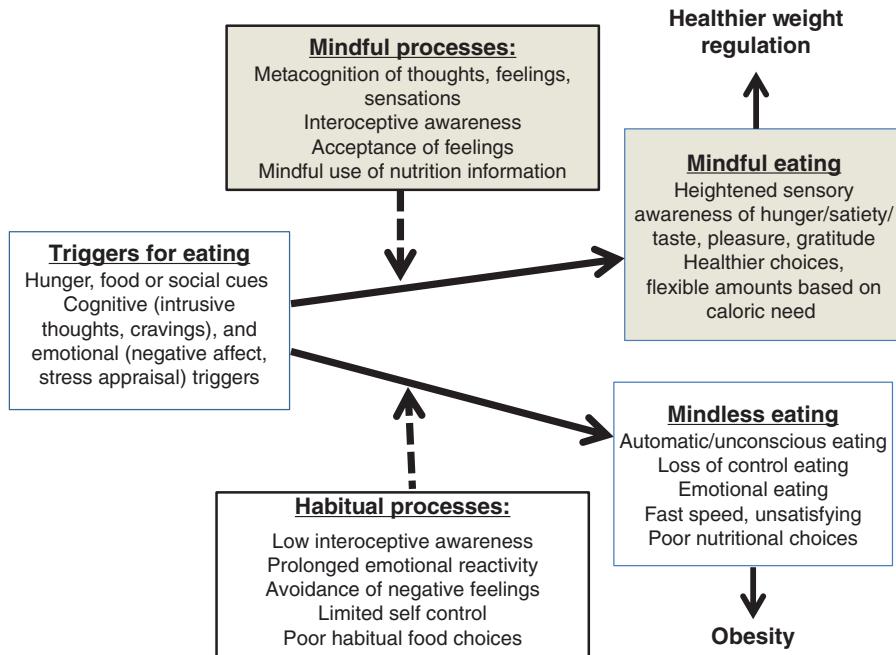


Figure 47.1 Mindful versus mindless regulation of eating and weight. This figure illustrates the dynamic processes operating in mindful versus mindless responses to triggers for eating, including variations in awareness of interoceptive cues, engagement versus avoidance of feelings, and habitual reaction versus mindful decisions regarding nutrition and quantity of food intake.

experience. There is sensory awareness throughout, pleasure from noticing the experience, and intake that is more reflective of true caloric need. Mindful eating also shapes food choices to be healthier rather than what is most easily available or satisfying to the stressed brain. The neurobiological state of mindful eating is dominated by activity in the frontal control areas of the brain, whereas more mindless eating is dominated by the limbic and reward areas of the brain.

We have given examples of how mindfulness can reengage more effective self-regulatory processes in regard to eating. The treatment of obesity or binge eating can be more effective if it includes learning the components naturally inherent in good self-regulation, as well as some formal aspects of mindfulness training. Below we describe the MB-EAT program, delineating further how it addresses these processes outlined above and reviewing related research.

Clinical Applications

Training mindful eating

Mindful eating engages many aspects of experience, including thoughts, emotions, the physical self, the social self, and general self-awareness and self-acceptance. Mindfulness can be applied to all the senses, to the process of eating, to

decision-making in choosing food and the other myriad choices—what to eat in the moment, how much to eat, when to stop—and of course, to the very experience of food itself. In the training, we share with participants that one of our goals is to help them engage their “inner gourmet,” a striking contrast to the message of most approaches to managing eating and weight.

Individuals learn to recognize that many of their eating choices are inherently “mindless,” under the power of old patterns that are no longer serving them well (the concept of “priming,” as discussed by Langer in Chapter 1) or are functionally dysregulated patterns that have slowly developed over time as eating becomes increasingly unbalanced. An example of the first is the extremely common tendency to not finish eating until the “plate is clean”; 60-year olds will tell us that they still do this because their mother told them to do so. An example of the second are binge patterns, often driven by a combination of caloric restraint (“I’m being good.”), stress, and the AVE. Both types of patterns often shift dramatically once awareness of physical hunger and satiety experiences are engaged, along with awareness of taste satisfaction. Strikingly, engaging such processes is experienced as taking little effort and as making eating generally *more* enjoyable, rather than less.

The MB-EAT program, unlike virtually all dieting approaches to weight management, also emphasizes the complexity of eating, and decisions around eating, rather than attempting to simplify these with particular dietary recommendations that are to be followed rigidly. The need for flexibility, curiosity, and “experimenting” with food choices and experiences is continually emphasized. We tell people to “play with their food,” communicating this with both a light touch and a sense of enjoyment in exploring new choices and alternatives.

MB-EAT

The MB-EAT program, as it developed, has been informed by several important lines of theoretical perspectives within psychology: the value of increasing interoceptive awareness in treating disregulation disorders (Schwartz, 1975, 1976); the internal–external model of obesity and food intake regulation (Rodin, 1978, 1981; Schachter, 1971); and the value of meditation and mindfulness-based components in interrupting stress reactivity and cultivating psycho-biological stability, growth, and wisdom (Benson, 1975; Kabat-Zinn, 1990; Kristeller, 2007). The core elements include training in mindfulness meditation; guided mindfulness practices related to eating and food, self-acceptance, and body awareness; and cultivation of healthier, mindful use of nutritional and physical activity information.

The program is offered in a group format, with the number of sessions ranging from seven (Kristeller & Hallett, 1999) to nine or 10 (Kristeller et al., 2013; Miller, Kristeller, Headings, Nagaraja, & Miser, 2012) to 16 (Daubenmier et al., 2011), depending on the addition of material related to complementary components including nutritional information, exercise, and stress management. Four types of mindfulness training exercises are used: 20-min breath/thought awareness practice; guided mindful eating practice; other guided mindfulness practices (e.g., mindful walking; body scan; “forgiveness” meditation); and “mini-meditations.” These last

may be as brief as a few breaths, or as long as 1–2 min; they are used both within sessions, particularly in the context of eating experiences, and outside of sessions, as a way to center and focus awareness, engage mindful attention, and disconnect from the “chattering mind.” Sitting meditation is framed to participants as core to the program for several reasons. First, it is presented as a way to become aware of inner experience, beginning with the breath and other feelings in the body, and then extending to thoughts and feelings. Second, the relaxation quality of the experience is acknowledged, as the breath slows down, and the “relaxation response” is engaged. Third, it is pointed out that learning to bring mindful awareness to something as simple as the breath, with a quality of curiosity and engagement, means that this quality of mindfulness will become easier to bring to almost any activity, including those that have long been habitual. Finally, the value of meditation as a wisdom tradition is reiterated, in that both insight and a sense higher or even spiritual meaning may emerge from a period of quiet sitting practice, the nature of it depending somewhat on their religious belief system.

The core elements are presented to participants as cultivating both “inner” wisdom and “outer” wisdom. Inner wisdom components largely entail heightened awareness of, and appropriate response to, physical, emotional, and cognitive aspects of food choices, eating, and self-acceptance. Outer wisdom components address how to understand and make “wiser” choices based on the personal relevance of the enormous amount of nutritional and physical activity information that is available. The concept of wisdom is very purposefully engaged as a way to communicate personal choice, flexibility, and the inherent value of suspending longstanding ways of perceiving and behaving in the world, opening oneself up to options that may shift and fluctuate in their value and appeal.

Inner wisdom: Hunger awareness Most participants readily acknowledge that they are unduly sensitive to all types of eating triggers that have little to do with physical hunger. The concepts of mindfully tuning into physical hunger, rated on a scale of 1–10 on level of intensity, and learning how to distinguish such experiences from a myriad of other triggers for eating, are core themes. However, it is also emphasized that even “balanced” normal-weight individuals eat for reasons other than physical hunger, and that the goal is to create this better “balance” for oneself. The use of self-rating scales is borrowed from psychophysics in that it is emphasized that each person’s internal “scale” is unique to their own experience, but inherently valid.

Inner wisdom: Fullness awareness Fullness is also introduced as a powerful feedback signal that is far more appropriate to use to stop eating than whether other people are still eating or food is still left on the plate. The same scale, 1–10, is used, but it is emphasized that hunger and fullness are not just at opposite ends of a single dimension, as they involve different neurological processes and feedback systems. The program uses an exercise of drinking a large bottle of water (16–20 oz.) to experience the related experience of stomach distention in the moment—and also make the point that water, which has no biological impact on hunger, will still contribute to levels of fullness. Even for individuals with binge-eating disorder, this exercise often has an immediate impact, as they connect, mindfully, with the discomfort of this experience.

Inner wisdom: Taste experience One of the most powerful aspects of the MB-EAT program is helping individuals become aware of taste, by cultivating awareness of their “inner gourmet.” Mindful eating occurs throughout the program, beginning with raisins, adapted from the Mindfulness-Based Stress Reduction program, moving to more challenging foods (chocolate, cheese, and cookies), and then toward healthier foods. Again, participants are challenged to rate the pleasure of their experience on a 10-point scale—and then to notice how quickly taste sensation decreases as “taste satiety” is engaged. Even “normal” eaters, participating in brief mindful-eating workshops, are often startled to discover the impact of mindful awareness both on increasing initial enjoyment and then on letting go of the need to eat more, as the enjoyment quickly fades as taste buds habituate to flavors. Conversely, when they become mindful, individuals are sometimes startled by realizing that their “taste satisfaction” from familiar foods is far less than they anticipated.

Inner wisdom: Food-choice experience Choosing foods is often done mindlessly. We might order the restaurant “special” when we really would prefer something else, choose the snack at a party that was easiest to reach, or pick “one of everything” at a breakfast buffet. The first practice in the MB-EAT program on choosing mindfully presents two “snack” foods: corn chips or shortbread cookies. One is salty, and one is sweet; each is familiar; and neither would be chosen because it is inherently “healthier.” We ask individuals to reflect on how they are making their choice, to fully experience eating the food, and to mindfully observe any thoughts or emotions occurring while they eat. Participants are then encouraged to take this “mindful choosing” into their daily environment. Even subtle mindful choices may make a difference. One MB-EAT member, who often ate relatively healthy frozen meals at her office for lunch, noted that she would just grab the top box out of the freezer, eat it while scanning emails, and then often feel unsatisfied—ending up going to the snack machine for something “special.” Instead, when she took a few moments to choose the meal that most “called” her that day, she found she ate it with much more pleasure, felt more satisfied, and was less likely to seek out something else afterwards. Choice is essential for well-being. Even in rodent studies, those that had choice benefitted more in their stress-responsive system. Some rats got a choice of palatable food versus chow; these rats consumed more highly palatable food and showed reductions in their subsequent stress reactivity. Those that had palatable food only did not benefit similarly (la Fleur, Houshyar, Roy, & Dallman, 2005).

This relatively simple “choice” experience is then followed in the program with several others, including a far more challenging “pot luck” meal, for which group members bring in one “healthier” dish to share and one dish that they acknowledge as less healthy but want to keep as part of their regular eating program (macaroni and cheese almost always appears). This experience engages food choices based not only on initial appeal but also on taste satisfaction (when they return for “seconds”), on choosing quantities of food to eat, and on being sensitive to implicit social pressure, as they are aware of who brought each dish.

Inner wisdom: Awareness of thoughts, emotions, and other triggers Throughout the program, beginning with mindfully eating raisins, participants are encouraged also to

be mindfully aware of other thoughts, feelings, and situations that trigger or accompany eating. This expands into considering complex chains of events, thoughts, and feelings that may terminate in a binge episode. We emphasize that what may feel like an uncontrollable cascade of events can be observed and reflected on more mindfully, and interrupted at virtually any point. Although this process is initially focused on issues associated with eating, participants often note that introducing these few moments of “mindful awareness” can help them at other times interrupt emotional reactions, such as anger, that otherwise feel overwhelming.

Inner wisdom: Body awareness and acceptance Virtually all participants in our programs, even those with lower-level weight issues, feel in a struggle in relation to their bodies. We very gently introduce body awareness, including a body-scan exercise (Loring, 2010) that first incorporates simply noticing physical experience (i.e., tension in different places) and then identifying both positive and negative self-judgment about different parts of the body. This followed by a “healing self-touch” practice, in which mindful awareness is brought first to the surface of the body, and then deeper into awareness of muscles and bone, in a positive way. One intent of this practice is to bring mindful awareness and appreciation to parts of the body that are functioning well; generally, people acknowledge that they had never considered that their bones and muscles serve them in many ways throughout the day, regardless of the weight they carry. We then continue to mindful walking, extending the sense of awareness to more substantial movement than chair yoga, encouraging a quality of mindfulness both when walking slowly and at a more normal pace.

Outer wisdom: Awareness of food choices In the MB-EAT program, one focus is to improve self-control efforts by paying attention to the content of what is eaten over the day, and to move these choices toward a level of more balanced self-regulation. We have found that most of our participants, whether individuals with binge-eating patterns or not, associate considering the caloric values of food they choose to eat with failed attempts at dieting and with self-restriction. They prefer to be “mindless” about calories than to experience the anxiety, frustration, and self-recrimination that often follows from considering calories or other nutritional guidelines. Therefore, we’ve developed a number of ways to help people engage this important information with more flexibility and self-acceptance. One core component is the “500 calorie challenge.” Instead of “counting calories,” we emphasize the importance of identifying small changes in food choices that can be made, adding up to decreases of about 500 kcal/day (or 3500 kcal/week, the average amount needed to lose one pound), while maintaining or even heightening the pleasure gained from food. Most people find that when they mindfully review what they are typically eating, it is actually easy to find ways to remove this amount of calories without missing it—for example, less mayonnaise on a sandwich; a smaller steak; one or two fewer sodas; a smaller bowl of ice cream. Doing so is thus empowering, rather than discouraging; it also communicates the value of exercising mindfulness in the moment, yet without the attitude of “self-policing” that often accompanies rigorous self-monitoring of all food intake. Other elements of this “outer wisdom” component include becoming more aware of serving sizes and making healthier nutritional choices, dependent on personal

needs, yet allowing for smaller amounts of highly preferred richer or more calorically dense foods.

Outer wisdom: Awareness of physical activity As noted above, most of our participants are very uncomfortable with their bodies, caught up in negative self-judgment and generally feeling quite insecure about taking on any type of physical activity. We have approached increasing healthy mindfulness in this area by providing everyone with pedometers, first using them simply to track the number of steps taken, and then to increase their steps gradually. This has proved very popular across a wide range of weight levels and eating issues. Initially, participants are encouraged to identify ways to increase steps simply as part of their daily patterns. For example, one very heavy woman realized that once she came home from work (at a desk job), she spent almost the entire evening sitting on a couch, even having other family members prepare dinner or snacks and bring these to her. She began changing this pattern simply by looking for opportunities within her own home to walk, very quickly multiplying the number of steps she recorded on her pedometer, along with noticing benefits in flexibility and well-being. The group is also encouraged to seek out and share other opportunities for more vigorous activity in the community, from walking clubs to senior swim programs to joining the YWCA, but with an emphasis on exploring possibilities, rather than setting up unrealistic goals that are unlikely to be sustained.

Empirical Support for MB-EAT-Based Interventions

There have been several popular books on mindful eating that have no doubt helped many people, written from a Buddhist perspective (Altman, 1999; Bays, 2009; Kabatznick, 1998) or a more secular perspective (May & Fletcher, 2012; Somov, 2008). In terms of empirically validated programs, this is a young field. To date, several randomized trials have been conducted on MB-EAT and its derivative programs, with three trials completed and three ongoing, by Kristeller and colleagues. Several other investigations, particularly focused on eating disorders, have drawn on other mindfulness platforms, including Dialectical Behavior Therapy (Safer, Robinson, & Jo, 2010) and a small study with Mindfulness-Based Cognitive Therapy (Alberts, Thewissen, & Raes, 2012).

Our initial proof-of-concept study used a single-group, extended baseline/follow-up design (Kristeller & Hallett, 1999), allowing us to evaluate individual differences more carefully if group effects were inconsistent. The participants were primarily middle-aged women who were obese with binge-eating disorder. We retained 18 of 20 participants at the end of a 1-month follow-up, with effects consistent enough to analyze as group data. Although four women still met criteria for BED (at 2 or more binges/week), the average number of binges per week dropped from over 4 to about 1.5; furthermore, the size of the remaining binges decreased markedly, consistent with the value of mindfulness awareness to empower suspension of habitual reactivity. This level of improvement was also reflected in decreases on the Binge Eating Scale (BES; Gormally, Black, Daston, & Rardin, 1982) from the “severe” range to just higher than having “little or no problem” with binge eating. Depression also decreased markedly

to subclinical levels. Perhaps most important was that improvement was significantly predicted by the amount of time participants reported using eating-related mindfulness meditation.

Our next study, which included men as well as women, was a two-site randomized clinical trial with Duke University (Kristeller & Wolever, 2011; Kristeller et al., 2013). In addition to individuals who met full criteria for BED, including loss of control and subsequent distress, we also included individuals who reported that their binging was more "planned"; this tended to be more true of men and individuals from lower SES levels. Generally, they noted that "they had given up" trying to control themselves—or that almost everyone they knew engaged in similar behavior. Note that such attitudes are similar to those of stable alcoholics, whose heavy drinking (e.g., 6–8 drinks/night) is normative for their social group, even as they recognize that this level of drinking is problematic. In fact, one man in our program noted that he had "eating buddies," rather than "drinking buddies." Otherwise, the sample was highly similar in weight and age to the pilot study. In this study, the nine-session MB-EAT program was compared to a psycho-educational/cognitive behavioral (PECB) treatment based on the Duke Diet and Fitness Center obesity treatment program, and to a wait-list control. Elements were added that placed greater emphasis on nonjudgment and cultivation of self-acceptance.

Not surprisingly, the MB-EAT and PECB groups showed similar improvements in behavior and on the BES, as both provided safe, structured contexts. However, most measures indicative of more self-regulated eating (e.g., the Hunger scale of the Three-Factor Eating Questionnaire; Stunkard & Messick, 1985) had a greater improvement in the MB-EAT group. Total meditation practice, calculated as a total index of sitting, guided, and "mini-meditations," again predicted improvement on multiple measures with more of the variance carried by time spent using "mini-meditations." However, to our concern, some individuals actually gained weight (in both conditions); some individuals appeared, based on interviews, to have allowed themselves more general "permissiveness" around food and eating, even while reducing binging. This led us to consider that the "inner gourmet" needed to be balanced by stronger development of "outer wisdom" mindfulness related to overall reduction in food intake and self-regulation skills explicitly tied to food choice. It was encouraging, however, that the mechanism of change for those who did lose weight appeared to be mindfulness.

Therefore, our next trial (Kristeller & Bolinskey, 2013) added more "outer wisdom" elements to the program, as described above, and was expanded to 10 sessions with two follow-up sessions. Another goal of this study was to expand the sample beyond individuals with binge-eating disorder, yet also to enroll a sufficient number of individuals in the trial to be able to investigate whether the effects of including more nutritional components was viable for those with BED. This was accomplished by enrolling only heavier individuals (again both men and women) whose body mass index was at least 35 (moderate or morbid obesity). In doing so, we found that about 30% had binge-eating disorder. Preliminary analyses show effects consistent with those observed in our previous research and, most encouraging, patterns that are highly parallel between those with and without BED. These results strongly suggest that, when mindfully engaged, very heavy individuals, regardless of underlying patterns of eating, responded equally well to both the "inner wisdom" and the "outer wisdom"

components of the program. Furthermore, incorporating the “outer wisdom” components contributed to a weight loss in both groups of about 7 lbs at immediate post, or approximately 1 lb per week from when they began the 500 Calorie Challenge. Notably consistent with engaging “outer wisdom” was a greater improvement than in the control group on the Cognitive Restraint scale of the Three-Factor Eating Questionnaire, an indicator of “healthy restraint,” for both groups of individuals.

The MB-EAT program has been modified to incorporate more “stress management” components, in 16 sessions, to be used with an even broader range of individuals, with lower levels of binge eating and obesity. Pilot data support the value of addressing these stress-related aspects of obesity (Daubenmier et al., 2011), and a larger trial is in progress. Other investigators (Dalen et al., 2010) have incorporated elements of MB-EAT into a 6-week program linking healthier eating with exercise for obese individuals, referred to as Mindful Eating and Living (MEAL), also finding in a nonrandomized pilot study improvement in healthy restraint, decreases in weight, and improvement on other indicators of disregulated eating. Timmerman and Brown (2012) enrolled overweight and obese women, targeting their 6-week intervention, adapted from MB-EAT, on the overeating that often occurs in restaurants, and showing improvements in weight and nutritional balance.

MB-EAT has also been modified for an overweight/obese population with noninsulin-dependent diabetes (Miller et al., 2012). In this study, MB-EAT-D was compared to a fairly intensive medical nutrition therapy-based group program (Smart Choices). Both interventions showed relatively comparable improvement on most variables assessed. It may be that when specific health goals are desired, a combination of a targeted program and the MB-EAT program would be most effective. For heavier individuals with more compulsive overeating patterns, the MB-EAT-D program might be provided first, possibly with the reverse order for those more comfortable with highly structured guidelines, such as those recommended within Smart Choices. Consistent with this, we have had individuals participate in the MB-EAT program and then return to more structured weight-loss approaches, such as Weight Watchers, with considerably more success once they had developed the capacity to be more mindful, less judgmental, and more flexible in making their own choices.

Conclusions

Given our brain’s response to an increasingly palatable food environment, coupled with modern multitasking and chronic stress, it is not surprising that our society is in the midst of an escalating epidemic of obesity and compulsive overeating. Applying mindfulness to food intake and food choice therefore seems to be a tremendously valuable application of the psychological capacity for cultivating balanced awareness, improved attention skills, and a means to disengage from well-entrenched cognitive, emotional, and behavioral habits and patterns. Such applications might occur both in the societal context and as part of clinical interventions for people seeking treatment for obesity and compulsive overeating.

Here we have reviewed some key components of the basic science of food intake, and susceptibility to automatic or mindless overeating for various reasons. At the core of

overeating are overlearned patterns and poor self-regulatory skills. Clinical trials so far support that shifts from mindless habitual eating toward mindful strategies promotes more regulated eating, and either weight maintenance or weight loss within a wide range of individuals. Although further research is certainly needed, particularly linking clinical application to changes in underlying mechanisms, mindful eating is a natural state that can be trained and enhanced, that can be incorporated into private and public health prevention and treatment programs.

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Teaching Clients Mindful Eating Skills

Susan Albers

Mindfulness is a concept that can be helpful in so many aspects of our lives, including the way we eat. It's no surprise that the rush of daily life leaves us feeling frantic and engaging in mindless activities including mindless eating. We rush from activity to activity, rarely giving the proper time or attention needed to feed ourselves in a calm and thoughtful way, thus creating the potential for eating problems.

According to the Center for Disease Control, more than a third of U.S. adults are overweight (37% are obese). Given the increasing prevalence, there has become greater demand on health care to help patients manage their weight. In 2008, the medical costs linked with obesity had been estimated at \$147 billion. Since then, the anticipated impact on the economy and the devastating effects on patient health have been of great concern. There is likely also to be an increase in obesity-related conditions including heart disease, stroke, type 2 diabetes, and various types of cancer. In addition to problems related to overeating, there is a strong need for new treatments for eating disorders, such as anorexia, bulimia, and binge-eating disorder, which are also prevalent and harmful to one's health and self-esteem (Proulx, 2008; Rawal, Enayati, Williams & Park, 2009). Statistics cited by the National Eating Disorders Association indicate that in the United States, as many as 10 million females and 1 million males have an eating disorder such as anorexia or bulimia. An even greater number are struggling with binge-eating disorder.

Dieting to lose weight and cognitive behavioral therapy for eating disorders have been shown to have limited and varied success (Hepworth, 2011; Wandenberghe, Sanz-Valero, & Wandenberghe, 2011). Thus, we are in need of new therapies that provide a sustainable way of living and decreases in weight-related health issues. Mindful eating may be part of the answer.

History of Mindful Eating

Mindfulness has become popular in psychology and health care over the past 30 years. Jon Kabat-Zinn, the founding director of the Stress Reduction Clinic and the Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts, and Ellen Langer, professor at Harvard, are credited with bringing widespread interest to mindfulness research.

Mindfulness has been found to be an effective adjunct treatment for helping patients cope with a variety of physical conditions such as cancer, chronic pain, chronic fatigue, and heart problems (Baer, 2003). Being mindful increases immunity and assists the brain in managing negative emotions (Davidson et al., 2003).

Given the success of mindfulness interventions in helping people cope with medical problems, psychologists have also begun utilizing mindfulness as a treatment. This includes a variety of mental-health issues such as depression, anxiety, addiction, and eating disorders (Hepworth, 2011). Mindfulness has been woven into a variety of psychological treatments such as Mindfulness-Based Stress Reduction (MBSR), Acceptance and Commitment Therapy (ACT), Dialectical Behavioral Therapy (DBT), and Mindfulness Based Cognitive Therapy (MBCT).

During the past 20 years, research related to mindful eating has gained interest (Wanden-Berghe et al., 2011). Studies have found that mindful eating can help reduce overeating and binge eating (Baer, Fischer & Huss, 2005; Kristeller & Hallett, 1999), lose weight and reduce body mass index (BMI; Framson et al., 2009; Tapper et al., 2009), cope with chronic eating problems such as anorexia and reduce anxious thoughts about food and your body (Proulx, 2008; Rawal et al., 2009) and bulimia (Safer, Telch, & Agras, 2001), improve the symptoms of type 2 diabetes (Rosenzweig et al., 2007), and make healthy choices in restaurants (Timmerman & Brown, 2012). Thus, the research indicates that it is effective in decreasing many types of problematic eating habits.

As mindful-eating research has become increasingly popular, more clinical studies are anticipated to emerge. For example, the journal, *Eating Disorders: The Journal of Treatment and Prevention*, ran a special edition in January of 2011 dedicated entirely to the current research on mindful eating.

Psychologist, Jean Kristeller, at Indiana State University and colleagues at Duke University have taken a substantial interest and lead in mindfulness research. They conducted an NIH-funded study on mindful-eating techniques for treating binge eating (Kristeller & Wolever, 2011). The NIH is also funding additional research by Kristeller and Ruth Wolever of Duke on the effectiveness of mindfulness-based approaches for weight loss and maintenance. New research on mindful eating continues to be on the horizon.

What Is Mindful Eating?

Mindful eating is a nondiet approach. The focus is not on restriction. Instead, it orients clients to tune into their body. It can be defined as learning to listen to and honor

the internal and external sensations connected to eating. Also, mindful eating teaches clients general coping skills that can reduce other unhealthy behaviors such as smoking, substance use, or lack of exercise. The mindful eating approach is careful not to trigger disordered eating, which can happen via traditional dieting. For this reason, clients are often open and receptive to the novel strategy, as they may have experienced repeated dieting struggles in the past.

Mindful eating is helpful to overeaters because it slows eating down, makes one more aware of portion sizes, and helps one step out of negative, automatic food habits like overeating while watching a favorite TV show. This makes intuitive sense. But, how does it also help people who have other forms of problematic eating habits? Mindful eating can generally help in three ways:

- 1 Mindful eating plugs the client back into their body's cues so that they know when to stop and start eating. This can be such a difficult task if one's sense of hunger and fullness has been skewed or warped by large restaurant portions, fad diets, or comfort eating.
- 2 Being mindful can bring about better management of your emotions. Clients often restrict or overeat as a way to cope with negative feelings (Baer, 2003). Eating and not eating distract a person from their worries. When mindful, a client learns to tolerate their emotions, as uncomfortable as they may be, without pushing them away or stuffing them down with food.
- 3 Mindfulness changes the way clients think. Rather than reacting to food-related thoughts that urge one to overeat, overly restrict their diet or emotionally eat, etc., the client responds mindfully to them. A person can hear these thoughts without obeying them and shift out of autopilot.

Eat, Drink & Be Mindful Program

Dr. Albers' Mindful Eating program, Eat, Drink & Be Mindful, is an intricate blend of mindfulness as defined by three mindfulness researchers, Ellen Langer, Jon Kabat-Zinn, and Marsha Linehan. This mindful eating approach contains elements of Eastern mindfulness, cognitive factors, and DBT.

The crux of the approach rests on affect regulation. To eat healthy, an individual needs to be able to regulate their emotions around food (Gilboa-Schechtman, Avnon, Zubery, & Jeczmien (2006). People who engage in disordered eating and eating disorders experience a great deal of affect dysregulation concerning food—fear of eating, fear of weight gain, worry over what one is going to eat, anxiety over food choices, etc. (Rawal et al., 2009). A client can use mindfulness to help regulate their emotional response to eating-related triggers.

This mindful eating approach is different from other programs because it does not focus on weight loss. Instead, it is about regulating the feelings that drive eating-related behaviors to self-soothe. When one is eating in a mindful way, one may lose or gain weight depending on which aspect of one's eating behavior is askew. Thus, for anorexic patients who may need to gain weight, mindful eating can be a goal. It's

less about weight changes and more about gaining healthy skills and reducing harmful behavior.

Ellen Langer's Mindfulness

Several aspects of Langer's definition of mindfulness help inform the current program (Langer, 1989). In contrast to Kabat-Zinn, who draws greatly on the Eastern notion of mindfulness Langer includes a Western, scientific perspective. Parts of Langer's theory focus on the cognitive aspects of mindfulness. In other words, it can be helpful to educate patients on the types of thinking that contribute to mindless eating. *Mindless thinking* contributes to *mindless eating*. Three types of mindless thinking are categorical, zoning out, and acting on autopilot.

Categorical thinking

The positive aspect of thinking in categorical or stereotypic ways is that it helps to make food choices easier and quicker. According to Dr. Brian Wansink, director of the Cornell Food and Brand lab, people make over 200 decisions a day concerning what to eat and what not eat (Wansink & Sobal, 2007). This is a lot of decisions, and it can be exhausting for those attempting to change their eating habits. Thus, therapists can help their clients to (1) notice their tendency to use categorical thinking around food and (2) assist clients in developing strategies to make their decisions easier so they don't lapse into stereotypic thinking while decision-making. An example of categorical thinking would be to label a food as "fattening" without really gathering information. One might stereotype an avocado as a "bad" food despite it containing healthy fats. The decision not to eat it is based on a stereotype rather than the facts.

People often use snap judgments. They decide instantly, often without even tasting it, whether they like a particular food or not. An exercise to address categorical thinking may include bringing these "snap judgments" into one's consciousness. For example, a therapist may display various foods like an apple and/or chocolate and ask the client what is the first thing that pops into their mind when they see this food. For example, anecdotally, people who are dieting often stereotype "nuts" as "bad" and "fattening." Nondieters say "healthy" or "filling." This exercise helps clients recognize stereotyping and categorical thinking.

"Zoning out" or "not thinking or paying attention"

Zoning out is being in a mental state in which one is not cognitively engaged in a task with all of one's senses. In this state, one does not shift perspectives or weigh up all the options. The downside of zoning out is that people need to be fully present to make sound decisions, particularly when choosing what to eat and when to stop consuming food. Zoning out numbs the senses. Clients refer to eating mindlessly as being in a "food coma." People often don't experience or enjoy food when they aren't tuned in. This lack of pleasure can lead to overeating or engaging in old habits (e.g.,

binge-purge cycles). The benefit of “zoning out” is that it is less taxing on one’s mental energy. It shifts a person into a shutdown mode to avoid overstimulation. The downside is getting stuck in unhealthy patterns and habits.

Performing routine tasks automatically, on autopilot

Eating is a behavior we do at least three times a day. As a result, it can become very routine, a behavior that people shift into automatically. Clients can often identify with the notion of mindless driving. For example, you may get in the car and drive your normal route to work instead of going to school. You can eat and not be really engaged in the process similar to the way you can drive and not be mentally present. We develop a lot of eating routines such as eating the same foods day after day, eating with the same people and sitting in the same seat. Clients need to be able to recognize when they are on acting autopilot and decide when they need to be more engaged. The upside of routine and why we do it is that automatic actions can make tasks faster and use less energy.

Jon Kabat-Zinn Mindfulness

Dr. Kabat-Zinn defines mindfulness as paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally (Kabat-Zinn, 1990). Among many things, his work includes a “body scan.” The body scan is a closely guided journey for tuning into your body. When you bring moment-to-moment awareness to various regions of your body, it can help you become intimately acquainted with how your body and mind work and respond to food. In the body scan, attention is focused on one part of the body at a time. With regular practice, a body scan can help clients enter deep states of relaxation and become more accepting of the body as it is. This is an essential skill for someone struggling with their weight. Also, learning to work effectively with body sensations and tolerating feelings of discomfort and pain can cultivate the skills needed to relearn hunger and fullness cues that have been altered by large portion sizes and yo-yo dieting.

Marsha Linehan Mindfulness

Dr. Linehan’s program, DBT, contains four components: mindfulness skills, emotional regulation, distress tolerance, and interpersonal effectiveness (Linehan, 1993). This approach was originally created for Borderline Personality Disorder. However, many therapists have adapted it to be used with eating-related problems (Wisniewski & Kelly, 2003).

Linehan discusses “urge surfing.” According to her workbook, urge surfing is tolerating the feelings—positive or negative feelings—until they pass by like a surfer riding a wave (Linehan, 1993). The concept can be adapted to dealing with food-related “urges” such as the urge to eat, binge, restrict, purge, etc. You can have the urge without acting on it.

Benefits of a Mindful Eating Approach

Clients may inquire about the benefits of utilizing a mindful eating approach versus dieting or cognitive behavioral therapy, which has been reputed to be an effective form of therapy for eating issues. There are several benefits:

- 1 Many clients are reluctant to address their weight via dieting due to repeated lack of success.
- 2 It focuses on promoting the healthy and emotional benefits of eating well.
- 3 It can be utilized with many different eating problems.
- 4 It is less about control and more about taking charge of one's eating.
- 5 It can be tailored to any eating style or special needs (mindful eating for gluten-free and mindful eating for vegetarians, for example).
- 6 It has been shown to be effective in research.
- 7 Unlike cognitive behavioral therapy, which asks you to change your thoughts about food, this approach teaches you to tolerate your feelings about food, body, and weight.

Methods of Program Skills

The Mindful Eating program includes the skills of awareness, observation, being in the moment, nonjudgment, being mindful of the environment, and compassion. In other words, a person orients to the internal (thoughts, feelings, taste, hunger) and external (advertising, fast food, portion sizes, etc). The techniques can be taught to individual clients, in psychoeducational groups or as an adjunct to treatment in the form of self-help.

The overarching aim is for clients to break out of automatic cognitive and behavioral methods of responding to the urge to eat. Thus, a client may have a thought to "eat." Mindfulness is the gap between the thought and the response. One can fill in that gap with many new thoughts or healthier responses. The behaviors you use to fill in the gap are to tame and manage your emotions.

Mindful Eating Skills

The Mindful Eating program, Eat, Drink & Be Mindful, was developed by Dr. Susan Albers (Albers, 2008). The 10-week group consisted of 12–15 clients. Each group covered a specific topic, and clients were assigned a weekly homework exercise. Patient feedback has been positive, and the program is currently undergoing outcome research on a paper that Dr. Albers is coauthoring for a brief 8-week program (in progress).

The outline below is the general structure of the mindful eating group. However, the program can also be taught to clients in individual therapy.

- week 1: mindfulness, group goals, assessment, mindfulness exercise;
- week 2: mindful-eating description, definition, and mindful eating exercise;

- week 3: awareness;
- week 4: being in the moment;
- week 5: observation;
- week 6: mindful of the environment;
- week 7: nonjudgment;
- week 8: letting go;
- week 9: compassion;
- week 10: review, relapse prevention.

Week 1: Mindfulness

The first skill taught to clients is awareness. This is the foundation of mindful eating. It is diligently and intentionally placing one's attention in an open and nonjudgmental way. One can begin the process of mindful eating by teaching clients to be more aware in general. Clients are taught the concept of "autopilot behavior" and "autopilot thinking," as defined by Langer (1989). Clients are asked to identify habits and routines that they do in this disengaged, automatic mode. This may include eating and other areas of their life (e.g., reading mindlessly).

Mindfulness exercise At the beginning of the group or individual counseling, mindfulness is described and defined. Clients are encouraged to practice mindfulness between week 1 and week 2. In other words, they are taught how to be mentally present in other aspects of their lives. They can try to be more present when talking to their significant other, friend, or children. Clients are encouraged to try an experiment in which they leave their cell phone at home. This helps people to be more engaged instead of being distracted or working on their phone. Clients can also practice doing one task at a time instead of multitasking.

Week 2: Mindful eating

In week 2, mindful eating is defined. The therapist teaches the clients how to do a classic mindful eating exercise. This is a widely utilized practice in meditation and the cornerstone of the mindful eating practice (Hepworth, 2011; Kabat-Zinn, 1990).

Mindful eating is the polar opposite of binge eating. A cookie, piece of chocolate, slice of orange or apple, raisin, or nut is often utilized. Clients are asked to eat it slowly, noticing the taste, texture, and smell of the food item. They are also encouraged to notice their internal sensations (smell, touch, taste, feel) and then their emotions, thoughts, and reactions. Here is an example script:

Hold a sandwich cookie in your hand. Look at it closely. Notice the shape of the cookie and the color. Ask yourself if the cookie reminds you of anything—maybe the shape reminds you of a wheel or a plate. Notice whether a thought about your childhood (maybe you ate this kind of sandwich cookie in school) or an emotion (maybe it makes you feel guilty for eating a cookie) and a reaction (irritation, perhaps you don't like this kind of cookie) or a thought (this is just a cookie) or a judgment (this exercise is dumb) or a

desire (I really want to gobble up this cookie). Or a plan (I want to pull this cookie apart to eat one side at a time).

Next, bring the cookie up to your nose. Smell it. Take a deep whiff. How does the cookie smell? Is the aroma pleasant? Unpleasant? Does a thought or judgment come to mind? Maybe it smells processed to you or like chemicals. Perhaps it smells sweet. If so, how intense is the aroma—on a scale from 1 to 10.

Does the aroma bring anything to mind? Are you greatly triggered by the smell of food? Have you ever smelled a cookie in this way or fashion?

Next bring it up to your lips. Take a small bite. Listen to the sound (the crunch). How does the very first bite taste to you? Do you have the urge to eat the entire cookie in one bite or do you want to savor it slowly? How would you normally eat a cookie like this if you were at home on the couch? What about at a birthday party or at work?

As you take a bite, notice how the texture of the cookie changes. Does it crumble? Listen to the sound of the cookie break as you bite down on it again. Notice the texture change as you chew the cookie and your saliva breaks it down.

Does anything pop into your mind as you are eating the cookie? Do you feel guilt? Disappointment? Does your mind tell you anything about the experience? Does your mind want to stay with the experience? Or, is it jumping onto something else?

Stay with this bite before thinking about the possible next bite.

At the end of this exercise, it is helpful to process the client's reactions immediately. For example, ask questions such as, "What was your reaction to eating a cookie in this manner? Did you notice any particularly strong emotions?" Processing one's reactions gives great insight into the client's urges, desires, and automatic relationship with food.

Week 3: Awareness

When you first become aware of something, there is a fleeting moment of pure awareness. It's the time just before you identify what it is and your mind starts thinking and analyzing it. There are many ways in which clients disengage and are not aware while they eat. A person can eat an entire plate of food and not taste one bite. In the beginning of counseling, the overall goal is to help clients to be very present, from moment to moment whenever they eat a meal or a snack, without judgment.

The four mindful points exercise This is an awareness exercise. It includes keeping a journal of eating habits. In this journal, instead of tracking calories and food, one checks in with four aspects of eating, each dimension of mindfulness. When you eat, ask yourself these questions:

- 1 Mind: Am I tasting each bite, or am I zoned out when I eat? (You can download the awareness checklist [here](#).)
- 2 Body: How does my body feel before and after I eat? Low energy? Stomach rumbling? Full? Empty?

- 3 Feeling: What do I feel about this food? Guilty? Pleasure? Joy? Disappointment? Regret?
- 4 Thoughts: What thoughts does this food bring to mind? Memories? Beliefs? Myths? Fears?

Week 4: Being in the moment

Being in the moment is difficult in our fast-paced world. Our mind is often thinking, planning, and ruminating about the past or the future. Clients are taught to focus only on this moment, which is under their direct control. They can't change what they already ate or anticipate what the future will hold, but they can choose to eat or not eat in this moment.

An example of a moment-to-moment eating exercise is a Mindful Meal. When doing a Mindful Meal exercise, the patient is instructed to put away all distractions. This includes turning off the TV, radio, Internet, and phone. Put aside work. When you focus on what you are doing, you enjoy the experience of eating more and tend to make more conscious decisions about when to stop and start eating. When you eat, just eat. This is the motto of mindful eating.

Week 5: Observing

Observing is noticing and attending to what you are experiencing internally and externally. It's observing one's self as if looking at a movie screen rather than from the actor's perspective. Clients are taught to closely observe their emotional reaction to food, thoughts, and experience of taste.

Body-observation exercise Yoga has been shown to help people to become more mindful eaters (Framson et al., 2009). The theory is that yoga increases body awareness. When you are more in tune with your body, you increase your sensitivity to hunger and satiety cues. Thus, clients may be taught some simple yoga poses to practice at home or with the support group such as the warrior pose or the lotus position. Ask clients to process how they feel in their body as they are in these poses.

Week 6: Being mindful of the environment

In addition to being mindful of what is going on inside one's body, clients are taught also to be attentive to what is happening outside of themselves in the food environment.

Traditionally, eating outside the home increases calorie consumption, for example. A study by Timmerman and Brown (2012) found that mindful eating skills helped women who frequently ate out at restaurants reduce their intake. After learning mindful-eating skills, the subjects ate approximately 300 calories fewer each day.

In this section, the therapist can discuss with the group or individual clients facts about fast food, tricks of advertising, restaurant portion sizes, etc. Dr. Brian Wansink's (2006) book, *Mindless Eating*, provides solid information on subtle and obvious ways in which the environment encourages mindless eating.

Week 7: Nonjudgment

Nonjudgment is often a new concept for patients, as they are often familiar with using shame, guilt, and critical self-statements to try to control their eating. Noticing and letting these thoughts go without action is a key part of the training. An example of a nonjudgment exercise is interacting with food without judgments or stereotypes. People tend to label food as “good” or “bad.” When labeling food in this way, clients tend to feel like a “good” or “bad” person for eating it. Instead, food is just “what it is.” Food is neither positive nor negative, and nor are one’s actions. Behaviors are “healthy” or “unhealthy,” and “skillful” or “unskillful.”

Week 8: Letting go

Holding on tightly to feelings causes suffering (Kabat-Zinn, 1990). In mindful eating, one is taught to let the feeling come and go without clinging to thoughts and emotions.

Mindfulness of feelings exercise In this exercise, clients let feelings enter into their consciousness without pushing them away or judging the thoughts. For example, if “feeling fat” or “guilt” pops into one’s mind, the client is taught to notice this feeling. Then, imagine that the thought is written on a cloud and is floating in front of you. You don’t try to grab the cloud or stop it. Instead, you allow it to just drift away. This is how we can think about our feelings and thoughts. By observing feelings from a greater distance, we can detach from them.

Week 9: Compassion

Compassion for oneself is helpful in becoming a more mindful eater. People who experience weight problems are often very critical of themselves (Rawal et al., 2009). This is often described as the “inner critic.” In popular culture, a diet-centric model implies that being hard on ourselves encourages change. However, criticalness can lead to avoidance. In contrast, compassion can help you to be honest with yourself about behaviors you wish to change.

Here are two examples of compassion exercises that practitioners can teach their clients. One exercise is *mindful-eating affirmations*. This includes repeating sayings like “Healthy eating makes me strong” and “I will focus on health not thinness.” Repeating these statements to oneself orients one’s attention to positive thoughts rather than obsessive negative thoughts. The second exercise is *loving-kindness meditation*. Loving-kindness meditation has been shown to increase well-being, health, and positive emotions (Fredrickson, Cohn, Coffey, Pek & Finkel, 2008). This is the traditional way to do the exercise. One focuses on progressively cultivating loving-kindness towards:

- 1 a good friend;
- 2 a “neutral” person;
- 3 a difficult person;

- 4 all four of the above equally;
- 5 and then gradually the entire universe.

For example. One may say:

- May my good friend be healthy and happy.
- May my good friend eat mindfully.
- May my good friend be at peace with her body.

This is repeated often to develop a strong inner dialogue of compassion and to reduce weight, food, and body competition with others.

Week 10: Relapse prevention

The final week of the therapy or support group focuses on reviewing the skills learned in the program. The group process what they have learned, how to continue with mindful eating, and ways in which they might be vulnerable to mindless eating in the future.

Teaching Clients in Various Modalities

Individual clients

Mindful-eating skills have been used extensively with individual patients. For therapists who are trained and well versed in mindfulness, these are psychoeducational tools that can be used with their clients. For some patients, it is strictly teaching clients the mindful techniques in brief counseling, utilizing handouts, worksheets, and homework exercise (for approximately 3–6 weeks). For others, the mindful-eating skills are an adjunct to their overall counseling. When people are struggling with their eating, they are often also having difficulty with depression, anxiety, bulimia, or other mental-health issues. The therapist can either work through the program systematically with the client or weave in the elements as relevant to the discussion. For example, if the client is discussing self-criticism, the therapist could teach the skill of nonjudgment and compassion.

Groups

Mindful-eating skills can be taught in psychoeducational groups. Some use an 11- or 12-week format (Hepworth, 2011). Others, as in the Eat, Drink & Be Mindful workbook, use a 10-week structure (Albers, 2003). Recent studies have also utilized a workshop format in which participants are taught the skills in 6 hr (Tapper et al., 2009).

Intensive treatment

Across the United States, there are numerous outpatient therapy groups that have incorporated mindful eating into their inpatient eating-disorder treatment. They have

specifically utilized this model because it is a nondiet approach. One can find mindful-eating modules at centers such as the Cleveland Center for Eating Disorders, Mirasol, and the Oliver-Pyatt Centers. The approach is widely utilized in the UK and Australia as well.

Self-help options

There are several mindful-eating books available to help educate your client on the skills of mindful eating, and they can be a helpful supplementation to therapy. For example, Dr. Susan Albers has five books including *Eating Mindfully*, *Mindful Eating 101*, *50 Ways to Soothe Yourself Without Food*, *Eat, Drink & Be Mindful Workbook*, and *But I Deserve This Chocolate* (Albers, 2003, 2005, 2008, 2009, 2011). Dr. Jan Chozen Bays wrote a book entitled *Mindful Eating* (Bays, 2009). Jean Fain published a text entitled *The Compassion Diet* (Fain, 2010). Megrette Fletcher and Dr. Michelle May wrote *Eat What You Love, Love What You Eat for Diabetes* (Fletcher & May, 2012). Another resource is *Savor: Mindful Eating, Mindful Life* by Thich Nhat Hanh and Lilian Cheung (Hanh & Cheung, 2011). For clients with anorexia, *The Anorexia Workbook* (Heffner & Eifert, 2004) is helpful.

The Future of Mindful Eating

Mindful eating has been gaining attention in the popular media and newspapers. The growing public interest and increase in research are anticipated to ignite a demand for more resources and therapy options. A mindful-eating approach could be tailored for the specific needs of a variety of populations, particularly those most vulnerable to mindless eating. It would also be helpful to teach young children these skills to prevent life-long struggles with eating, obesity, and weight.

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De-Stressing Stress

*The Power of Mindsets and the Art of
Stressing Mindfully*

Alia Crum and Christopher Lyddy

“Stress: A Growing Plague”; “Stress: The 21st Century Epidemic”; “Stress: America’s Number One Health Problem”: These are just a few of the headlines from newspapers and media outlets worldwide proclaiming the negative nature and effects of stress. Such claims are well intended: they hope that by pathologizing stress they will motivate people to safeguard themselves against the potentially deleterious effects. However, these warnings ignore a broad and growing body of research showing that stress can positively affect health, well-being, and performance. One-sided claims that trumpet the debilitating side effects of stress are ultimately mindless: couched in absolute language without regard to context or nuance (Langer, 1989). Furthermore, the claims have seemed to evoke a predominant “stress is debilitating” mindset in today’s society, one that may in fact make these debilitating outcomes persist. In other words, this mindless emphasis on the destructiveness of stress—this stress about stress—may paradoxically be making these negative outcomes more likely.

This chapter strives to paint a more balanced view of stress, and to propose how a mindful approach may help transform stress from a toxin into a resource. First, we show that, aside from the wealth of literature on stress’s deleterious effects, there is a growing body of literature demonstrating that stress can have enhancing effects on health, performance, and well-being. Further, we argue that the degree to which stress produces beneficial or harmful effects depends largely on the mindset through which stress is viewed (i.e., whether the experience of stress is expected to have debilitating or enhancing effects). Finally, we discuss how mindfulness—including the Western (Langerian) and Eastern-derived perspectives—can help to access and alter our mindsets deliberately and to flexibly utilize stress as a resource for growth and well-being. Mindfulness around the issues, research, and realities of stress can free us from limiting mindsets and allow us to capitalize on potentially more powerful mindsets as we face a world full of potential stressors.

The Paradox of Stress

When the body encounters stress—defined as the experience or anticipation of adversity in our goal-related efforts—a physiological stress response is triggered. The physiological stress response consists of an activation of the sympathetic nervous system, a parasympathetic withdrawal, and increased activity of the hypothalamic–pituitary–adrenal axis. Together, these systemic changes increase physiological arousal and narrow our attention, focusing our physical and cognitive resources to deal with the task at hand.

This stress response can be debilitating. Over time, this “fight or flight” response can have a negative impact on health, performance, and well-being. For example, stress has been linked to the six leading causes of death (heart disease, accidents, cancer, liver disease, lung ailments, suicide; e.g., Sapolsky, 1996; Schneiderman, Ironson, & Siegel, 2005); absenteeism from work, increased medical expenses, and loss of productivity (e.g., Atkinson, 2004; Schneiderman et al., 2005); cognitive impairment, depression, and other mental illness (e.g., Hammen, 2005; McEwen & Seeman, 1999; Schwabe & Wolf, 2010; Wang, 2005); and aggression and relational conflict (e.g., Bodenmann, Meuwly, Bradbury, Gmelch, & Ledermann, 2010).

Although these negative consequences of the body’s fight or flight response can occur, the expectation that they will occur consistently and inevitably is a mindless assumption, without regard for context, nuance, or alternative possibilities.

In fact, the body’s stress response was designed to *improve* physiological and mental functioning to meet the imminent demands of survival (Sapolsky, 1996). Lazarus notes that stress is an inevitable aspect of life that plays a key role in development of the strengths that individuals need to survive and to flourish. This occurrence is referred to in the literature as *eustress*: “good” stress that yields a benefit (Alpert & Haber, 1960; Lazarus, 1974; Le Fevre, Matheny & Kolt, 2003; Selye, 1975; Yerkes & Dodson, 1908). Below, we enumerate some of the research that exists in support of the proposition that the experience of stress can be advantageous, in contradiction to the mindless assumption that stress *must* have deleterious effects.

In the domain of performance and productivity, stress can lead to proactivity, increased focus, cognitive aptitude, and boosted memory (Sapolsky, 1996). The stress response pumps hormones like adrenaline, cortisol, and dopamine throughout the body, fueling the brain and body with blood and oxygen (Cahill, Gorski, & Le, 2003; Epel, McEwen & Ickovics, 1998; Park & Helgeson, 2006). This response propels us into a state of increased energy, heightened alertness, and narrowed focus, which can help meet the demands of any stressor. The narrowed attention and increased arousal facilitated by the stress response recruit resources that serve to increase the speed with which the brain processes information (Hancock & Weaver, 2005), and the hormones that are released during the stress response actually boost performance on cognitive tasks and memory (Cahill et al., 2003). In other words, the hormones released while we are stressed sharpen our attention and focus, which therefore makes our memory better. Moreover, the stress response can provide a boost in motivation and initiative-taking to acquire the necessary skills and self-efficacy needed to meet pressing demands (Fay & Sonnentag, 2002) and proactively problem-solve by

anticipating and planning for all possible situations and outcomes (e.g., Norem & Cantor, 1986).

In the domain of health and vitality, the release of stress hormones can actually positively influence the underlying biological processes implicated in physical recovery and immunity, an effect researchers call *physiological thriving*. It is often assumed that this short-term stress response has debilitating effects on health and vitality because it brings the body out of balance. Although several accounts posit that this is often true (e.g., Goodkin & Visser, 2000; Sapolsky, 1996; Schneiderman et al., 2005), this finding is not universal, and in fact the exact opposite response can occur. Specifically, the experience of stress elicits a series of anabolic hormones that actually rebuild cells, synthesize proteins, and enhance immunity, leaving the body stronger and healthier than it was prior to the stressful experience (e.g., Dienstbier, 1989; Epel et al., 1998). Vaccinations (in which the body is stressed to the effect of boosted immunity) and exercise (in which the muscles are stressed and broken down only to be rebuilt stronger) are good examples of the health-enhancing effects of stress.

In the domain of well-being, researchers have documented a phenomenon referred to as *stress-related growth*, by which stressful experiences fundamentally change individuals for the better: they learn and grow not in spite of the stress but because of it. The experience of stress can enhance the development of mental toughness, heightened awareness, new perspectives, sense of mastery, strengthened priorities, deeper relationships, greater appreciation for life, and an increased sense of meaningfulness (e.g., Park & Helgeson, 2006; Tedeschi & Calhoun, 2004). Some experts suggest that true transformative change cannot occur without some form of stress or crisis (e.g., Holahan, Moos, & Schaefer, 1996; Mahoney & Marquis, 2002; Park, Cohen, & Murch, 1996). Experiencing greater joy in life after serious illness, increasing one's appreciation for life after being on the battlefield, and opening up to a heightened sense of self-efficacy after a difficult period at work or in one's relationship are some of the many examples of this phenomenon.

In summary, stress has been documented as having both debilitating and enhancing outcomes. The intention here is not to make the case that stress is fundamentally enhancing or to try to refute the literature that stress does indeed have debilitating effects. Rather, the intention is to point out that the effects of stress are not predetermined but rather vary based on a complex suite of factors.

Mindsets and Stress: A Review of the Research

To function in the midst of complexity, we often use simplifying frameworks to select, organize, and interpret information. *Mindsets* are evaluative viewpoints or mental frames that focus attention and organize information in a manner allowing for simplified and automatic functioning in the presence of contradictory or uncertain information. For example, although the trajectory of aging is different and complex depending on individual and situational circumstances, the mindset that aging is a degenerative process will selectively inform the schema of the experience and effects of aging. Mindsets may originally form through conscious experience (Kolb, 1984), but become entrenched through automatic, unconscious programs that powerfully shape perception and behavior (Bargh & Chartrand, 1999).

In the case of stress, we employ mindsets to resolve complexity and uncertainty surrounding its potential effects. It is difficult for our minds to comprehend that stress is both beneficial and deleterious, so we mindlessly fixate upon one mindset or another. In large part due to constant and consistent negative media attention and coverage, as well as personal experience in having trouble dealing with stress, the predominant mindset people hold is that stress has debilitating consequences on various stress-related outcomes such as performance and productivity, health and well-being, and learning and growth (Crum, Achor, Rothstein, & Salovey, 2013). This “stress-is-debilitating” mindset contrasts with a “stress-is-enhancing” mindset, in which stress is seen as a valuable resource in achieving health, performance, and well-being.

Of course, neither of these mindsets is absolute: the effects of stress can be debilitating, or they can be enhancing, and research exists to support both of these assertions. However, the mindset that we hold with respect to stress can alter and influence the effects of stress, thereby making the expected effects more likely. In other words, stress mindset becomes self-fulfilling prophecy. Research on over 400 employees in a large financial institution demonstrated that one’s mindset about stress is related to perceived health and life satisfaction over and above measures of amount of stress and ability to cope with stress (Crum et al., 2013). Regardless of the amount of stress experienced or coping strategy, individuals who believed more strongly that stress had debilitating effects were more likely to report lower levels of health and life satisfaction than those holding a more “stress-is-enhancing” mindset. Among this population, simply expecting that the experience of stress would enhance one’s health, performance, and well-being helped individuals realize these outcomes.

In another study, university students, acutely stressed by a surprise public-speaking assignment that was to be evaluated by peers and professionals, demonstrated that stress mindset can be related to different physiological and behavioral indices (Crum et al., 2013). Specifically, those students who held a “stress-is-debilitating” mindset were more likely to have deregulated physiological arousal in response to the acute stressor, marked by excessively high or excessively low cortisol levels. Conversely, those who held the “stress-is-enhancing” mindset tended to produce moderate cortisol reactivity to the stress, a response that research suggests is more adaptive in determining health and performance outcomes under stress (e.g., Kunz-Ebrecht, Mohamed-Ali, Feldman, Kirschbaum, & Steptoe, 2003). Furthermore, those with a “stress-is-debilitating” mindset tended to shy away from, and decline the opportunity to receive, feedback from their peers and professionals. Individuals who held a “stress-is-enhancing” mindset were more open to receiving the feedback of their peers and professionals. These studies together suggest that the mindset we adopt regarding stress may influence the manner in which we physiologically experience and behaviorally approach stress, effects that, in turn, are more likely to generate self-fulfilling consequences on health, performance, and well-being.

Felicitously, research shows that mindsets about stress can change. Just as we speculate that the predominant “stress-is-debilitating” mindset was affected by consistent exposure to that viewpoint and media warnings, new mindsets can be facilitated with media, messaging, and communication. One study demonstrated that watching short film clips with factual information depicting the nature of stress in one of two ways (“stress is enhancing” vs. “stress is debilitating”) elicited corresponding

changes in one's stress mindset (Crum et al., 2013). Specifically, participants watched three short video clips presenting images, research, and examples that were designed to demonstrate either the enhancing nature of stress (enhancing condition) or the debilitating nature of stress (debilitating condition; the control group saw no videos). Whereas those in the enhancing condition developed more of a "stress-is-enhancing" mindset as a result of watching clips biased in that direction, those in the debilitating condition showed just the opposite: developing more of a "stress-is-debilitating" mindset. Intriguingly, eliciting a "stress-is-enhancing" mindset was accompanied by corresponding positive changes in participants' self-reported health and performance. Although participants in the debilitating condition did show movement in their stress mindsets, these negative changes in mindset were not accompanied by corresponding decrements in health and performance. This is likely because the "stress-is-debilitating" mindset was already the predominant mindset, and therefore, reinforcing this mindset is less likely to elicit change in health and performance than is introducing a new mindset. In summary, the results suggest that stress mindsets can be changed—in this case with less than 10 min of video exposure—and that eliciting a "stress-is-enhancing" mindset is accompanied by corresponding positive changes in self-reported health and work performance.

Although these results on the influence of mindset in the domain of stress are in their preliminary stages, they fall in context with a long line of research demonstrating the role of mindset in determining outcomes across a variety of domains including intelligence (e.g., Dweck, 2008), exercise (Crum & Langer, 2007), nutrition (Crum, Corbin, Brownell, & Salovey, 2011), and aging (e.g., Levy, Slade, Kunkel, & Kasl, 2002; Levy & Myers, 2004). For example, students holding a mindset that intelligence is malleable rather than fixed (i.e., "I can become smarter" vs. "I was born with my current IQ") experienced improvements in attitudes and academic performance. These included elevated appreciation of academics, motivation, learning, and higher GPAs (Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski, & Dweck, 2007). Hotel-room attendants who adopted the mindset that their work is good exercise showed significant reductions in weight, body mass index (BMI), and systolic blood pressure (Crum & Langer, 2007). Individuals who held the mindset that they were drinking an indulgent, high-calorie milkshake showed steeper declines in ghrelin, a hunger-inducing hormone, than when they drank the same shake thinking it was a sensible, low-calorie milkshake (Crum et al., 2011). Individuals holding negative mindsets about aging exhibited a suite of unhealthy orientations, choices, and outcomes. These individuals had a diminished will to live (Levy et al., 2002), were less likely to adopt healthy behaviors like seeing a doctor, exercising, and healthy eating (Levy & Myers, 2004), suffered reduced cardiovascular function when exposed to negative stereotypes about aging (Levy, Hausdorff, Hencke, & Wei, 2000), and died sooner than those holding a more positive mindset (Levy et al., 2002).

Mindfulness, East and West

As we have seen, mindsets can significantly influence health and behavior. This presents a high-leverage but challenging opportunity to achieve more desirable outcomes by

using mindfulness to alter our mindsets consciously and deliberately, thereby harnessing the enhancing effects of stress. In this section, we describe how mindfulness from both Langerian and Eastern perspectives may be an antidote to automatic functioning in that each generates awareness of existing mindsets and presents a method through which to diffuse, change, or utilize mindsets for our benefit. We follow by discussing how both Langerian and Eastern forms of mindfulness can join together to help positively influence the stress response.

Both Langerian and Eastern accounts agree—as do scholars of unconscious cognition—that the default cognitive mode is the automatic, unconscious domination of thoughts, emotions, and behavior by prior experience (Bargh & Chartrand, 1999; Brown, Ryan, & Creswell, 2007; Langer, 1989). This mode beneficially facilitates goal-directed action, allows us to profit from prior experience, and conserves scarce cognitive resources (Bargh & Chartrand, 1999; Brown et al., 2007; Levinthal & Rerup, 2006). However, mindfulness accounts also identify the downsides of mindlessness. These include being shackled to a single perspective and using habitual action to achieve habitual goals regardless of context or alternative possibilities. Langer colorfully summarizes mindlessness and its pitfalls: “as we blindly follow routines or unwittingly carry out senseless orders, we are acting like automatons, with potentially grave consequences for ourselves and for others” (Langer, 1989, p. 4). Simply put, mindlessness can be defined as operating without awareness of automatic reactions and without regard to context, nuance, or alternative possibilities.

Mindfulness poses a radically alternative cognitive mode (Williams, 2008). It involves vibrantly experiencing the present—moment by moment—and using our consciousness to perceive and influence perceptions and corresponding goals and behaviors (Brown et al., 2007; Langer, 1989). Though Langerian and Eastern mindfulness are both framed as opposites of mindlessness, depictions of these states diverge regarding what constitutes “opposite.”

Langerian mindfulness is a mode of functioning through which we actively restructure our mindsets through the creation of new categories or distinctions (Langer, 1989, p. 4). This process involves four interrelated characteristics: (1) novelty seeking, (2) engagement, (3) producing novel categories, and (4) flexibility. The key distinction in this approach is that we don’t allow preexisting mindsets to unconsciously dominate perception and actions, but rather we allow discrepant information to enter our awareness. These novel cues then inform the adaptation of existing mindsets toward settling on mindsets that are most advantageous given the current context.

Whereas Langerian mindfulness involves a proactive rather than automatic conceptual processing, Eastern mindfulness involves a substantial reduction in conceptual activity (Williams, 2008). Sometimes referred to as “bare awareness,” Eastern mindfulness implies that we have enhanced present-moment awareness of mental and sensory content without filtering our experience through the usual conceptual overlays (Brown et al., 2007). The reduction in conceptual thought can be seen as supporting many other important properties of Eastern mindfulness. These include nonjudgment and sense of acceptance, clear and continuous present-moment awareness, a “quiet” self, and the reduction of automatic thoughts and actions (Brown et al., 2007). The reduced mental noise fosters clear awareness of mental content, and this quality is reflected by the term “mindfulness.”

To summarize, both mindfulness modes are seen as opposites to mindlessness. Both involve sharper awareness of present-moment stimuli, including internal mental contents and external context. Both facilitate flexible and conscious responses to our milieu, including helping us to transform unhelpful mindsets. However, they may do so through different mechanisms. A simple way of thinking about the difference between them is that Eastern mindfulness shines a clear light of unbiased and unattached awareness on existing mindsets, whereas Langerian mindfulness involves a continual process of restructuring and creating mindsets anew.

Although both forms of mindfulness can contribute to more effective functioning, each type of mindfulness confers distinct capabilities and limitations. In the case of Eastern mindfulness, observing mindsets may reveal outdated perceptions and habits, but nonjudgmental observation alone may not include developing and striving towards new goals, a more Western objective. In the case of Langerian mindfulness, developing new structures can be challenging when trying to build upon a landscape littered with old, deeply programmed thoughts, whereas these may loosen through the patient observation of Eastern mindfulness. Appreciating the possibilities and limitations of each perspective, we can see Eastern mindfulness and Langerian mindfulness as complementary capacities for fundamental change. Eastern mindfulness acts to enlighten us about our old habits, and Langerian mindfulness supports us in developing new and more appropriate ones. Together, both variants of mindfulness can be seen as partners enabling a continuous cycle of learning, flexibility, and contextual appropriateness.

Cultivating a Mindful Approach to Stress

How might mindfulness influence the stress response? Together, the two conceptions of mindfulness can create awareness of existing stress mindsets that are guiding automatic functioning and biasing responses, and then help transform them, thereby harnessing the enhancing effects of stress. Building on existing models of mindfulness in the context of stress (e.g., Hayes, Strosahl, & Wilson, 1999; Ludwig & Kabat-Zinn, 2008) as well as research on the power of mindsets in determining the stress response (e.g., Crum et al., 2013), the following three-step process describes a mindful approach to developing healthy stress mindsets.

Step 1: Acknowledge your stress

The first step to transforming the stress response is simply to acknowledge the experience mindfully. Acknowledging stress means, quite literally, witnessing the existence of stress that is current or recurring in your life. It also includes noticing your emotional, behavioral, and physiological responses without judging or trying to change them. To facilitate this process, mindfully consider these questions:

- 1 What is stressing you right now? Simply state in words, without judgment, the aspects of your life that are causing stress at this moment.

- 2 What are your emotional responses? What kind of thoughts, beliefs, and feelings are you generating in response to the stress (e.g., frustration, sadness, longing to get rid of the stress)?
- 3 What are your behavioral responses? What actions are you taking or not taking in response to the stress (e.g., arguing, avoiding, eating ice cream)?
- 4 What are your physiological responses? What sensations or changes are occurring in your body in response to the stress (e.g., difficulty sleeping, tunnel vision, cloudy head, racing heart, stomach upset, fatigue)?
- 5 What is your current mindset about the stress you are experiencing? Do you expect that experiencing this stress is going to have enhancing or debilitating outcomes?

Being in a state of acknowledging describes how you function while being mindful (particularly in the Eastern mindfulness tradition). In this state, all mental and physical events are observed and experienced without judgment or bias from conceptual filters. Eastern mindfulness allows you to gain awareness of your habitual stress responses and helps you suspend your preexisting frames of mind. Finally, this type of mindfulness may help you identify causal relationships between external events and internal responses. By quieting automatic cognitions and the associated “noise,” you may find it easier to perceive linkages that you can subsequently employ to address your stressors. Research on the science of the brain shows how simply acknowledging stress can move activity in your brain from the automatic and reactive centers to the more conscious and deliberate ones (for a review, see Lieberman et al. 2007). In other words, simply acknowledging stress and your automatic reactions allows you to take an essential pause before reacting to stress in a mindless manner.

Step 2: Welcome your stress

Once stress is acknowledged, the next step is a more proactive one: to actively welcome stress. This “welcoming” mentality may sound counterintuitive, but it is essential for several reasons. First, the step to move toward your stress, as opposed to away from it, ironically makes stressors less menacing. Although strategies such as suppression and rumination are well intended, they often are counterproductive. Suppression may paradoxically increase unwanted thoughts (Carver, Scheier, & Weintraub, 1989; Wegner, Erber, & Zanakos, 1993), and rumination may interfere with problem solving, alienate social support, or even create additional cognitive distortions (e.g., Lyubomirsky, Tkach, Papageorgiou, & Wells, 2003; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Therefore, the act of welcoming stress into your mind and life can reduce anxiety, improve health, and increase your sense of control (for a review, see Pennebaker, 1997).

A second reason to welcome your stress is that inherent in the experience of stress is the connection to something you care about. While numerous definitions of stress exist (e.g., Lazarus & Folkman, 1984; Robbins & Fray, 1980), stress can generally be defined as the experience of encountering or anticipating adversity in one’s goal-related efforts (Carver & Connor-Smith, 2010). If you are mindful about this, you realize that the only reason you are stressed is because the stressor impacts

something you care about. For example, consider a common stressor: money. Money is not inherently stressful. However, money incites stress when you experience or anticipate adversity related to achieving your monetary goals. Either anticipating a layoff or having insufficient funds to cover a mortgage payment would interfere with common goals like survival, comfort, or entertainment, and this is why they induce a stress response. Yet if money were unrelated to your goals, these events would not be stressful. You simply do not stress about things that do not matter to you. To facilitate this process, mindfully consider these questions:

- 1 What is the care beneath this complaint?
- 2 Since you are only stressed because you care about something, what is it that you care about?

Becoming aware of the fact that what you care about is causing your stress helps reframe your stress as a signal or a sign, reminding you of what matters most. Clarifying this intrinsic passion allows you to invest your resources fully in achieving those goals. Likewise, it allows you to eliminate goals not closely aligned to your core desires, and conserve stress resources that are unnecessarily consumed by worrying about desires lacking intrinsic interest. This is where Langerian mindfulness can serve complementary ends, especially in a goal- and productivity-oriented society. Aspects of Langerian mindfulness—such as noticing and generating distinctions, and flexibility—can be particularly helpful in this process. Often, desires and goals are selected not by conscious intent but by automatic programming (Bargh & Chartrand, 1999). When you can welcome your stress mindfully, you can recognize the opportunity to choose to address the inherent values or goals, to flexibly change them, or to let them go. Understanding that stress is inherently connected to your goals and values can help open the gate toward a “stress-as-enhancing” mindset.

Step 3: Utilize your stress response

The combination of steps 1 and 2 leads to a nonjudgmental and welcoming attitude towards stress and its connection to your values and goals (e.g., “I acknowledge that I *am* stressed *because* I want to have a good job and the financial resources it provides for my family”). The final step is not to see stress as an impediment to your goals, but to utilize it as a resource in achieving them.

Research shows that stress has evolved to help motivate you to meet the task at hand by increasing your energy and heightening your focus. However, instead of focusing on resolving the situation and responding to the request, or meeting the concern that is generating the stress, a “stress-is-debilitating” mindset triggers the desire to jettison the stress itself. This can hijack you into irrational strategies that debilitate your well-being rather than facilitate it. You can ameliorate this by acknowledging that your initial stress response is serving your values, but your stress-about-stress is most likely not.

When this is understood, the increased arousal and heightened energy can be directed toward meeting the demand creating the stressor and/or working to find

additional opportunities made possible by experiencing the stress. Consider the phenomenon of stress-related growth (or posttraumatic growth) as a label applied to the process by which the experience of stress and adversity ultimately leads to positive outcomes such as deeper social bonds after a fight with a spouse or a shared stressful experience, greater appreciation for life after a bout with cancer or loss of a loved one, or increased self-efficacy and sense of mastery after a stressful occurrence at work (Park et al., 1996; Tedeschi & Calhoun, 2004). You can attain increased awareness and attain a high level of well-being not in spite of the stress but, perhaps, because of it. To facilitate this, mindfully consider the following questions:

- 1 Are your responses to this stress facilitating your positive purpose? Are your actions directed towards removing the stress or improving the value underlying the stress?
- 2 What changes can you make in responding to this stress so that the stress you experience can be enhancing as opposed to debilitating? Can you utilize this stress to build social bonds? Reconnect with your values? Increase self-mastery?
- 3 What might be the hidden opportunities inherent in this stress—the possibilities, lessons, and/or insights—that could arise as a result of experiencing this stress/situation?

This third step—utilizing stress—involves the mindful adoption of a “stress-is-enhancing” mindset. This does not mean that you are blind to the fact that both enhancing and debilitating outcomes are possible. On the contrary, when adopted after the first steps of acknowledging and welcoming are completed, the choice to view stress as enhancing is a conscious and deliberate one. This step demonstrates the added value of Langerian mindfulness to Eastern mindfulness. While Eastern mindfulness can help with loosening our mindsets, Langerian mindfulness can help you appropriately restructure those mindsets.

In the case of stress, both forms of mindfulness can work continually throughout the process of becoming aware of limiting mindsets and capitalize on the enhancing possibilities. In other words, you can consciously and continually notice that the effects of stress are not uniform, that they are unique to each situation and context, and that the manner in which they are met provides possibilities to consciously alter your mindsets to harness the enhancing effects. Taking steps to utilize the stress response rather than fighting against it is inherently mindful. From this more powerful perspective, you can respond to a stressor in a more optimal way, choosing to create and capitalize on the enhancing aspects of experiencing the stress.

Outcomes of a Mindful Approach to Stress

Mindfulness allows for an openness and spaciousness that provides insight into why a particular stressor induces stress, but also an appropriate response. When stress is acknowledged as opposed to denied; when stress is welcomed as opposed to avoided, and when stress is utilized as opposed to combated, several important outcomes can occur. First, we are more likely to maintain a state of “appropriate awareness” defined by having a mindful awareness that we are indeed experiencing stress and that that

stress is related to something we value. Second, we are more likely to achieve a state of “appropriate arousal” defined by having enough arousal needed to meet goals and demands, but not so much as to compromise action toward those ends or to debilitate physiological health in the long run. And third, we are more likely to perform “appropriate action” defined by actions that serve to meet the demand value or goal underlying the stressful situation as opposed to ones that deplete time, effort, and energy solely to avoid or get rid of the stress. Each of these distinctions of the mindful approach to stress has important effects on health, performance, and well-being, which are described more thoroughly below.

Effects on health

Approaching stress mindfully is not an attempt to reduce arousal; rather, it is a mental context for conducting appropriate mental and physiological regulation. It is often assumed and taught that effective stress management involves staying calm under stress, or counteracting the negative impact of the natural physiological manifestations of stress (e.g., Benson, Greenwood, & Klemchuk, 1975; Sapolsky, 1996). Achieving balance in the autonomic nervous system (ANS) is indeed important in maintaining health and homeostasis, as extended activation of the ANS by stressful stimuli can result in negative physiological consequences including impairment of the hippocampus (the part of the brain associated with working memory), loss of frontal-lobe control, and increased susceptibility to illness through the depression of the immune system (e.g., McEwen & Seeman, 1999; Sapolsky, 1996). However, some attempts at reducing arousal may be countereffective. One reason for this is that the ANS is also associated with potentially adverse physiological effects such as down-regulating the immune system (e.g., Kunz-Ebrecht et al., 2003). Another reason is that attempts to reduce arousal often have negative effects of their own such as the overuse of food or other substances to reduce anxiety, increased anxiety, rumination, or compulsory behaviors (e.g., Hayes et al., 1996; Kushner, Sher, Wood, & Wood, 1994; Robbins & Fray, 1980). Indeed, trying to relax or avoid the arousal experienced while stressed can result in experiential avoidance: the suppression or avoidance of an array of psychological experiences (thoughts, emotions, sensations, and urges). Experiential avoidance is associated with a variety of maladaptive outcomes (such as problems with mood and health) because it paradoxically can increase negative thoughts and anxiety, and prevent us from taking necessary action (Hayes et al., 2004; Mowrer, 1947).

When we mindlessly adopt a “stress-is-debilitating” mindset (i.e., when we operate reactively to the assumption that stress is debilitating, without awareness of alternative possibilities), arousal levels may be underactive as a result of successful avoidance or denial of the stress or the use of counteractive coping mechanisms such as medications or substance use (Crum et al., 2013). Alternatively, arousal levels may be overactivated directly as a result of the additional stress that comes from having a “stress-is-debilitating” mindset, or indirectly through countereffective reactions of emotional suppression, experiential avoidance, or ruminative thought (e.g., Hayes et al., 2004). Conversely, if we mindfully choose to adopt a “stress-is-enhancing” mindset, then we

will be more likely to achieve an optimal level of arousal when under stress, defined as having enough arousal needed to meet goals and demands, but not so much as to compromise action toward those ends or to debilitate physiological health in the long run.

One important mechanism underlying these findings is “stress about stress.” In response to a stressor, individuals with either a “stress-is-enhancing” or “stress-is-debilitating” mindset will experience a stress response. However, the latter will have an additional layer of “stress about stress.” This metastress response may be especially harmful, because it counterproductively activates and drains coping resources otherwise intended to meet the demand generating the original stress response.

Effects on performance

When we hold a mindset that stress is debilitating, it is logical that the primary motivation is to avoid or manage the stress to prevent debilitating outcomes. Conversely, if we are able to approach stress with the possibility that enhancing outcomes are possible, the mental and motivational context in which we act and approach the stress at hand is fundamentally different. From this mindful view, focus shifts toward engaging in actions that help meet the demand, value, or goal underlying the stressful situation, as opposed to engaging actions and coping behaviors that serve to avoid or manage the stress itself (in an effort to prevent debilitating outcomes from happening).

Take, as an example, two students studying for an important final exam: Imagine both students hope to achieve an “A” on the exam (valued the goal or outcome of receiving an “A” equally) and experience significant stress due to that goal. The first student, with a “stress-is-debilitating” mindset, may engage in coping behaviors that would help to avoid or manage the stress. These behaviors could take different forms, such as procrastinating or using substances, or seeking affirmation from friends about how much studying they have done. Overall, the actions and behaviors would focus on avoiding the experience of stress.

On the other hand, the student with a “stress-is-enhancing” mindset may utilize the enhancing nature of stress to address directly the goal at hand, rather than the stress itself. These behaviors could take forms such as using the possible additional energy to study late into the night, seeking feedback about how to improve, or speaking with students who had taken the test in previous years. These behaviors may not eliminate the stress directly but rather satisfy the underlying value, goal, or demand.

Failure to confront stress-inducing threats, which has been called the “threat rigidity effect” (Staw, Sandelands, & Dutton, 1981), can have dramatic consequences. At an organizational level, for example, in the recent collapse of a major investment bank, the firm’s management was reported as not confronting the highly risky or morally questionable investment practices the organization developed (Cohan, 2009). This likely would have been personally stressful, as this action would have interfered with other goals, such as short-term profitability. The outcome of inaction was that the highly esteemed and profitable firm went bankrupt almost overnight. It had maintained and in some cases increased reliance on strategies that to some insiders were apparently risky until the very end. This response of increasing reliance on old

strategies as a default is a classic example of the nature and pitfalls of mindlessness (Langer, 1989).

Effects on well-being

A mindful approach to stress lends itself to a more flexible and more appropriate approach to a stressful situation, preparing us to utilize the stress itself to resolve the situation, respond to the request, or meet the concern that created the stress in the first place. A critical distinction is that, when we approach stress mindfully, “appropriate action” will be different for each situation and will depend on our criteria for what constitutes an effective or valued outcome (e.g., health, well-being, social functioning, achievement). For example, if a company announces upcoming layoffs, two employees who experience the stress mindfully may have different behavioral responses. One valuing upward advancement may utilize stress to work longer and harder in order to impress supervisors before possible layoffs. Another employee valuing their family’s emotional and financial stability may utilize stress to seek out opportunities to find an alternative job with a better work-life balance. The choice to move toward valued actions can lay the foundation for greater well-being under stress.

However, a mindful approach to stress is not necessarily about “approach coping” (e.g., Carver & Connor-Smith, 2010). Taking appropriate action under stress can sometimes mean letting go of a goal or endeavor that is no longer serving us (e.g., choosing not to get that additional Master’s degree). Or it can mean doing the same action in a distinct frame of mind: Going to bed early could be a mindless decision when you are doing it in reaction to fear and anxiety regarding a stressful situation. Or the same activity could be a mindful one, understanding and appreciating your need to rest. Such an ability to flexibly adapt our behavior to affect well-being in ever-changing contexts, situations, and needs is the essence of mindfulness.

Conclusion

Although stress can provoke debilitating anxiety and physiological deterioration, it may also comprise the essential starting points for eliciting transformational change and physiological thriving. In this chapter, we have argued for a mindful approach to stress, developing a sense of stress’s potential contributions by viewing stress non-judgmentally and openly as the experience of anticipating or experiencing adversity in achieving goals. From this orientation, it is possible to consciously reframe the mindset that stress is toxic into a perspective that stress supports physical vitality, achievement, and satisfaction. For those imprisoned by the mindless attitude that stress is always debilitating, the strength and capacity of the human mind can unleash new possibilities. Two variants of mindfulness—Eastern and Langerian—can help unlock these possibilities through the dual process of suspending and transforming the cognitive structures that shackle our potential and leave us frightened by the challenges inherent in life. Ultimately, this mindfulness allows us to meet stress not as an enemy to be avoided, but as an ally to be embraced, an ally that will help us enjoy and appreciate this challenging world.

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Further Reading

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Mindfulness-Based Mind Fitness Training

An Approach for Enhancing Performance and Building Resilience in High-Stress Contexts

Elizabeth A. Stanley

The soul that is bravest and wisest will be least confused or disturbed by external influences.

—Plato, *The Republic*, Book II

The profession of arms is unlike any other profession in the world. Its uniqueness lies in this: It is the only profession that requires leaders to nurture, mentor, train, and prepare their subordinates—in fact, love them—but then to be willing to send these same subordinates into harm’s way, to kill and perhaps be killed. And it is the only profession that requires subordinates to respect and trust their leaders enough to willingly follow orders that may lead to their own wounding, dismemberment, or even death. This difficult truth lies at the heart of the profession’s institutional capacity for terrible destruction. With this capacity comes great responsibility. The profession of arms provides a container for this incredible capacity—ensuring that it is wielded ethically and in the service of defending the state. Within the profession—understood broadly to include the military, law enforcement, and other first-response organizations—is embedded an ethos that strongly informs each individual’s actions, even in the direst of circumstances. Regardless of the vast technological advances that warfare will undergo, its conduct will always be in the hands (and hearts) of human beings. In other words, the warrior’s path provides the internal social control to ensure that this incredible capacity for destruction and violence gets harnessed effectively.

Millennia of warrior traditions around the globe have helped individuals to follow this path by focusing their training on two foundational warrior qualities—wisdom and bravery. From the Tibetan warriors and Japanese samurai in the East, to the Spartans and Native American tribes in the West, warrior traditions throughout the ages have offered different practices to train the body and mind to embody these qualities. Historically, warrior traditions have used a variety of practices to cultivate these qualities—from ritual hair-combing to vision quests, martial arts to meditation.

What these many practices share is a repetitive way to train the body and mind towards mastery and self-discipline. In one of the oldest descriptions of the profession of arms, the Greek philosopher, Plato, argued that the goal of professional training was to make these guardians of the state “god-like”—capable of embodying the Divine in their decisions and actions. Plato was very clear that the path to such god-like behavior was through the cultivation of wisdom and bravery, because “the soul that is bravest and wisest will be least confused or disturbed by external influences” (Hamilton & Cairns, 1987, p. 627).

How does any of this relate to mindfulness? This chapter describes my work following in the lineage of these traditions, offering mindfulness training to troops and others operating in high-stress contexts in order to cultivate the warrior qualities of wisdom and bravery. Mindfulness is the simple practice of paying attention to present-moment experience without the mental filters of judgment, elaboration, or emotional reactivity. In other words, mindfulness is noticing what’s happening while it’s happening, without all of the filters we usually bring (unconsciously) to our experience. Interestingly, as this chapter will explain, in the course of mindfulness practice, we also cultivate wisdom and bravery. Wisdom is the ability to see clearly how things are right now—not how we want them to be, or expect them to be, but how they actually are—and then to use that information to make the most effective choice in the moment. Bravery (or courage) is the ability to stay present with any experience, even an extremely difficult one, without needing for it to be different. Together, these two qualities are a pathway towards effective action in any sphere, but especially in high-stress environments.

The rest of this chapter is divided into five sections and a conclusion. The first section describes some of the stressors associated with military service and contends that mindfulness training could help to ameliorate the detrimental effects of these stressors. The second section describes the training that I have created, called Mindfulness-based Mind Fitness Training (MMFT)[®]. The third section discusses the two foundational capacities that MMFT[®] (pronounced “M-fit”) cultivates—attentional control and tolerance for challenging experience—which are not only important for enhancing performance and building resilience, but also micromanifestations of wisdom and bravery. The fourth section summarizes the empirical research to date about MMFT, while the fifth section compares this work with Ellen Langer’s approach to mindfulness.

The Detrimental Effects of Stress in the Military

Military service is inherently stressful. Service-members are expected to deal with significant and potentially traumatizing stressors before, during, and after deployment, such as threats to individual safety, the necessity of inflicting harm on others, and exposure to injury, death, and significant human suffering (Adler, McGurk, Stetz, & Bliese, 2003). Troops may experience considerable anxiety and distress in anticipation of deployment (Bolton, Litz, Britt, Adler, & Roemer, 2001; MacDonald, Chamberlain, Long, Pereira-Laird, & Mirfin, 1998), which may place them at higher

risk for mental-health problems after deployment (Maguen et al., 2008). Once deployed, combat exposure has been linked to a range of negative health consequences, including posttraumatic stress disorder (PTSD; Kaylor, King, & King, 1987), depression (Erickson, Wolfe, King, King, & Sharkansky, 2001), substance abuse (Boscarino, 1981), and physical-health problems (Taft, Stern, King, & King, 1999). Combat aside, deployment itself presents a host of additional stressors, including difficult living conditions, boredom, and family separation. Indeed, recent research demonstrates a strong association between mental-health disorders and lower-magnitude deployment stressors (King, King, Vogt, Knight, & Samper, 2006), where chronic stressors can have cumulative negative health consequences similar to experiencing an acute traumatic event.

The wars in Afghanistan and Iraq have exposed troops to unprecedented challenges. Multiple deployments have been costly for service-members, leading to lower morale, more mental-health problems, and more stress-related work problems (Mental Health Advisory Team [MHAT-V], 2008). Moreover, counterinsurgency blurs distinctions between enemy combatants and civilians, leading to excruciating decisions about the use of lethal force (Stanley, 2010). Conservative rules of engagement (ROE) often place troops in dangerous circumstances with limited options; for example, more than 60% of soldiers in Iraq reported experiencing a threatening situation in which the ROE prevented them from responding (Castro, Hoge, & Cox, 2006). Finally, technologically enhanced battlefield medical practices and better body armor have resulted in more combatants surviving highly traumatic events, with veterans returning with unprecedented rates of traumatic brain injury (TBI) and PTSD (Tanielian & Jaycox, 2008).

These challenges of prolonged exposure to stressful environments have resulted in a broad range of psychological and physical-health challenges in military service-members (MHAT-V, 2008). Troops returning from deployment report a broad range of concerns, with cognitive and affective functioning often impaired (Marx, Doron-Lamarca, Proctor, & Vasterling, 2009; Vasterling et al., 2006). Psychological concerns include PTSD, TBI, depression, and anxiety disorders (Hoge, Auchterlonie, & Milliken, 2006; Milliken, Auchterlonie, & Hoge, 2007; Tanielian & Jaycox, 2008). Physiological concerns include disturbed sleep habits, low energy, headaches, chronic pain, cardiopulmonary symptoms, irritable bowel syndrome, and gastroesophageal reflux disease (Levin, 2007; Scaer, 2008). Complicating matters, PTSD is frequently comorbid with other psychological problems (Tanielian & Jaycox, 2008) and is also linked to reported physical problems (Hoge, Terhakopian, Castro, Messer, & Engel, 2007). Indeed, 56% of veterans with mental-health disorders are diagnosed with at least two disorders (Seal, Bertenthal, Miner, Sen, & Marmar, 2007). Relatedly, destructive behavior is on the rise. For example, between 2002 and 2005, alcohol consumption increased in all branches of the armed forces, as did illicit drug use by Soldiers and Marines (U.S. Department of Defense, 2006). Furthermore, combat experience has been significantly linked to decreased marital satisfaction, increased intention to divorce, and increased self-reported spousal abuse (Hoge, Castro, & Eaton, 2006). These myriad dysfunctions are frequently labeled as independent issues and treated separately, but an emerging alternative perspective considers these disparate disorders

to be part of a spectrum of responses to prolonged or extreme stress rather than as illnesses with unrelated causes (Bremner, 2005; Herman, 1992; Scaer, 2005; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005).

While the stressors of military deployment are widely recognized, comparatively less is known about effective methods for buffering against stress-related dysfunction and disease. What is clear is that the anxiety and distress that troops experience in anticipation of deployment may place them at higher risk for mental-health problems after deployment (Maguen et al., 2008). In light of this finding, providing training to help military personnel manage stress before deployment may ameliorate the long-term health effects of the deployment itself.

In fact, there is significant research that demonstrates how the stress response is malleable and can be modulated with training (Bohnen, Houx, Nicolson, & Jolles, 1990; Lieberman, Tharion, Shukitt-Hale, Speckman, & Tulley, 2002; Morgan, Wang, et al., 2001; Morgan et al., 2002). These studies in military populations demonstrate that, with training, troops can modulate their stress response as indicated by measures of cortisol and neuropeptide-Y. Indeed, these studies provide the rationale for military “stress inoculation” training. The human stress response is greater when stressors are perceived to be novel, unpredictable, and uncontrollable. By exposing troops to stressors they are likely to experience during real-world missions, stress-inoculation training helps them perceive such stressors as more familiar, predictable, and controllable, and to increase their confidence in their ability to take constructive action against those stressors (Dienstbier, 1989).

However, while the aforementioned studies demonstrate links between military stress-inoculation training and decreases in the physiological stress response, related research highlights the cognitive costs of such training. These studies found substantial degradation in cognitive performance as a result of field-training exercises (Lieberman et al., 2002, 2005) or military survival training (Morgan et al., 2004; Morgan, Doran, Steffian, Hazlett, & Southwick, 2006). Exposure to acute stress from sleep deprivation and other environmental stressors resulted in symptoms of dissociation, problem-solving deficits, and significant inaccuracies in working memory and visual-pattern recognition. Thus, while stress-inoculation training may help habituate troops to stressors, there is clearly a need for complementary training to counteract its cognitive degradation consequences.

My understanding of these issues has never been purely academic. While serving in the Balkans as a U.S. Army intelligence officer in the mid-1990s, I experienced first hand the stressors of deployment in a complex operational environment. After leaving active duty, I struggled privately with a variety of symptoms related to the stress of my time in service. One silver lining of this experience was that I received extensive training in mindfulness, and I quickly saw its direct relevance to the particular challenges to which service-members are exposed. As an academic who studies what makes militaries effective, I believed that providing complementary mindfulness and resilience training *before* deployment not only could help with the cognitive degradation associated with military stress-inoculation training, but also might help troops function more effectively while deployed and perhaps shield against health disorders of the stress spectrum.

MMFT

There is now considerable evidence of the efficacy of mindfulness-based training (MT) at reducing distress (Baer, 2003; Grossman, Niemann, Schmidt, & Walach, 2004). The most common and well-validated MT program is mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990). MT has been incorporated as a component in clinical interventions for a range of disorders. MT has also been adapted for use with a variety of healthy populations, such as corporate leaders, nurses, teachers, and elementary-school students. Following this precedent and drawing on my military experience, research expertise, and mindfulness and trauma training, I created MMFT for use with high-stress organizations, such as military units preparing for deployment. I am grateful to John M. Schalda for providing curriculum-development support.

MMFT contains some features of the well-known MBSR course but differs in its approach to mindfulness training and the scope of the didactic content. Importantly, MMFT provides a novel approach to mindfulness training designed for individuals operating in extreme stress environments, with prior exposure to prolonged or significant stress or trauma. MMFT contains elements intended specifically for members of the (broadly construed) high-stress profession of arms—including ways to integrate practices into their work environment, and didactic components that focus on the relationship between mindfulness, stress-inoculation training, and complex decision-making. MMFT was also designed to provide skills and information for understanding and regulating the effects of stress on the mind and body. The course focuses on enhancing stress resilience, with didactic content and basic skills for supporting self-regulation of the stress response and its effects. These skills and information incorporate and extend concepts from Sensorimotor Psychotherapy (Ogden, Minton, & Pain, 2006), Somatic Experiencing® (Levine, 1997), and the Trauma Resilience Model® (Leitch, 2007; Leitch, Vanslyke, & Allen, 2009), and inform the model of resilience taught in MMFT. In short, MMFT was designed to provide a synthesis of three components: (1) mindfulness training; (2) skills and information about stress resilience and responses to stress; and (3) concrete applications for the operational environment.

MMFT provides skills training in two key areas: mindfulness skills and stress resilience skills. It cultivates mindfulness skills with specific exercises to train attention, concentration, and interoceptive awareness (awareness of sensations in the body). It cultivates stress resilience self-regulation skills with specific exercises to monitor and regulate the physiological and psychological effects of extreme or prolonged stress in the body and mind. These body-based self-regulation skills make MMFT distinct from other mindfulness-based approaches. MMFT applies both the mindfulness and self-regulation skills to the operational environment by emphasizing mission effectiveness and enhanced decision-making in the high-stress context. MMFT is taught in the organizational setting, to existing teams and groups; in the military context, it is usually taught to platoons comprising about 40 troops.

Taught over 8 weeks, the 20-hr MMFT course includes eight 2-hr sessions of classroom instruction, a short individual practice interview in the third week, and a 4-hr workshop with a longer session of silent practice to refine mindfulness skills in the sixth week. The first four 2-hr sessions occur in the first 2 weeks to front-load the didactic

context for the mindfulness and self-regulation resilience skills taught in the course (and thereby increase motivation among participants to practice these skills outside of class). The other four 2-hr sessions are taught in the fourth, fifth, seventh, and eighth weeks.

Participants are also asked to complete daily at least 30 min of mindfulness and self-regulation resilience exercises outside of the class sessions. This daily practice can be divided into several practice periods throughout the day. Participants initially use audio CDs to guide the exercises, but over time they are able to do them without audio support. Some exercises are conducted while sitting quietly or lying down, some are conducted while stretching, and some are designed to be integrated into duty-day tasks.

There are three important reasons why MMFT may be better suited than the traditional MBSR program for MT in the high-stress work environment, such as with the military, law enforcement, or other first-responder populations. First, unlike MBSR participants who typically seek out the program on an individual basis to address a specific concern, such as chronic pain or stress reduction, participants in MMFT are high-functioning troops or other first responders who typically do not actively seek out the training. This requires course content to motivate the desire to engage mind-fitness exercises. Because the training is provided to organic work groups, the participants have a prior history with one another and will be working together after the course. For this reason, power hierarchy and organizational group dynamics are at play in the classroom. As a result, course content is primarily presented in a “top-down” format with material presented as interactive lectures—rather than in a “bottom-up” format with insights emerging from a less-structured group conversation. In addition, most group discussions focus on the application of MMFT skills to the group’s mission effectiveness rather than to the participants’ personal lives.

Second, MBSR participants are generally coping with an atmosphere of relatively constant stressors—although they may be quite acute—and thus the stated goal of MBSR is stress reduction in a relatively stable stress environment. In contrast, MMFT participants, especially predeployment troops, are usually confronted with an atmosphere of steadily increasing stressors. Troops need to maintain optimal functioning during stress-inoculation training, while also preparing for the future challenges of “real-world” missions like deployment. Because it exposes them to stressors they are likely to experience during such missions, the stress-inoculation training itself can be quite stressful. This necessarily requires extending the course goal from merely reducing stress to maintaining peak functioning during stress and promoting stress resilience. This context is the rationale for including information and skills for regulating the effects of prolonged or extreme stress, as well as didactic content to highlight parallels between physical and mental fitness for mission readiness.

Third, while MBSR develops mindfulness with the body scan, awareness of breathing, and mindful yoga, MMFT acknowledges that these methods for developing mindfulness may initially be too intense for individuals with prior deployment or trauma histories. Interoceptive awareness *is* considered central to MMFT; however, this awareness is developed gradually. MMFT participants often have deployment or work histories or earlier life experiences that exposed them to significant or prolonged stress or trauma. In this context, the acute self-awareness of body sensations

developed through mindfulness can lead to excessive activation of the autonomic nervous system, including flashbacks, nightmares, intrusive thoughts, heightened restlessness, panic attacks, irritation, and hyperarousal. The possibility of these sensitivities is taken into account with a progression of exercises, including some unique to MMFT, that differs significantly from MBSR. Finally, MMFT instructors can adapt the sequence of exercises on an individual basis, to avoid the excessive activation that can result from too much body-centered self-awareness, too quickly. Indeed, one goal of the mandatory individual interview is to allow each participant to discuss symptoms of trauma or distress they are experiencing, which permits the instructor to tailor that participant's exercises to accommodate any exposure sensitivities.

How MMFT May Enhance Performance and Promote Resilience

MMFT trains two foundational, general-purpose capacities that undergird a range of competencies central to enhanced performance and resilience. These two capacities are attentional control and tolerance for challenging experience. Attentional control is the ability to intentionally deploy and sustain the attention on a target object, such as sounds, body sensations, or contact between the body and surrounding objects (e.g., the chair or the floor). Attentional control leads to improved focus and concentration, better ability to inhibit distractions and irrelevant information, and better ability to access, retain, and update relevant information.

The second foundational capacity is tolerance for challenging experience, which is the ability to pay attention to, track, and stay with a challenging experience without needing for it to be different. Such challenging experiences can be external (such as harsh environmental conditions or difficult people) or internal (such as physical pain, stress activation, intense emotions, intrusive thoughts, nightmares, or flashbacks). Without training the physical and mental discipline to tolerate and stay present with challenging experience, most of us default to checking out, dissociating, distracting ourselves, or trying to make the discomfort go away. Importantly, tolerance for challenging experience is different from “sucking it up,” which is actually a form of subtly resisting the experience and not being fully present to the information available in the present-moment situation.

MMFT trains these two capacities with mindfulness, which is the ability to pay attention and notice what is happening while it is happening, without the mental filters of judgment, elaboration, or emotional reactivity. Mindfulness differs from a more conceptual mode of processing information, which is often the mind’s default way of perceiving and cognizing. In other words, paying attention is not the same thing as thinking, although we often equate the two. While mindfulness is a natural capacity of the human mind, most of us spend most of our lives in a different default mode—living on autopilot. When we are on autopilot, we are not fully present to what is happening, which impedes situational awareness and often leads to habitual or impulsive behavior that may be at odds with our goals. However, with training and repetition, it is possible to rewire the brain to make mindful, present-moment awareness our new default mode.

This rewiring process is the result of the well-documented theory of neuroplasticity, which states that experience changes the brain (Schwartz & Begley, 2003). In this way, mind fitness has a lot in common with physical fitness. Physical fitness relies on repeated exercises to generate specific muscular and cardiovascular changes in the body. Likewise, mind fitness relies on specific exercises to create changes in the brain (Stanley, 2010; Stanley & Jha, 2009). With the engagement and repetition of certain mental processes, the brain becomes more efficient at those processes. Over time, as we choose to build a new mental skill, the repeated engagement of brain regions supporting that skill creates a more efficient pattern of neural activity. In other words, experience and training can lead to functional and structural reorganization of the brain.

In terms of performance enhancement, attentional control and tolerance for challenging experience may lead to more effective decision-making, even in complex, chaotic, ambiguous, and fast-changing environments. These two capacities strengthen our situational awareness, which is the ability to track and take in information accurately and objectively from the external and internal environments. They also strengthen self-control, so that we can interrupt impulsive, habitual, and autopilot behavior when such behavior is not aligned with current goals. Improved situational awareness and self-control assist with consciously choosing the most effective course of action instead of being driven by habitual reactions, emotions, biases, expectations, or other perceptual filters. Situational awareness and self-control allow for the clearest assessment of available information and support effective decision-making, which is the cornerstone of enhanced performance.

Attentional control and tolerance for challenging experience may also improve cognitive performance in stressful environments. Attentional control is related to the neuroscience concept of working memory capacity (WMC). While our research on MMFT's effects on WMC is explained below, it is important to note here that research has linked high WMC to improved cognitive performance and improved skills associated with effective decision-making—including better conflict monitoring and task prioritization (McVay & Kane, 2009; Redick & Engle, 2006), better situational awareness (Endsley, 1995, 2000), better abstract problem-solving and fluid intelligence (i.e., the ability to recall, apply, and use facts; Gray, Chabris, & Braver, 2003; Halford, Cowan, & Andrews, 2007; Kane & Engle, 2002), and better self-regulation of negative emotions (Schmeichel, Volokhov, & Demaree, 2008). In contrast, individuals with low or depleted WMC are more likely to suffer from PTSD, depression, substance abuse, anxiety disorders, and increased affective dysregulation in real-world contexts (Brewin & Smart, 2005; Conway et al., 2005). This research is particularly salient when considered with the fact that stress-inoculation training can degrade cognitive performance, as numerous studies with military populations have shown (Lieberman et al., 2002, 2005; Morgan et al., 2004, 2006).

In terms of resilience, attentional control and tolerance for challenging experience may assist with the self-regulation of the autonomic nervous system (ANS), which is responsible for the fight-or-flight stress response, as well as respiration, circulation, sleep, appetite, sex drive, and rest/recovery. Resilience is the ability to function effectively during stressful experience and recover efficiently back to baseline afterwards. To create resilience, an individual needs to have a stressful experience that deliberately

pushes them outside of their comfort zone and then to recover effectively from that experience. In other words, they need to experience the physical and cognitive symptoms of stress activation and then teach the body and mind to recover from them. In the process, their body and mind learn to tolerate and function effectively amidst more stress activation than before (Scaer, 2005).

MMFT trains individuals to track activation of the fight-or-flight response in their bodies and minds and to tolerate the discomfort of this activation. When individuals bring awareness to the physical sensations and cognitive activity associated with stress activation, the ANS can naturally discharge the energy mobilized for the fight-or-flight response, complete its process of self-regulation, and recover completely back to baseline. However, because stress activation is uncomfortable in the body and mind, individuals on autopilot tend to distract from or suppress this self-regulation process, which can lead to ANS dysregulation. Then, to manage the symptoms of this dysregulation, they frequently resort to maladaptive coping techniques (such as caffeine, nicotine, alcohol, violent video games, or adrenaline-seeking behaviors) that create a vicious cycle by adding additional stress to the system and dysregulating it further. Stress spectrum disorders (including PTSD) result from a lack of complete recovery and subsequent dysregulation of the ANS (Levine, 1997; Scaer, 2005, van der Kolk et al., 2005).

In contrast, MMFT helps individuals learn how to support ANS self-regulation after the dysregulation of prior stressful events and to increase their ANS tolerance for greater stress activation in the future. A well-regulated nervous system can tolerate a larger stress response, which means that it can function more effectively during a stressful experience without dissociating or acting out in ways that impede mission accomplishment. A well-regulated nervous system can also recover back to baseline more efficiently, in preparation for the next stressor. A well-regulated nervous system can respond flexibly and adaptively switch between “survival brain” and “thinking brain” functions. Finally, a well-regulated nervous system is more able to remain present and oriented to what is happening right now, rather than triggered by and perceiving through the filters of past traumatic experiences that can impede effective decision-making (Ogden et al., 2006; Levine, 1997; Scaer, 2005; van der Kolk et al., 2005).

Thus, MMFT may promote resilience and complement stress-inoculation training by teaching skills to help complete the stress-activation cycle of the ANS (Levine, 1997; Ogden et al., 2006). While stress-inoculation training is designed to expose and habituate individuals to stressors (Dienstbier, 1989), evidence suggests improved stress resilience only comes from completing the stress-activation cycle, by returning the ANS to its baseline functioning after exposure to such stressors (Scaer, 2005). Indeed, stress-inoculation training may actually undermine individuals’ resilience if their nervous systems do not effectively recover after exposure to the training’s stressors. Scaer (2001) summarizes drowning experiments with rats and chicks that show how failure to dissipate a dissociative freeze response undermined resilience, while complete recovery from the freeze enhanced resilience. Interestingly, there is evidence that symptoms of dissociation are common in military personnel exposed to the acute stressors of stress-inoculation training (Morgan, Hazlett et al., 2001; Morgan et al., 2002), which suggests that resilience can be undermined after

stress-inoculation training when complete ANS recovery is lacking. Thus, MMFT could complement stress-inoculation training by helping troops to use focused attention and interoceptive awareness to monitor and regulate physiological and psychological symptoms of stress activation and to effect a complete recovery.

Relatedly, MMFT may promote resilience by helping individuals not to dissociate from overwhelming experiences. Peritraumatic dissociation—dissociation during a stressful experience—has been suggested as a possible predictor and risk factor for PTSD (Bremner, Southwick, Fontana, Rosenheck, & Charney, 1992; Brewin, Andrews, & Valentine, 2000; Hoge et al., 2007; Ozer, Best, Lipsey, & Weiss, 2008) and other stress spectrum disorders (Bremner, 2005; Scaer, 2001, 2005). For example, a recent meta-analysis found that peritraumatic dissociation had the largest effect size for predicting PTSD symptoms (Ozer et al., 2008). Information related to traumatic experiences is often differently encoded during peritraumatic dissociation, resulting in decreased access to that information once the person returns to their baseline state; this may lead to the avoidance of necessary cognitive and affective processing of the trauma afterwards (Lanius et al., 2010; Scaer, 2005). As already noted, there is evidence that symptoms of dissociation are common in military personnel exposed to the acute stressors of stress-inoculation training (Morgan, Hazlett, et al., 2001; Morgan et al., 2002); moreover, peritraumatic dissociation during training is significantly and negatively related to performance (Eid & Morgan, 2006; Morgan, Wang, et al., 2001; Morgan et al., 2002). In contrast, facets of mindfulness are negatively correlated with dissociation (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Thus, during a stressful or traumatic event, mindfulness may allow an individual to maintain a sharper focus on the emergency at hand and reduce the likelihood of peritraumatic dissociation (Smith et al., 2011).

Finally, when recalling a stressful or traumatic event, attentional control and tolerance for challenging experience may increase an individual's ability to tolerate the associated emotional arousal by facilitating the healthy engagement with and processing of distressing emotions (Follette, Palm, & Pearson, 2006). This may decrease the need for avoidant coping mechanisms, such as using alcohol, and may decouple automatic mental processes from behavioral choices that actually prolong activation of the stress response (Ostafin & Marlatt, 2008), both of which dysregulate the nervous system further. Furthermore, in light of the fact that nervous system self-regulation often occurs while the conscious mind is asleep and not inhibiting the self-regulation process (Scaer, 2005), as well as previous research about the correlation between MT and improvements in sleep patterns (Bootzin & Stevens, 2005; Carlson & Garland, 2005; Ong, Shapiro, & Manber, 2009), MMFT may promote improvements in sleep quality as well as increased opportunities for self-regulation to occur while sleeping. In this way, MMFT skills could support the body's and mind's natural self-regulation processes and thereby build stress resilience.

Research on MMFT

One of MMFT's unique strengths is that it has been tested through rigorous neuroscience research. A 2008 pilot study with U.S. Marine reservists preparing for

deployment to Iraq provided preliminary evidence of MMFT's beneficial effects. Conducted in collaboration with neuroscientist Dr. Amishi P. Jha (University of Miami), the pilot study was funded by the John Kluge Foundation and the U.S. Department of Defense Centers for Excellence for Psychological Health and Traumatic Brain Injury. The study included two detachments of Marines preparing for deployment to Iraq, one that received MMFT (31 Marines) and one that did not (17 Marines). The MMFT Marines received 24 hr of MMFT instruction over 8 weeks. There were two differences between this pilot MMFT course and the current 20-hr MMFT course. First, the pilot course included an 8-hr workshop, instead of a 4-hr workshop, in the sixth week. Second, the didactic material was spread out evenly across the 8 weeks, instead of being front-loaded in the first 2 weeks, as the course is now structured. The pilot study measured MMFT's effects through neurocognitive behavioral tasks, self-report measures, and participant logs of MT practice time, of which the instructor did not have knowledge. Data were collected twice before the Marines deployed—before training (T1) and after MMFT or 8 weeks later (T2)—as well as after the deployment (T3). Data were also collected from a civilian control group ($n = 12$), to examine whether the stressors of the predeployment interval were cognitively degrading.

In light of previous research showing that military stress-inoculation training can lead to degradation in cognitive performance (Lieberman et al., 2002, 2005; Morgan et al., 2004, 2006), we hypothesized that the predeployment interval might deplete WMC and lead to cognitive failures and emotional disturbances, because WMC is used both in managing cognitive demands and in regulating emotions. We also hypothesized that the predeployment interval could lead to increases in perceived stress. However, in light of previous civilian research linking MT to reduced distress (Carmody & Baer, 2008; Shapiro Oman, Thoresen, Plante, & Flinders, 2008), improved emotion regulation (Jain et al., 2007; Ortner, Kilner, & Zelazo, 2007), and improved cognitive control (Chan & Woollacott, 2007; Jha, Krompinger, & Baime, 2007), we also posited that MMFT and MT practice outside of class might mitigate some of the deleterious effects associated with the predeployment interval.

WMC was measured with the well-validated Operation Span task (OSPA; Unsworth, Heitz, Schrock, & Engle, 2005). Although WMC remained stable over time among the civilians, it was degraded in the Marine control group (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010). In the MMFT group, WMC decreased over time in those with low MT practice (on average, 2 hr of practice outside of class over the 8 weeks), but WMC increased in those with high practice time (on average, 10 hr of practice over the 8 weeks). Higher MT practice time also corresponded to lower levels of negative emotion and higher levels of positive emotion (indexed by the Positive and Negative Affect Schedule, PANAS; Watson, Clark, & Tellegen, 1988). The relationship between MT practice time and negative emotion, but not positive emotion, was mediated by WMC; this finding suggests not only that regulating negative emotions is cognitively depleting but also that MT may improve cognitive control of emotion. Higher MT practice time also corresponded to higher levels of self-reported mindfulness (indexed by the Five Facet Mindfulness Questionnaire, 5FMQ; Baer et al., 2006), and increases in mindfulness were associated with decreases over time in perceived stress (indexed by the Perceived Stress Scale, PSS; Cohen, Kamarck, & Mermelstein, 1983; Stanley, Schaldach, Kiyonaga, & Jha, 2011).

In other words, these data support previous research in military populations that cognitive degradation is likely during stress-inoculation training without complementary MT practice. It is important to note that the WMC degradation experienced by the Marine control group and the low-MT practice Marines in the MMFT group occurred before deployment. In other words, these Marines *began* their deployment in this cognitively degraded condition; this degradation does not reflect the additional stressors of the deployment itself. The apparent cognitive and emotional costs of the predeployment context are striking, given that the intention of predeployment training is to prepare service-members physically, emotionally, and cognitively for the stressors of deployment.

However, among those who practiced, MT appears to have mitigated those deleterious effects by bolstering WMC, decreasing negative emotions, increasing positive emotions, and decreasing perceived stress levels. These findings suggest that sufficient MT practice may protect against the functional impairments associated with high-stress contexts. These findings also suggest that MMFT may promote resilience by reducing distress and improving the regulation of emotions associated with high-stress contexts. This final point lends support to other research that argues that mindfulness may allow greater psychological flexibility, reduce emotional avoidance and suppression, and improve emotion regulation in the midst of a range of stressful experiences (Coffey & Hartman, 2008; Follette et al., 2006; Jain et al., 2007; Shapiro, Carlson, Astin, Freedman, 2006; Smith et al., 2011). In sum, these results suggest that MMFT may provide greater cognitive and emotional resources for adaptive functioning during high-stress contexts.

In light of these findings, the U.S. Department of Defense funded three large-scale follow-up studies with active-duty troops. Analysis of the data from these studies is under way, with research publications to disseminate their results in progress. The first study, in collaboration with Principal Investigator Dr. Jha, occurred in 2010 with U.S. Army Soldiers preparing for deployment to Afghanistan. Funded by the U.S. Army Medical Research and Materiel Command, the Schofield Barracks Training and Research on Neurobehavioral Growth study is sponsored by the U.S. Army's Comprehensive Soldier Fitness program. Study participants from the U.S. Army's 25th Infantry Division received training throughout the summer of 2010.

The goal of this randomized-control trial study was to examine different variants of MMFT and to compare MMFT to another resilience training and to "treatment as usual" (predeployment preparation without additional resilience training). The study included 240 soldiers divided into six groups. Four groups received variations of MMFT; the four MMFT variants were designed, in collaboration with John M. Schalbach, to examine course length (24 hr, vs. 16 hr, vs. 8 hr, of classroom instruction) and course composition (focusing on didactics, vs. focusing on mindfulness practice, vs. integrating didactics and practice). The fifth group received another resilience training based on the tenets of positive psychology—Positive Emotions Resilience Training, developed and taught by Dr. Sara Algoe (University of North Carolina, Chapel Hill)—matched for instructor expertise, course length (16 hr), and course composition (integrating didactics and practice). The sixth group received no training. The study is measuring the effects of the training through neurocognitive behavioral tasks, self-report measures, and participant practice logs. A subsample of soldiers also

participated in brain-wave recording (EEG) and peripheral physiology data collection. Data were collected at three time-points before the soldiers deployed: before training (T1), after training or 8 weeks later (T2), and 3–5 months later (T3), right before deployment, to measure the training's enduring effects. The soldiers returned from Afghanistan in spring 2012; Dr. Jha's lab also collected data at two postdeployment time-points.

The second study, in 2011, included U.S. Marines preparing for deployment to Afghanistan, in collaboration with Principal Investigator Dr. D. Chris Johnson (University of California San Diego and Naval Health Research Center), Dr. Tom Minor (UCLA), and Dr. Martin Paulus (UC San Diego). This study was funded by the U.S. Office of Naval Research and the U.S. Department of the Navy's Bureau of Medicine and Surgery. Study participants from the U.S. Marine Corps' 1st Marine Expeditionary Force (IMEF) received training throughout the summer of 2011.

The goal of this randomized-control trial study was to test the effects of providing MMFT to complement the U.S. Marine Corps' existing stress-inoculation training at the Infantry Immersive Trainer (IIT), a simulated training environment for small unit operations, located at Camp Pendleton, CA. The study included 320 Marines divided into two groups: four platoons (160 Marines) received the 20-hr version of MMFT, while four platoons (160 Marines) served as a no-training control group. The study is measuring MMFT's effects through neurocognitive behavioral tasks; blood and saliva biomarkers; self-report measures; participant practice logs; and heart rate, respiration rate, and other measures of individual and small group performance during squad counterinsurgency drills at the IIT. In addition, a subsample of the Marines also participated in functional magnetic resonance imaging (fMRI). Data were collected at three time points before the Marines deployed to Afghanistan: before training (T1), after MMFT or 9 weeks later (T2), and 1 week later, while the Marines conducted 12 hr of immersive field training at the IIT (T3), to measure MMFT's effects during operational stressors. The research team also collected data at one testing time point after the Marines returned from deployment in the summer 2012.

The third study, which began in late 2012 and is still under way, includes U.S. Marines undergoing professional training at the U.S. Marine Corps' School of Infantry-West, in collaboration with Principal Investigator, Dr. D. Chris Johnson (University of California San Diego and Naval Health Research Center), Dr. Tom Minor (UCLA), and Dr. Martin Paulus (UC San Diego). This study was funded by the U.S. Office of Naval Research.

The goal of this randomized-control trial study is to examine the effects of embedding MMFT into one of the professional courses at the U.S. Marine Corps' School of Infantry-West (SOI-W). The study includes Marines who were assigned to three cycles of the same SOI-W course: One cycle (80 Marines) received the 20-hr version of MMFT, one cycle (80 Marines) received an active control training focused on the tenets of sports psychology, and the third cycle (80 Marines) served as a no-training control group. The study is measuring the trainings' effects through neurocognitive behavioral tasks; blood and saliva biomarkers; self-report measures; participant practice logs; and heart rate, respiration rate, and other measures of individual performance during the participants' training at this SOI-W course. In addition, a subsample of the Marines also participated in fMRI. Data were collected at the beginning of the course;

at different time-points throughout the SOI-W course, to measure performance during operational stressors; and after the training.

Comparison to Langer's Approach to Mindfulness

As this chapter has explained, MMFT cultivates mindfulness through specific exercises that train the ability to pay attention and notice what is happening while it is happening, without the mental filters of judgment, elaboration, or emotional reactivity. With repeated practice, it is possible to train the mind away from its default mode of autopilot and into a new mindfulness default mode. And with repeated practice, it is possible to train the two foundational capacities of attentional control and tolerance for challenging experience.

There are similarities and differences between this conceptualization and Ellen Langer's approach to mindfulness. Langer defines mindfulness as "a flexible state of mind—an openness to novelty, a process of actively drawing novel distinctions"; in this state, she argues, "we become sensitive to context and perspective; we are situated in the present," and "we are actively varying the stimulus field" (Langer, 2002, p. 214). Elsewhere, she refers to mindfulness as a "cognitive state," which is "both the result of, and the continuing cause of, actively noticing new things." The "hallmarks" of this cognitive state are "the ability to view both objects and situations from multiple perspectives" and "the ability to shift perspectives depending on context" (Carson & Langer, 2006, p. 30). In contrast, when we are mindless, we "act like automatons" governed by rule and routine, and we "rely on distinctions drawn in the past" (Langer, 2000, p. 220).

From these definitions, it should be clear that Langer and I agree that the opposite of mindfulness is an autopilot state where habit, routines, and understandings from the past are driving our interaction with present-moment experience. However, our definitions of mindfulness and how this state is cultivated seem to differ. In Langer's conceptualization, mindfulness appears to be a state of mind that requires actively noticing new things and constantly updating our mindsets. As she and her coauthors note, mindfulness "is a process in which new stimuli are perceived as having continually emerging meanings, rather than fossilized versions of previous meanings" (Langer, Djikic, Pirson, Madenci, & Donohue, 2010, p. 662). Thus, in Langer's conceptualization, mindfulness is cultivated through active distinction-drawing of all kinds, whether cognitive, olfactory, visual, or auditory—in other words, it is an active way of conceptually processing information.

In contrast, mindfulness, as I have defined it here, is a state of mind that is separate from the conceptual processing of stimuli. It is the direct, full-bodied knowing of present-moment experience, separate from any of the filters, labels, expectations, judgments, and cognitive processes that we usually bring to interpreting stimuli. This state of mind is cultivated by actively paying attention moment by moment to whatever is arising, without perceiving through those filters that can cloud clear-seeing when we are on autopilot. Because moment-to-moment experience is actually a constantly changing stream of stimuli, to see these stimuli clearly (separate from the filters we use to interpret them) requires a strong capacity to stay present with them. This capacity

does not just arise because we want it to. Neuroplasticity suggests that habitual patterns of perception have deep grooves that we default back into—especially when we are in stressful situations.

Thus, in light of the inertia of our deeply conditioned habits of mind, it is extremely helpful to retrain the mind’s default mode actively with repeated practice. To train that presence, it is helpful to begin with one target object of attention: when the mind wanders off that target object, the instruction is to notice it has wandered and then to return the attention back to the target object. This instruction cultivates attentional control—the ability to deploy and sustain attention on a chosen target object (even when that target object is difficult, such as uncomfortable physical sensations or emotions). Over time, as attentional control is strengthened, it then becomes possible to let go of one target object and instead allow the attention to track accurately the rapidly changing flow of stimuli—including sensory stimuli, sensations, thoughts, emotions, and the other filters of cognitive processing—through the field of awareness, without falling back into an autopilot default mode. In addition, over time it becomes possible to stay in the new mindful default mode during daily activities, not just while practicing mindfulness exercises. This is neuroplasticity in action, using repeated practice for deep retraining of the mind’s default mode so that the mindful state of mind remains accessible even during stressful situations.

Beyond our different ways of cultivating mindfulness, Langer’s approach and the MMFT approach may lead to both similar and different effects. Like the effects of MT reviewed in this chapter, Langer’s approach has been associated with a variety of positive health-related outcomes among healthy and clinical civilian populations (see Langer, 1989, 1997, 2009, for reviews). Moreover, both approaches place great value on *choice*: using mindfulness to see clearly and then choose the most appropriate and effective response—rather than defaulting (in the autopilot mode) to habit, routine, scripts, or reactive impulse.

However, a unique feature of the MMFT approach is its efficacy among high-stress populations like the predeployment military; Langer’s approach has never been examined in the high-stress organizational context. In this regard, the focus in MMFT on training both mindfulness skills and self-regulation stress-resilience skills may be critical. For example, it is not clear whether Langer’s approach to mindfulness could lead to the same effects for self-regulation of the ANS that cultivating attentional control and tolerance for challenging experience do. It would be interesting to see if Langer’s approach can effectively provide benefits in the high-stress context. Ideally, this would be the case: Since no approach is equally effective for everyone, perhaps those not helped by MMFT could be helped by Langer’s approach (and vice versa). Thus, further research comparing our two approaches among high-stress populations is clearly warranted.

Conclusion

In sum, this chapter has introduced MMFT as an approach for improving operational effectiveness in high-stress organizational contexts and perhaps shielding against the physiological, psychological, and behavioral disorders of the stress spectrum. It has

discussed two foundational capacities that MMFT cultivates—attentional control and tolerance for challenging experience—which are important for enhancing performance and building resilience. It has also summarized empirical evidence to date of MMFT’s efficacy in the high-stress military context of preparing for combat deployment.

To be sure, this work bringing mindfulness to the military has been somewhat controversial. Variant A of this argument runs something like this: “I can see how mindfulness could be helpful for veterans who have left the military. But how could it ever be ethical to offer mindfulness to troops who are still on active duty? Isn’t that just going to help them to suppress their human revulsion for war and thereby help them to become more efficient at killing? Won’t this just give the government another way to use the military for aggression and bad foreign policy choices?” Or occasionally, I get Variant B of this argument: “Isn’t mindfulness only going to make the troops more touchy-feely and compassionate? Won’t it just make them even more mindful of the awful things they are being asked to do, and then they won’t have the willpower to do it? Isn’t it just better for them to be checked out when they have to kill other people?”

To see through the misunderstanding captured in these arguments requires a comprehension of the interplay between resilience and performance enhancement. For example, troops who screened positive for mental-health problems after returning home from recent deployments in Iraq and Afghanistan were three times more likely to report having engaged in unethical behavior while deployed (MHAT-V, 2008). Such behavior—including unnecessarily damaging private property or insulting or physically harming noncombatants—is obviously counterproductive to “winning the hearts and minds” of the local population. This finding suggests a strong link between the negative effects of stress, which degrades troops’ capacity to manage their own emotions and thereby control impulsive, reactive behavior, and a decrease in their ability to perform their mission effectively—not only in counterinsurgency but in all security operations across the full spectrum of peace and conflict. Conversely, it suggests a strong link between resilience and enhanced performance: A resilient individual is more likely to perform their mission effectively, and someone who performs their mission effectively is less likely to have their resilience undermined.

If the nation’s leaders have decided to send troops into harm’s way, those troops’ hearts, minds, and bodies are going to be experiencing the stressors of war—whether they are mindfully paying attention or not. If they are paying attention, however, they are more likely to see the environment around them clearly, without being influenced by the unconscious survival filters that often exaggerate what is really there. They are more likely to regulate their stress response and the reactive impulses that this response can create. As a result, they are more likely to pull the trigger only when they really need to—when imminent harm actually exists in the environment—and less likely to pull the trigger reactively, giving in to strong impulses, such as fear, vengeance, uncertainty, anger, or confusion. In the process, they are less likely to act out in ways that undermine mission accomplishment, such as inadvertently shooting a noncombatant and thereby pushing the local population to side with the adversary. They are also less likely to act out in ways that afterwards they will regret—which often fuels shame,

isolation, survivor guilt, and psychological injury later on. In other words, they are less likely to cause harm to others and to themselves.

In light of this reality, it is clear why millennia of warrior traditions have placed such an emphasis on cultivating wisdom and bravery. Returning to where this chapter began, wisdom is the ability to see clearly how things are right now—not how we *want* them to be, or *expect* them to be, but how they *actually are*—and then to use that information to make the most effective choice in the moment. Bravery is the ability to stay present with any experience, even an extremely difficult one, without needing for it to be different. By now it should be clear that wisdom would be impossible without attentional control, and bravery rests on tolerance for challenging experience. In other words, *attentional control and tolerance for challenging experience are simply the micromanifestations in any moment of the warrior qualities of wisdom and bravery*. Together, these two qualities are a pathway towards effective action, because, as Plato tells us, “the soul that is bravest and wisest will be least confused or disturbed by external influences” (Hamilton & Cairns, 1987, p. 627). A training that deliberately cultivates these qualities among those individuals charged with keeping the nation safe is critical in today’s complex, chaotic, ambiguous, and ever-changing security environment.

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Mindfulness and Performance

Zella E. Moore and Frank L. Gardner

Mindfulness and other forms of meditative practices have been of interest to elite performers, coaches, and psychologists interested in enhancing performance since the publication of Eugen Herrigel's (1953) *Zen and the Art of Archery* in the middle of the 20th century. This interest in mindfulness practices within sport and performance psychology remained by and large a curiosity fueled by the occasional popular book, such as professional basketball coach Phil Jackson's text entitled *Sacred Hoops: Spiritual Lessons of a Hardwood Warrior* (Jackson & Delehanty, 1995), where it was suggested that optimal athletic performance could perhaps be better enhanced by the cultivation of mindful awareness rather than mindless aggression. Despite these rare sport-related acknowledgments in the popular media, the tendency from the 1950s into the early 2000s was for the scientific community within sport psychology to dismiss meditative approaches as somehow "mystical" and nonscientific, even following a 1985 conference presentation by Kabat-Zinn and colleagues on a meditation based mental training program for elite rowers (Kabat-Zinn, Beall, & Rippe, 1985). Yet, after clinical psychology began effortfully investigating mindfulness theory, examining its constructs, and incorporating it into practice in the 1990s, the view of mindfulness and meditative practices started to change within sport psychology as well. Around the turn of the 21st century, mindfulness-based interventions found their way into mainstream sport psychological science and practice, largely spearheaded by the development of the Mindfulness–Acceptance–Commitment (MAC) approach to performance enhancement (Gardner & Moore, 2004; Moore & Gardner, 2001). In just over a decade, significant and important developments with regard to mindfulness-based interventions in sport psychology have emerged (Gardner & Moore, 2012). Yet as in clinical psychology within which mindfulness-based approaches first took hold, the growth and adoption of mindfulness practice into mainstream sport psychology have required consideration of basic definition and conceptual understanding. As such, we follow with a discussion of how mindfulness may be conceptualized and then tie the

discussion back into how mindfulness-based approaches can be of assistance in the sport and performance psychology domains.

Basic Conceptual Considerations

Mindfulness has most often been defined broadly as attention to, and nonjudging acceptance of, experiences in the present moment (Bishop et al., 2004; Kabat-Zinn, 1990). This definition suggests that there are two distinct yet related components of mindfulness. The first component is the *regulation of attention* in order to maintain focus on one's present moment experience, and the second component entails approaching one's personal experiences with an orientation of *acceptance* and *openness*, regardless of the intensity and/or desirability of those experiences. As discussed throughout this text in a variety of ways, mindfulness is most typically developed through formal meditative practices/exercises (Kabat-Zinn, 1990), which often involve focusing attention on the experience of cognitions, emotions, and physiological states, and developing the capacity to simply observe those experiences as they surface and subsequently pass.

Traditionally, the Eastern/Buddhist conceptualization of mindfulness has emphasized the importance of the development of both awareness and attention. In direct practice, different approaches to mindfulness emphasize different facets, with some mindfulness meditative approaches highlighting concentration, some approaches stressing the development of awareness, and yet others highlighting the development of compassion (Vago & Silbersweig, 2012). Historically, the Buddhist path to mindfulness has placed emphasis on a commitment to virtuous and ethical behavior, suggesting that the fundamental objective of Buddhist practice is the attainment of enlightenment/awakening (Grabovac, Lau, & Willet, 2011). According to traditional Eastern viewpoints, while mindfulness can effectively reduce human suffering and lead to improvements in one's overall physical and psychological health and well-being, a more important goal according to Eastern philosophical roots may be seen as the acquisition of insight/enlightenment through mindfulness-based meditative practices. Yet while current mindfulness theory and practice are loosely based on the Eastern/Buddhist philosophical and religious traditions, these traditional Eastern roots often receive little attention in the scientific discussion of modern-day (Western) mindfulness theory and practice. Rather, the field of psychology (namely the cognitive-behavioral theoretical and empirical tradition) frequently extracts mindfulness-based principles from their religious/philosophical context and instead applies specific components in a scientific manner in order to enhance some form of functioning (e.g., psychological, performance, general well-being).

The modern-day result is that the practice of mindfulness, as adopted from Eastern traditions and then applied in Western psychological science, involves: (1) focusing attention on one's experience of cognitions, emotions, and physiological sensations; and (2) in an open and nonjudgmental manner, observing them as they arise and subsequently pass. In this more Western view of mindfulness, which has been best defined by Langer (1989), the importance of mindfulness training lies in the development of openness to novelty in the environment, remaining sensitive to contextual variables,

and the enhancement of new cognitive categories. As can be seen, this view of mindfulness is unlike the traditional Eastern/Buddhist conceptualization in its absence of religious/philosophical positions about enlightenment and insight. However, it certainly retains the importance of attention and awareness. Langer has further suggested that *mindfulness* (which she distinguishes from *mindlessness*) can actually be developed without the use of meditative exercises. In her view, mindfulness is the act of drawing novel distinctions, which can develop without meditation. This perspective is closely related to the suggestion by Hayes, Strosahl, and Wilson (1999) that optimal psychological functioning is associated with an individual's functional connection to their environment, as opposed to an overly automated reliance on verbal rules and entanglements. That is, attention to and awareness of relevant (contextual) stimuli allow for optimal behavioral responding, rather than automatic, overlearned, contextually independent rule-governed behavior (i.e., mindlessness). In fact, the theoretical rationale and strategic utilization of mindfulness within Acceptance and Commitment Therapy (ACT), which is an efficacious psychological treatment developed by Hayes and colleagues (1999), is remarkably similar to Langer's conceptualization of mindfulness.

Connecting Mindfulness With Sport and Performance Contexts

Numerous chapters in this text discuss mindfulness from a variety of perspectives and with varying populations. When specifically discussed in the sport and performance literature, mindfulness is most often conceptualized as a process that promotes attention to present-moment experiences (Gardner & Moore, 2004), or as Kabat-Zinn (1994, p. 4) eloquently expressed, as "paying attention in a particular way, on purpose, in the present moment and non-judgmentally." In this regard, and representing a broad connection between the Eastern and Western views, our own working use of the term mindfulness, which we first presented in 2001, involves enhancing awareness, attention, and nonjudging acceptance of experiences. This ultimately leads to a distinctly different response style to contextually relevant moment-to-moment information (i.e., stimuli) than the *mindless* mode of processing information, which is often a very rule-governed, default way of perceiving and assimilating information. We have personally long proposed that from a performance perspective, the development of mindfulness allows for a greater task-relevant attentional focus, enhanced awareness, and response efficiency to performance-related stimuli, and subsequently allows for enhanced learning and maintenance of elite skills (Gardner & Moore, 2007).

Yet, these propositions lead to the question of how mindfulness actually works or, more specifically, by what mechanisms mindfulness results in its wide-ranging positive effects in personal and performance domains.

Proposed mechanisms of mindfulness

While a large body of literature, including controlled clinical trials and neuroscientific research, has been published over the last decade, until fairly recently, less

attention had been given to a consideration of the possible mechanism(s) of action of mindfulness practices. Yet, a number of proposed mechanisms have been suggested and recently tested. For example, some authors have focused on the central role of enhanced attention regulation in meditation practice (Brown & Ryan, 2003; Carmody, 2009; Lutz, Slagter, Dunne, & Davidson, 2008), and Shapiro, Carlson, Astin, and Freedman (2006) have suggested that in addition to attention, changes in intention and attitude are critical mechanisms of mindfulness practices. In Shapiro et al.'s conceptualization, intentionally paying attention with a nonjudging attitude results in a significant change in perspective regarding one's internal processes, which is most often referred to in the literature as *decentering* (Fresco et al., 2007). In a somewhat more expanded view of possible mechanisms of action, Lynch, Chapman, Rosenthal, Kuo, and Linehan (2006) suggested that behavioral exposure and the learning of new response sets, enhancing emotion regulation, minimizing literal beliefs in rules, and attentional control were the basic mechanisms by which mindfulness practices are thought to work within the context of an empirically supported cognitive-behavioral treatment known as Dialectical Behavior Therapy (DBT). Additionally, Brown, Ryan, and Creswell (2007) suggested that a number of processes, including (1) insight, (2) exposure, (3) nonattachment, (4) enhanced mind–body functioning, and (5) integrated functioning, are the likely mechanisms by which mindfulness results in positive effects.

Further, in a comprehensive consideration of this topic, Grabovac and colleagues (2011) suggested that there appear to be three broad processes underlying the positive effects of mindfulness practices, which include: (1) learning that sensory impressions and related mental experiences are essentially transient (they momentarily arise and subsequently pass); (2) disruption of habitual and automatic reactions to internal events such as cognitions, emotions, and bodily sensations; and (3) learning that mental events do not comprise any lasting, unique entity that could be identified as a "self." Grabovac and colleagues have further proposed that attention regulation, acceptance/compassion, and insight/awareness are the mechanisms by which these three broad processes occur. In addition, in a recent comprehensive summary of the literature with respect to possible mechanisms of action, Hölzel and colleagues suggested that emotion regulation, bodily attentiveness/awareness, attention regulation, and change in one's perspective of the self/decentering, appear to be the common themes across the various conceptualizations regarding the possible mechanisms of action in mindfulness (Hölzel, Lazar, Gard, Schuman-Olivier, Vago, & Ott, 2011).

In essence, then, mindfulness enhances one's capacity to remain more consistently aware and attentive, regardless of the type or intensity of one's emotional state or fleeting cognitive experience. Mindfulness does not promote the suppression of one's emotional experience and does not endorse any efforts aimed at altering or modifying that experience. Conversely, mindfulness training promotes nonreactivity and systematic and efficient retraining of awareness, thereby leading to defusion/decentering from one's experience. In turn, this allows individuals to choose their actions more consciously, rather than habitually reacting to their internal experiences.

In summation, a substantial degree of overlap with regard to the explication of mechanisms thought to underlie the positive effects of mindfulness meditative

practices seems to exist. At present, mindfulness appears to achieve the wide array of positive effects noted in the literature through the following broad mechanisms:

- 1 enhanced capacity for sustained attention and personal regulation of attention;
- 2 enhanced awareness of internal experiences including cognitions, emotions, and physiological sensations;
- 3 development of a different perspective regarding one's internal processes (i.e., decentering), including constructions about one's self and one's internal rules;
- 4 reduced automatic/habitual nature of the connection between cognitions/ emotions and behavior.

To tie this discussion back to the sport and performance domain, we personally take the position that the combination of these four mechanisms results in a greater capacity for effective emotion regulation and, in turn, a more flexible and contextual approach to one's performance world, thereby allowing for better adaptation, learning, and ultimately competitive performance.

With the mechanism of action underlying general mindfulness-based strategies addressed, let's consider how mindfulness practice, and the mechanisms that are purported to underlie its utility, may be particularly relevant in the area of human performance. To do this, let's consider the cognitive demands of performance, including attention, task-relevant awareness, and the implementation of goal-directed behavior.

Cognitive demands, human performance, and mindfulness practice

While there is no definitive consensus as to how cognition should be classified and categorized (Chiesa, Calati, & Serretti, 2011), it is nevertheless clear that cognitive functions are at the epicenter of human performance. While a thorough review of cognitive constructs and the functions with which they are associated is beyond the scope of this chapter, it is largely agreed that a wide array of cognitive operations, including (1) alerting (also commonly described as "vigilance" or "sustained attention"), (2) orienting (also referred to as "concentration" or "selective attention"), (3) executive attention (also referred to as "divided attention" or "conflict monitoring"), (4) allocating attentional resources, (5) processing and storing information, (6) decision-making, (7) problem solving, and (8) planning, are all critical skills in the development and effective utilization of elite skill sets. A careful perusal of these cognitive functions suggests that these processes comprise three core intersecting constructs: attention, task-relevant (i.e., situational) awareness, and the implementation of goal-directed behavior, which are inherent in high-level performance.

Attention While the construct of attention can be discussed in many (and often complex) ways, at its most basic level it refers to the ability to maintain concentration on task-relevant cues/stimuli, while filtering out task-irrelevant cues/stimuli. Skilled performance in sports or any other elite-level activity requires the individual to process internal and external information consistently and effectively, and subsequently determine which pieces of data are relevant, and which are extraneous or irrelevant.

Distractions can arise from either task-irrelevant *external* cues or task-irrelevant *internal* cues (including a variety of cognitions, emotions, and physiological sensations). The capacity to sustain attention in an ongoing and consistent manner can be conceptualized as the foundation of optimal performance.

Task-relevant awareness Task-relevant awareness refers to the capacity to perceive and incorporate information accurately and respond appropriately in response to that information. Task-relevant awareness can include the *external* environment (e.g., being aware of the opponent's strategy, weather conditions) or internal experiences (e.g., pain, required technical adjustments to unexpected opponent strategy). In essence, it allows the performer to process information quickly and accurately, plan, and make appropriate moment-to-moment tactical, technical, and strategic decisions.

Goal-directed behavior Goal-directed behavior essentially refers to planful and consistent action in support of the performer's goals and values. Time spent on quality practice and training, and appropriate contextual responses to unforeseen events (e.g., coach decisions, teammate behavior) would constitute examples of goal-directed behavior. Importantly, the requirements of goal-directed behavior, aside from personal motivation and commitment, must include emotion regulation. A construct of perhaps unsurpassed importance, emotion regulation is the coalescence of emotional awareness, emotional acceptance/tolerance, emotion modulation/management, and freedom from impulsive emotion-driven behavior (Gratz & Roemer, 2004). The emotionally regulated individual is better aware and accepting of emotion, is in turn able to resist the impulses associated with the ever-changing (and often intense) emotions and situations inherent in competitive performance, and is therefore better able to respond to and incorporate information from coaches, staff, competitive environments, etc., within challenging/stressful competitive moments. Individuals with sound emotion regulation skills are more objectively (nonjudgingly) aware of their emotions; do not respond to emotions as though they are inherently bad or problematic; can accept and ultimately tolerate their emotions while pursuing goals and personal values; and can in turn respond to challenging and/or difficult situations based upon the contextual needs of those situations and not the emotions that such situations trigger. We personally suggest that emotion regulation is fully interconnected with attention and situational awareness, culminating in the cognitive and behavioral flexibility required for optimal performance.

A recent meta-analysis conducted by Mann and colleagues provides some support for this proposition, indicating that expert performers are better than nonexperts at attending to relevant stimuli, resisting external and internal distraction even under stressful circumstances, incorporating relevant cues into their performance behavior, and demonstrating greater external (i.e., situational) awareness in competitive situations (Mann, Williams, Ward, & Janelle, 2007).

Of course, it would be reasonable for readers to inquire about the amount of empirical support for the proposition that mindfulness training can in fact influence these cognitive-affective processes at the core of athletic performance. As such, we shall highlight a number of important empirical findings in cognitive neuroscience, which

illustrate the processes that may be at the intersection between mindfulness practice and optimal performance.

Mindfulness and cognitive neuroscience

Empirical findings have suggested that neural plasticity appears to be essential for memory consolidation in the performance of complex motor tasks and, in turn, for the lasting ability to perform the highly skilled movements required in elite sports and other high-performance contexts (Nielsen & Cohen, 2008). Indeed, meditative training has been found to promote neuroplasticity (i.e., the capacity for neural alterations in response to training) and has demonstrated that individuals with mindfulness training experience trait-like flexibility in their ability to react to emotion and maintain functioning when confronted with stress-inducing stimuli (Davidson, 2002). According to Davidson, experienced meditators are generally capable of responding more effectively to their day-to-day cognitive and affective processes, and the results of ongoing meditative training can result in changes to neural circuitry that are considerable and long-lasting.

To highlight this further, an interesting study by Brefczynski-Lewis, Lutz, Schaefer, Levinson, and Davidson (2007) compared expert meditators ($n = 12$) with age-matched novice meditators ($n = 12$) who had no previous experience with meditative practices. Their study also included a third group of novice meditators ($n = 10$) who were incentivized with a monetary reward if they were found to be among the best activators of brain regions associated with attention. Results indicated that during meditative practice, both the experienced and novice meditator groups activated brain regions associated with attention. Participants in the experienced meditator group also demonstrated greater activation of relevant neural regions than those in the nonincentivized novice group. Of note, significant differences did not exist in relevant activation areas between the incentivized novices and experienced meditators. While this finding indicates that motivation to do well on the meditation task impacted upon the subjects' neural activity, it also should be noted that experienced meditators sustained attention for longer periods than either of the two novice meditator groups. This important finding indicates that the skills involved in attentional focus, which are indeed critical to optimal performance, are not merely a matter of effort. The authors additionally discovered that the meditators with the most total hours of prior meditation history demonstrated less activation in those areas associated with focused attention than those experienced meditator participants who had fewer total hours of meditation practice. This signifies that earlier stages of meditation skill development appear to necessitate greater attentional effort, whereas with longer overall time spent in mindfulness training, substantially less effort is required to sustain attention. Therefore, a critical finding here is that the skill of sustaining mindful attention can be automated to the point that it requires considerably less effort to achieve and sustain enhanced attention.

Further examining the extant literature, it appears that mindfulness actually has positive effects on cognitive functions for individuals who engage in meditative practices for either a prolonged *or* short period of time. To highlight this, a study by Slagter and colleagues (2007) found that individuals with just 3 months of meditative

experience were capable of allocating attentional resources more efficiently than individuals without any training in mindfulness. Another investigation determined that as little as 4 days of mindfulness practice led to substantial improvements in working memory, visuospatial processing, and executive functioning compared with control-group participants (Zeidan, Johnson, Diamond, & Goolkasian, 2010). The more resourceful use of attentional resources found in Zeidan et al.'s study may add clarity to previous findings suggesting that for individuals with expertise in meditative practice, attentional focus appears to require less neurocognitive activation to remain on task, and thus, competing tasks that require attentional resources can be carried out with fewer demands on available resources (Brefczynski-Lewis et al., 2007). In another informative study, Jha and colleagues found that through enhancements in working-memory capacity and emotion regulation, sufficient mindfulness training can minimize performance impairments/decrements associated with highly stressful situations (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010). This has clear and direct implications for performers, as elite competitive performance is often extremely stressful. As such, mindfulness training may be able to help such athletes mitigate these stressful situations and both reach and maintain optimal performance states.

Extending these conclusions, a summary of the data on mindfulness, enhanced cognitive functioning, and general task performance suggested that the training of cognitive skill sets via meditation is strongly associated with alterations in brain function and structure, and is also associated with enhanced task performance (Slagter, Davidson, & Lutz, 2011). Additionally, a recent comprehensive review of the literature with regard to mindfulness training and its impact on cognitive functions (Hölzel et al., 2011) drew the following conclusions, which have undeniable implications for human performance:

- 1 Mindfulness training, even relatively brief (i.e., an 8-week meditation program), can lead to improvements in sustained, (particularly) selective, and executive attention, and can enhance attention switching (i.e., shifting attention as contextually required) among individuals with no previous meditation experience. Yet, evidence does suggest that optimal effects of mindfulness training appear generally to be related to both the quantity (total meditation hours) and quality of meditation practice.
- 2 Mindfulness practice is associated with improvements in working memory and additionally appears to ward against a decline in working memory when exposed to stress-inducing conditions.
- 3 While not studied as extensively as attention and working memory, there is some evidence that mindfulness training may improve executive functions, including inhibition of cognitive responses, meta-awareness, and inhibition of emotional interference from distracting stimuli.

Finally, in a separate review of the literature, Greeson (2009) suggested that:

- 4 Mindfulness training results in an enhanced capacity to regulate emotion by promoting greater emotional awareness, understanding, acceptance, and modulation of mood states.

Combining the compelling research findings described above, it is not surprising that mindfulness training, conceptualized as a clear form of mental training, can result in enhancements to exactly the type of cognitive and affective functions required of elite performers.

Mindfulness-Based Interventions for Performance Enhancement

Despite rare mention in the popular literature from the 1950s to 1990s of the possible contribution of mindful awareness to sport performance, a formal emphasis on mindfulness and its application to performance did not take hold and become integrated into the professional literature and professional practice until our symposium conference presentation in 2001 (Moore & Gardner, 2001), which was followed by a seminal article (Gardner & Moore, 2004), comprehensive descriptions and manualized protocol (Gardner & Moore, 2006, 2007), and theoretical and practice implications related to our MAC approach to performance enhancement. Directly influenced by the theoretical developments evolving within the mindfulness and acceptance-based movement in clinical psychology (see Hayes, Strosahl, & Wilson, 1999), the MAC approach was the first widely disseminated theoretically and empirically informed structured utilization of mindfulness practices for the enhancement of performance. The MAC intervention protocol was conceptualized, beginning in 2001, as an intervention model centered around mindfulness practice, in which the cognitive and affective underpinnings of optimal athletic performance were the focus of therapeutic attention for the explicit purpose of both the enhancement of performance and general well-being (Gardner & Moore, 2004; Moore & Gardner, 2001, 2002, 2003). Yet, although originally conceptualized for aid in the sport performance context, the MAC approach has also been utilized for the enhancement of performance in other high-level/elite contexts, such as the military, and has even been successfully used for the prevention of emotional and behavioral problems among high school students (Gardner & Moore, 2012; Gross, Gardner, & Moore, 2012).

The primary focus of MAC and other similar interventions that have emerged following the introduction of the MAC protocol has been to promote a modified relationship with internal experiences such as cognitions, emotions, and physiological states, and, by doing so, enhancing attention, awareness, and emotion regulation. For example, the specific manualized MAC protocol comprises seven flexible modules, including: (1) psychoeducation; (2) mindfulness and cognitive defusion; (3) values and values-driven behavior; (4) acceptance; (5) commitment; (6) skill consolidation and poise (combining mindfulness, acceptance, and commitment); and (7) maintaining and enhancing mindfulness, acceptance, and commitment. Together, the enhanced cognitive-affective flexibility promoted in the MAC program and similar approaches can in turn culminate in enhanced performance. Mindfulness models suggest that optimal performance does not seek to reduce volitional control of internal states, as long proposed by traditional psychological skills training cognitive-behavioral approaches to performance enhancement. Rather, mindfulness models seek to promote: (1) a nonjudging moment-to-moment awareness and acceptance of

internal states, including a lack of judgment of whether they are “good” or “bad,” or “right” or “wrong”; (2) an attentional focus toward task-relevant exogenous stimuli, rather than a focus on endogenous processes that include judgment and efforts at controlling or modulating these experiences; and (3) an effortful, values-based commitment to behaviors that are in the service of the individual’s performance endeavors (Moore, 2009).

Consistent with MAC’s original theoretical suggestions regarding the usefulness of mindfulness and acceptance-based techniques for the attainment of athletic excellence (Gardner & Moore, 2004; Moore & Gardner, 2001), empirical data accumulated over the past 10 years on the connection between the use of mindfulness, cognitive-affective processes, and performance demonstrate that structured mindfulness practice can aid in the attainment and maintenance of skilled athletic performance. As an illustration, a study by Kee and Wang (2008) utilizing 182 collegiate athletes from 23 different sports (including a roughly equal number of individual sport athletes and team sport athletes) determined that greater levels of dispositional flow are associated with greater levels of mindfulness. *Flow* has been conceptualized as a mental state that includes heightened concentration, clear goals, loss of self-consciousness, and a heightened sense of control. The construct of flow is frequently theorized to overlap with the construct of mindfulness, and is highly correlated with superlative athletic performance (see Nakamura & Csikszentmihalyi, 2005). In the Kee and Wang study, as predicted, dispositional flow was associated with greater levels of dispositional mindfulness. In a study of 10 Olympic-level swimmers, Bernier, Thienot, Codron, and Fournier (2009) also uncovered a correlation between flow and dispositional levels of mindfulness. Both the Kee and Wang, and Bernier et al. studies were correlational, and are therefore unable to imply causality. Yet, their mutual findings of the important association between mindfulness levels and dispositional flow states, which has been consistently linked to optimal performance states, are certainly powerful.

In a study looking more directly at the relationship between dispositional mindfulness and athletic performance, Gooding and Gardner (2009) investigated the association between dispositional mindfulness, trait arousal, preshot routine, and basketball free-throw-shooting percentage in a group of 17 basketball players competing at the U.S. National Collegiate Athletic Association (NCAA) Division I level. Results revealed that the amount of basketball training/experience, free-throw-shooting skill levels, and levels of mindfulness were all predictive of (competitive) game free-throw-shooting percentage. On the contrary, the data suggested that trait arousal and the consistency and/or length of one’s preshot routine were not predictive. It is of note that the development of precompetitive routines has historically been a common psychological skills training technique for the enhancement of competitive performance, despite insufficient efficacy data regarding its utility. Importantly, the study additionally determined that a one standard deviation increase in levels of dispositional mindfulness led to a 5.75% increase in competitive free-throw-shooting percentage, an increase that would certainly have a profound impact on individual performance and basketball competition outcomes.

Finally, in a recent study utilizing 24 members of a NCAA Division III collegiate football team in the northeastern United States (Zultanky & Gardner, 2012), the

relationship between football performance, dispositional mindfulness, and emotion regulation was evaluated. Results indicated that football performance (as measured by coach game grades for each athlete) was predicted by motivation/confidence and impulse control. These predictive relationships were in turn fully mediated by emotional awareness. In addition, consistent with theoretical predictions, emotion regulation was associated with adequate attention, and emotional acceptance and a non-judging attitude were strongly associated with measures of coachability. Results of the Zultanky et al. study present clear performance implications. When viewed together, the findings from the aforementioned studies support the predicted relationship between mindfulness and athletic performance, and in turn suggest the utility of intervention strategies specifically formulated to enhance mindfulness among high-level competitive athletes.

Empirical findings have also been positive. Over the past 12 years, a number of empirical studies (case studies, open trials, and a randomized controlled trial) have highlighted the effectiveness of the MAC protocol, and have further suggested the utility of the similarly conceived mindfulness-based interventions for performance enhancement that followed its inception. For instance, empirical investigations such as case studies with highly skilled competitive athletes have suggested that improvements in process-related measures of mindful awareness, mindful attention, and emotion regulation, in addition to outcome measures from actual competitive performance, followed participant completion of the manualized MAC program (Gardner & Moore, 2004, 2007; Lutkenhouse, 2007; Schwanhausser, 2009). Additionally, a multiple baseline study on the MAC with four professional and recreational golfers demonstrated large effect sizes in reducing emotional interference with performance, enhancing state and trait mindfulness, and increasing objective golf performance (Flockhart, 2013). While case studies are not enough to determine empirical support for procedures, they are nevertheless useful in the early stages of intervention development, and thus, they provided valuable insight into the continuing development of these procedures.

In the next natural stage of the empirical evaluation process, an open trial of MAC's manualized program was implemented with 11 NCAA Division I female field hockey and volleyball student-athletes in the northeastern United States (Wolanin, 2005; Wolanin, Gardner, & Moore, 2003; Wolanin & Schwanhausser, 2010). Adding to MAC's empirical base, results of the open trial determined that the MAC participants showed an increase in both coach and self ratings of athletic performance and coach and self ratings of practice intensity and task-focused attention when compared with the no-treatment control group participants. In an open trial that followed with 19 NCAA Division II student-athletes from a variety of sports (Hasker, 2010), the MAC protocol was compared to a traditional cognitive-behavioral psychological skills training program that had previously been developed for Olympic athletes (which included positive self-talk, goal-setting, relaxation, imagery, and arousal control techniques). According to results, compared to the athletes receiving the psychological skills training intervention package, the MAC group participants showed: (1) a substantial increase in their ability to both describe and remain nonreactive to their internal (cognitive, affective, and physiological) experiences; (2) increased acceptance of their internal experiences; and, of particular importance, (3) an increase in values-driven behavior, which is the capacity to remain committed to those actions that are

directly associated with the achievement of their athletic goals and values. Although lack of statistical power did not permit adequate measurement of changes in actual athletic performance, the findings nevertheless suggested that the processes targeted by the MAC protocol, including an increase in nonjudging awareness of internal experiences, increased acceptance of internal experiences, and increased values-driven athletic behavior such as time spent on training and practice, were positively influenced by the MAC program.

Finally, in a randomized controlled trial (Gardner & Moore, 2007; Lutkenhouse, Gardner, & Moore, 2007) conducted with 118 high-level student-athletes from two U.S. NCAA Division I athletic departments, participants receiving the MAC intervention showed significantly greater increases in coach ratings of performance (of at least a 20% improvement) than those participating in a traditional psychological skills training program. An additionally valuable finding is that consistent with theorized mechanisms of action, study participants receiving the MAC intervention achieved significantly greater increases in coach ratings of aggressive (goal-directed) behaviors in both practice and competition, a significant increase in acceptance of (often uncomfortable) internal cognitive and affective states, and a significant improvement in flow states. As such, improvements both in performance and in theorized mechanisms of action were demonstrated. In total, the research investigations highlighted above combine to show that the MAC intervention program is a useful approach to enhancing competitive athletic performance, and that it seems to work by enhancing cognitive-affective processes of awareness, attention, and emotion regulation when faced with competitive stressors.

In addition to the empirical studies specifically assessing the efficacy of the MAC program, several other nonrandomized open trials have used mindfulness and acceptance-based protocols that are theoretically and procedurally similar to the MAC approach, and/or are influenced by MAC. For example, in a study of seven elite golfers, Bernier et al. (2009) found that an acceptance-based protocol, which included mindfulness training, led to performance improvements (which they defined as an increase in one's national rank) when compared to control group participants who received a traditional psychological skills training protocol. García, Villa, Cepeda, Cueto, and Montes (2004) utilized a sport-adapted version of ACT (Hayes et al., 1999), an intervention that incorporates mindfulness training as a core strategy, with 16 elite-level canoeists. Results indicated that the sport-modified version of ACT resulted in higher levels of athletic performance on a canoeing training apparatus when compared to a matched control group of athletes receiving an alternative hypnosis intervention. Additionally, in a study investigating the utility of a mindfulness-based intervention with 13 collegiate athletes who were assigned to either a mindfulness intervention group or a control condition, findings demonstrated that the mindfulness protocol led to significant improvements in the flow dimensions known as "sense of control" and "clear goals" (Aherne, Moran, & Lonsdale, 2011). This underpowered study also determined strong but nonsignificant effect sizes ($d = .6\text{--}1.6$) on flow dimensions known as "loss of self-consciousness," "concentration," and "challenge-skill balance."

In a study evaluating a 4-week mindfulness-based intervention entitled Mindful Sport Performance Enhancement (MSPE) with 25 recreational long-distance runners openly assigned to either the MPSE intervention or a waiting-list control group,

De Petrillo and colleagues found a significant increase in state mindfulness and trait awareness, and decreases in sport-related worries and perfectionism (De Petrillo, Kaufman, Glass, & Arnkoff, 2009). However, no improvements in actual running performance were found. De Petrillo et al.'s study was followed by an intervention study utilizing the same MPSE program for 25 long-distance golfers, runners, and archers (Thompson, Kaufman, De Petrillo, Glass, & Arnkoff, 2011). The researchers determined that nonsignificant but meaningful performance improvements took place from pretest to follow-up. While the MPSE protocol did not result in statistically significant performance improvements in either study, when investigating the mechanisms by which mindfulness programs might work, findings from Thompson et al.'s study indicated that participants receiving the mindfulness-based intervention demonstrated statistically significant gains in overall trait mindfulness and the ability to act with awareness, and experienced statistically significant reductions in task-irrelevant thoughts and task-related worries. The lack of any significant performance-enhancing outcomes in the two studies utilizing MPSE suggest the possibility that athletic performance may be best enhanced by a mindfulness training intervention embedded in a more comprehensive intervention package and offering a longer period of mindfulness training.

Finally, in a recent related study by Bortoli, Bertollo, Hannin, and Robazza (2012), 15 members of a national Olympic shooting team received a mental training intervention informed in part by the MAC approach, in which the primary intervention strategy was the enhancement of awareness and attention (i.e., a state of mindfulness). While meditative strategies were not used, results indicated that cultivating these cognitive processes culminated in enhanced shooting performance.

The theoretical relationship between mindfulness and nonathletic performance, as well as the utility of mindfulness-based interventions to potentially enhance nonathletic performance, has recently been considered as well. In a study conducted in Singapore on 95 supervisors and an equal number of employees who reported to those supervisors (Dane, 2011), findings indicated that supervisors' levels of trait mindfulness (including facets of attention and awareness) were positively related to employee perceptions of job satisfaction, as well as direct measures of employee job performance and "organizational citizenship" behaviors. Likewise, in a study of three groups ($n = 12\text{--}15$ per group; mindfulness meditation group, relaxation group, and control condition) of human-resources personnel working in a high-stress information environment, results demonstrated that participants in the 8-week mindfulness training group remained on task for longer periods of time, made fewer attentional errors, and reported less negative affect following task performance (Levy, Wobbrock, Kaszniaik, & Ostergren, 2012). Finally, in a noncontrolled study with a military population, 34 male subjects (M age = 30, $SD = 7.8$) who ranged in rank from Lance Corporal to Major were recruited from a detachment of United States Marine Corps reservists prior to their deployment. The Marine Corps participants completed an 8-week course of Mindfulness-Based Mind Fitness Training, which is a protocol related to the well-established Mindfulness-Based Stress Reduction program (Kabat-Zinn, 1990). Findings demonstrated that greater time spent engaging in mindfulness practice corresponded with greater self-reported levels of mindfulness, and further, increases in mindfulness were associated with decreases in perceived stress among participants.

Conclusion

In over a decade since the introduction of the first theoretically and empirically informed approach to performance enhancement, known as the MAC approach, mindfulness-based interventions have been increasingly recognized as valuable and theoretically sound approaches to performance enhancement. A number of mindfulness-based interventions are now available. While these programs reside mostly in the athletic domain, the business and military communities are increasingly integrating mindfulness-based interventions into their efforts to enhance human performance among their employees and soldiers. At the present time, mindfulness-based interventions for performance enhancement have accumulated an increasingly strong basic scientific and applied empirical base for both their theoretical relevance and intervention efficacy. Importantly, empirical findings have not only emphasized relevant performance outcomes, but also assessed the mechanisms of action driven from findings in basic science. Where basic science has indicated that mindfulness-based interventions have a direct and significant impact on emotion regulation, awareness, and attention, which we view as critical for the achievement and maintenance of performance success, applied research has increasingly found that it is just these processes, clearly related to optimal human performance, that are impacted by mindfulness-based protocols.

Performers have been engaging in their respective performance domains for eons, and untold numbers of performers will entertain the human race for generations and centuries to come. All of these past performers have sought to be the best they can, and all those to come will likewise seek to reach optimal performance states. Although the empirical base for mindfulness-based procedures discussed herein is still fairly young, and the mechanisms and outcomes associated with mindfulness-based interventions will benefit from further study, future empirical research on mindfulness-based programs, including research on both processes and outcomes, has the opportunity to aid in the evolution of this model in the years to come and positively impact generations of performers. At this time, it seems most pressing for future research to clarify a number of issues, which either have not yet been studied or remain unclear:

- Are there specific predictors of who may or may not respond to mindfulness-based interventions for performance enhancement?
- Might different elite performance domains (e.g., military, sports, business, surgical teams, first responders) require variants of mindfulness-based interventions based on the relative importance of attention, awareness, emotion regulation, etc.?
- How might dosage (i.e., frequency of mindfulness practice episodes, amount of practice per episode, cumulative practice time) impact mindfulness-based performance enhancement efforts, and could that vary based upon performance type?
- Are certain mindfulness meditative exercises more or less helpful with respect to performance enhancement?
- To what degree do mindfulness-based interventions affect new learning of elite performance, in terms of both cognitive skill sets and physical skill sets?
- To what degree can mindfulness-based interventions enhance critical thinking and problem solving under stress?

These are just some of the pressing questions for researchers to consider in the years ahead, and when addressed, this information will allow psychologists to enhance performance states further among athletes and other high-performing clientele. That being said, a great deal of progress has been made in a little more than a decade, and currently, mindfulness-based programs are considered viable, theoretically sound, and empirically informed intervention modalities for the highly sought-after enhancement of athletic performance.

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Mindfulness in Sport Performance

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Traditional sport psychology interventions, such as imagery, self-talk, and goal setting (Weinberg & Gould, 2011), generally aim to facilitate optimal performance by helping to control the internal, mental factors that can affect athletes (Gardner & Moore, 2006). Although these techniques have amassed support and are used around the world, investigations of these interventions have yielded inconsistent results and are often wrought with methodological flaws (Birrer & Morgan, 2010; Meyers, Whelan, & Murphy, 1996).

Gardner and Moore (2006) argued that the equivocal support for these traditional interventions may be due to the fact that their premise is flawed. Citing work by Wegner (1994), they propose that attempting to control negative internal states may ironically increase their occurrence by priming athletes to search for these phenomena. Such scanning can adversely impact sport performance, both by making negative thoughts and feelings more prominent in conscious awareness, and by distracting attention from the task at hand (Bertollo, Saltarelli, & Robazza, 2009; Janelle, 1999). Thus, rather than trying to control internal phenomena, it may be more beneficial for athletes to develop skills in present-moment awareness and acceptance (Gardner & Moore, 2006; Kaufman, Glass, & Arnkoff, 2009). This paradigm-shifting notion is a central tenet of an emerging group of treatments in sport psychology referred to as mindfulness-based interventions.

Psychological research on mindfulness began in part in the 1970s and 1980s (Kabat-Zinn, 1982; Kabat-Zinn, Lipworth, & Burney, 1985; Kabat-Zinn, Lipworth, Burney, & Sellers, 1987; Langer, 1977; Langer & Abelson, 1972; Langer, Blank, & Chanowitz, 1978; Langer & Imber, 1979) in two independent labs, working with two different conceptualizations of the construct. Langer's (2000) concept of mindfulness as "a flexible state of mind in which we are actively engaged in the present, noticing new things and sensitive to context" (p. 220) is rooted in the theories and research of social psychology. According to Langer (1989), being mindful means noticing the

context in which one acts. In this view, there is a particular emphasis on the active processing of new information, and the recognition that all stimuli can be seen from multiple perspectives. Langer contends that the capacity to see these various, situation-dependent points of view enhances one's ability to respond to the environment effectively and appropriately.

Kabat-Zinn's definition of mindfulness, on the other hand, has its roots in Buddhist philosophy, and involves "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4). For those who conceptualize the construct in this way, mindfulness is not the active processing of context-dependent information, but instead is a nonreactive awareness and unconditional acceptance of whatever arises in the present moment. This Eastern conceptualization of mindfulness has been used more widely to date by clinical psychologists, and is the primary perspective underlying approaches to sport performance enhancement (e.g., Gardner & Moore, 2004, 2007; Kaufman & Glass, 2006).

These two definitions of mindfulness share some important characteristics, like engagement with the present moment, although the different cultural and historical contexts in which these concepts originated have generated important differences that must be considered (Baer, 2003; Langer, 1989). A thoughtful examination of these theoretical similarities and differences will be explored throughout this chapter, which may highlight how each can contribute to this new direction in sport psychology. For the purposes of the present discussion, the two approaches will be referred to as Langer's mindfulness (LM) and Eastern mindfulness (EM). Any mention of *meditation* or a mindfulness-based *intervention* is referring to the Eastern conceptualization of mindfulness, since LM is not associated with meditation, and to date, there are no interventions based on Langer's definition in the area of sport.

This chapter will begin by reviewing the existing mindfulness-based interventions for athletes, paying particular attention to Mindful Sport Performance Enhancement (MSPE) developed by Kaufman and Glass (2006). Then, the associations between mindfulness and four important sport performance-related variables (flow, attention, affect, and certain physiological factors) will be examined, and their empirical and theoretical connections with EM and LM will be presented. These discussions will attempt to illuminate points of integration and divergence between the two conceptualizations of mindfulness, in an effort to create a more comprehensive understanding of the multifaceted role of mindfulness in sport performance enhancement.

Mindfulness-Based Interventions

In the first empirical test of a mindfulness-based intervention for athletes, Kabat-Zinn, Beall, and Rippe (1985) found that, following mindfulness training, a group of college rowers performed well above their coach's expectations (based on experience level and physical ability), and a group of Olympic rowers, several of whom won medals, reported feeling that the training had helped their performance. Despite these promising early results, it was nearly two decades before more rigorous empirical investigations of mindfulness-based interventions for sport performance enhancement were conducted. Currently, there are two empirically supported approaches

specifically for athletes, both of which utilize the Eastern definition of mindfulness: Kaufman and Glass's (2006) MSPE, and Gardner and Moore's (2004, 2007) Mindfulness-Acceptance-Commitment (MAC) approach. While MSPE will be the main focus of this discussion, the MAC approach and other recent interventions for athletes will be briefly introduced, along with an example of LM that may be relevant to a discussion of improving sport performance.

MSPE

Development In 2006, Kaufman and Glass developed MSPE (Kaufman & Glass, 2006). This intervention draws from both Kabat-Zinn's (1990) Mindfulness-Based Stress Reduction (MBSR), and Segal, Williams, and Teasdale's (2002) Mindfulness-Based Cognitive Therapy (MBCT), as well as other relevant sources related to mindfulness and sports (e.g., Gallwey, 1974; Herrigel, 1953). MSPE is structured to be adaptable to any sport of focus. The initial version of the manual, which was designed as a 4-week protocol, incorporated concepts from books on archery (Lee & de Bondt, 2005), golf (Rotella & Cullen, 2004), and running (Dreyer & Dreyer, 2009), since athletes from those sports were included in the earliest studies of this approach. An expanded version of the MSPE manual has recently been created and used in a current study with long-distance runners.

Description of MSPE The expanded version of MSPE is a 6-week program consisting of weekly 90-min group sessions and daily home practice (Kaufman, Glass, & Pineau, 2012; see Appendix A for a treatment outline). Original scripts were developed for all MSPE mindfulness exercises, and CD recordings of these exercises are provided to guide home practice. The intention of MSPE is to train athletes in the fundamentals of cultivating mindfulness, and then to help them gradually apply mindfulness skills both to their sport performance routines and to their lives beyond sport. In the initial sessions, an orientation and sport-specific rationale are presented to the athletes, which includes an explanation of what mindfulness is, how mindfulness training can be useful for athletes, and how the skills taught in MSPE are directly applicable to their sport. Core exercises included in the protocol are: (1) a candy exercise, a variant of the raisin exercise used by Kabat-Zinn (1990) and Segal et al. (2002), which introduces the concept of awareness by having athletes focus on using all of their senses while slowly eating pieces of chocolate; (2) a sitting meditation that increases in length over the course of the workshop from 10 min to almost 25 min, in which athletes are first guided to focus on their breath, then the sensations in their bodies, and finally to the sounds around them; (3) a body scan, during which athletes direct their attention to different areas of their body in sequence from their feet to their head, while being guided to notice and accept whatever sensations arise; (4) mindful yoga, which includes a series of basic yoga poses that allow athletes to practice maintaining a mindful awareness of their bodies and minds while they are in motion; (5) a walking meditation, in which athletes are guided to be fully aware of the sensations they experience within their bodies as they slowly transition from standing to walking at varying speeds; and (6) a sport-specific meditation (e.g., a running meditation), designed to give athletes

the opportunity to apply the mindfulness skills they have developed throughout the workshop to the actual motions and sensations that they experience when participating in their sport.

The order in which these core exercises are taught progressively moves athletes from sedentary to active mindfulness practice. The culmination of this progression from mindfulness in stillness to mindfulness in motion is the introduction of the sport-specific meditation, which is intended to create the necessary bridge between cultivating mindfulness and applying mindfulness during sport participation. The inclusion of an applied sport meditation and a rationale for the training that is adaptable to any sport represents a unique contribution of MSPE.

Empirical evidence for MSPE Two studies (De Petrillo, Kaufman, Glass, & Arnkoff, 2009; Kaufman et al., 2009) and one follow-up investigation (Thompson, Kaufman, De Petrillo, Glass, & Arnkoff, 2011a) have been completed using the 4-week version of MSPE, and a controlled examination of the expanded 6-week version is currently under way (Pineau, 2013). Using a community sample of archers and golfers, Kaufman et al. (2009) found significant increases in aspects of state and trait mindfulness for the golfers, in overall trait mindfulness for the archers, and in state flow for the whole sample. Flow, detailed later in this chapter, is the psychological construct thought to approximate most closely what athletes commonly refer to as “the zone.” Additionally, postworkshop feedback indicated that the athletes felt the MSPE workshop had positively impacted their performance and that they expected additional benefit in the future. De Petrillo et al. (2009) tailored the 4-week MSPE protocol to runners and found a significant increase in state mindfulness and a dimension of trait mindfulness from pre- to postintervention, as well as significant decreases in aspects of sport-related anxiety and perfectionism. However, no significant performance changes were found (measured by self-reported best mile time pre- and postintervention).

A 1-year follow-up of the archers, golfers, and runners who had received the MSPE training in the earlier studies showed that the athletes experienced a significant increase in trait mindfulness since receiving the workshop (Thompson et al., 2011a). Additionally, both the golfers and runners reported significantly improved performance (i.e., self-reported 18-hole practice round scores and mile times, respectively) since the conclusion of the workshop. Without a control group, it is impossible to say if these changes were a result of the MSPE training over and above the additional year of experience the athletes had in their sport, but other results at follow-up suggest this possibility. Specifically, improvements in the golfers’ scores were significantly related to increases in the unambiguous feedback dimension of trait flow, and the runners’ performance improvement was associated with increases in mindfulness. These results may be particularly important given that Kaufman et al. (2009) observed a significant increase in the unambiguous feedback dimension of state flow from pre- to postintervention, and that athletes from both earlier studies exhibited increases in mindfulness.

Over the past year, a controlled study of the expanded MSPE protocol has been ongoing, using a sample of Division I collegiate long-distance runners (Pineau, 2013). Prepost data have yet to be analyzed, but early results from preintervention assessments have revealed that, in addition to the number of miles run per week, the acceptance component of mindfulness significantly predicted running times. This

finding further highlights the potential importance of mindfulness to sport performance and the promise of mindfulness training for athletes.

MAC approach

Gardner and Moore's (2004, 2007) MAC approach to performance enhancement is another manualized mindfulness-based intervention developed for and studied using athletes. This approach draws heavily from Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and consists of seven weekly meetings, or modules. These modules include in-session exercises and discussions, as well as between-session homework assignments designed both to reinforce the skills being taught in each module and to provide material for discussion in subsequent sessions. A more complete description of the MAC approach (Gardner & Moore, 2007; Moore, 2009; Schwanhausser, 2009) and empirical evidence in support of this intervention can be found elsewhere in this volume (Chapter 51).

Other mindfulness interventions for athletes

In an attempt to explore the impact of mindfulness training on the experience of flow, Aherne, Moran, and Lonsdale (2011) devised a basic 6-week mindfulness intervention for athletes. This training includes a handout that outlines information on mindfulness and how it can be applied to sport, and instructions for daily, individual home practice doing one of four exercises (two versions of a 10-min sitting meditation, 10-min standing yoga, and 30-min body scan) from the CD "Guided Meditation Practices" (Williams, Teasdale, Segal, & Kabat-Zinn, 2007). Athletes are also given a scheduled timetable of the home practice and sent daily text-message reminders to facilitate their training. No group practice or discussion is involved. In a randomized controlled investigation of this program, Aherne and colleagues (2011) found that athletes who received this training experienced significant increases in mindfulness and flow that were not exhibited by the control group.

Batzell and Akhtar's (2012) Mindfulness Meditation Training for Sport (MMTS) is a 6-week program consisting of two 30-min meetings per week, and integrating mindfulness training with traditional psychological skills training (e.g., imagery and self-talk). The discussions and exercises focus on teaching open awareness, the use of positive affirmations, concentration, and tactics for coping with negative mind-states (e.g., labeling emotions and nonreactivity). In addition to the in-session meditations, participants are encouraged to practice on their own daily. In a quasi-experimental study of this approach, athletes who received MMTS showed a significantly greater increase in mindfulness than controls, while controls reported a significant increase in negative affect that was not evident in the MMTS group (Batzell & Akhtar, 2012).

LM approach

Langer has not specifically addressed how her mindfulness approach might impact sport performance, but Pietrasz and Langer (described in Langer, 1997) conducted a study that suggests it could have some benefits for athletes. They taught a group

of children a novel sport similar to squash, which they named “smack-it ball.” The experimental manipulation involved the use of conditional language when presenting the sport’s instructions to half of the participants, and absolute language with the other half. It had been shown previously that the presentation of material in a conditional manner (e.g., “one way to hold your hand might be . . .”), rather than in an absolute manner (e.g., “this is how to hold your hand”) leads to what Langer calls mindful learning, which promotes an awareness of multiple perspectives and contextual factors when working with new information (Langer, 1989, 1997). After giving the participants time to practice the new smack-it-ball skills, the researchers secretly exchanged the ball being used for a similar-looking but much heavier one, requiring the participants to adapt and use different body movements than the ones they had been taught. As predicted, those participants who had received the absolute instructions were more likely to exhibit performance decrements (i.e., an inability to adapt) than those who had received the conditional instructions.

When Pietrasz and Langer switched the balls, they were re-creating a very common phenomenon in most, if not all, sports. Specifically, the environment of competition can be variable and unpredictable, which requires athletes to adjust the well-learned techniques they may have honed in the practice environment. Langer (2000) states that a primary myth believed about learning is that “the basics” need to be so well learned that they become automatic (a belief certainly espoused in sports). However, Langer and Imber (1979) found that such an approach may lead to overlearning, which could result in an individual losing the ability to make small adjustments to “the basics” that are often necessary in dynamic contexts (like sports). Langer’s research suggests that this difficulty might be avoided with a simple linguistic change from absolute to conditional instructions that promote the mindful learning of athletic skills.

A significant component of this kind of mindful learning is mental flexibility (Langer, 1989, 1997), which is also a major part of the EM-based performance enhancement interventions described above. For instance, a foundational concept underlying the MAC program is that “*a flexible approach to one’s experiences . . . is essential for optimal functioning*” (Gardner & Moore, 2007, p. 32). In fact, much like Pietrasz and Langer describe the negative impact of mindless learning on performance in their smack-it ball study, Gardner and Moore (2007) explain that rule-governed behavior impairs an individual’s capacity to take in and respond to situational or contextual environmental cues (Hayes, Kohlenberg, & Melancon, 1989), which can then result in actions that may not be ideally suited to the task at hand. They propose that mindfulness may be the antidote to this problem, in that it “enhances the individual’s sensitivity to cues and contingencies in the environment and thus promotes greater behavioral flexibility” (p. 37). Similarly, MSPE emphasizes the importance of nonjudgmental awareness, which helps to promote mental flexibility by allowing athletes to accept the occurrence of both internal (e.g., emotions) and external (e.g., weather) events. Rather than expend mental and physical energy worrying about or wishing away unexpected or uncontrollable circumstances, mindful athletes, as defined by Kaufman and Glass (2006), have more available resources to devote to the task at hand, enhancing their capacity to respond to the situation appropriately.

While both perspectives on mindfulness share an emphasis on engagement with the present moment, a distinction between them is that LM is primarily focused on

working with information that is external to the individual (e.g., awareness of the situational context), whereas EM is less goal directed and focuses more on stimuli and processes that are internal to the individual (e.g., awareness of thoughts and feelings; Baer, 2003; Bishop et al., 2004). This is an important distinction, but it may be helpful to view this divergence as a way in which these views actually complement each other. Although internal factors play an important role in sport performance, all sports are in some way skill-based, requiring the ability to interact with one's surroundings. Langer's mindful learning may be a useful bridge between the internal nature of EM and the inherently external nature of the sports to which EM is being applied.

Mindfulness and Flow

Sport psychologists often associate peak-performance experiences, or being “in the zone,” with states of flow (Jackson & Csikszentmihalyi, 1999; Young & Pain, 1999). Flow typically occurs when a person perceives a balance between the challenges associated with a situation and their capacity to meet those challenges. While in a flow state, an individual is so involved with the task at hand, and finds the activity so inherently enjoyable, that nothing else seems to matter (Csikszentmihalyi, 1990). Such an experience is generally regarded as an optimal psychological state, as mind and body are in harmony, negative thinking and self-doubt are absent, and functioning is enhanced (Jackson, 2000). For athletes, this state can ultimately result in optimal sport performance (Jackson & Roberts, 1992; Jackson, Thomas, Marsh, & Smethurst, 2001).

Recently, a growing interest in the connection between flow and EM has developed. For example, Gardner and Moore (2004) note some important similarities between flow and mindfulness, pointing out that both constructs “share an emphasis on present-moment, nonself-conscious concentration on a particular task” (p. 714). Empirical research has supported this proposed connection, with numerous studies demonstrating not only a robust relation between measures of mindfulness and flow in athletes (Bernier, Thienot, Codron, & Fournier, 2009; Kaufman et al., 2009; Pineau, 2013; Pineau, Glass, Kaufman, Tenuta, & Bernal, 2011), but also significant increases in athletes’ levels of flow after receiving mindfulness-based interventions (Aherne et al., 2011; Kaufman et al., 2009).

Given this evidence, some authors suggest that flow may be one of the key paths through which mindfulness training can help athletes improve their performance (Gardner & Moore, 2004; Kaufman et al., 2009). In an attempt to provide a more complete picture of this association, the complex relation between mindfulness and flow will be explored. Almost all research to date looking at mindfulness and flow has used EM measures, but thoughtful consideration is also given below to how LM may relate to flow.

EM and flow

Most descriptions of EM include an awareness component and an acceptance component (Bishop et al., 2004; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008). However, Baer and colleagues (Baer, Smith, & Allen, 2004; Baer, Smith, Hopkins,

Table 52.1 Correlations among flow and mindfulness subscales for three groups of athletes.

	<i>Mindfulness total</i>	<i>Observe</i>	<i>Describe</i>	<i>Act with awareness</i>	<i>Nonjudge</i>	<i>Nonreact</i>
Kaufman (2009): archer and golfers (<i>n</i> = 32)						
Flow	.79***	.23	.50**	.74***	.60***	No data
Pineau, Glass, Kaufman, & Bernal (in press): rowers (<i>n</i> = 42)						
Flow	.36*	.12	.33*	.12	.34*	.12
Pineau (2013): cross-country runners (<i>n</i> = 55)						
Flow	.41**	.42***	.18	.10	.11	.46***

Note. Kaufman (2009) used the KIMS, a four-factor measure of mindfulness that did not include nonreactivity.

p* < .05. *p* < .01. ****p* < .001.

Krietemeyer, & Toney, 2006) propose that these aspects can be further broken down into several facets that represent different ways to operationalize awareness and acceptance. These facets of mindfulness (Baer et al., 2006, 2008) include observing (noticing a variety of internal and external stimuli), describing (applying labels to observed phenomena), acting with awareness (being fully engaged in activities as opposed to being on automatic pilot), nonjudging of inner experience (being fully accepting of thoughts and feelings), and nonreactivity to inner experience (allowing thoughts and feelings to come and go without overidentifying with them).

Three studies examining mindfulness and flow using Baer's measures found significant positive associations between mindfulness and flow in athletes (Kaufman et al., 2009; Pineau, 2013; Pineau et al., in press). However, each of these studies revealed a different constellation of relations between the elements of mindfulness and flow (see Table 52.1). What these results may suggest is that, while the essence of a nonjudgmental present-moment awareness could be an integral aspect of optimal sport performance in general, performance in specific sports that require unique skills may benefit differentially from a focus on certain facets of mindfulness.

For example, the acting with awareness component of mindfulness was not related to flow in runners or rowers (Pineau, 2013; Pineau et al., in press), but showed the strongest correlation with flow of any of the mindfulness factors in archers and golfers (Kaufman, 2009). Keeping in mind that acting with awareness represents the degree to which individuals do or do not perform tasks on "automatic pilot," the contrasting demands of these sports may explain this difference. Optimal performance for rowers and runners requires a continuous awareness through the duration of a race while repeatedly performing a single action as efficiently as possible (e.g., a stroke), whereas performance for archers and golfers involves discrete periods of focus throughout a series of unique events (e.g., shooting arrows). Thus, a degree of automaticity in performance may help rowers and runners by freeing up the attentional resources necessary to engage in the continuous awareness of a dynamic external environment.

A similar conclusion may be drawn based on the contrasting results for the acceptance-related aspects of mindfulness between the rowers and runners. The rowers exhibited a significant association between nonjudgmentality and flow, but the runners did not, and the reverse was true for nonreactivity (Pineau, 2013; Pineau et al.,

in press). Since rowing is typically a coactive sport, meaning the combined effort of a group is necessary for performance, an individual rower's ability to impact the boat positively as a whole with technical changes is limited without the simultaneous effort of the other rowers in the boat. Runners, on the other hand, have more direct control over their performance, as they compete as individuals. It is possible that immediate judgments of one's performance (e.g., "I am running slower than the person next to me") may be more beneficial to runners, since they could make effective technical changes when necessary, whereas evaluative thoughts for rowers may provoke feelings of frustration or powerlessness. However, it has been demonstrated that negative performance evaluations can trigger negative self-evaluations (e.g., "I am a slow runner"), which may hurt performance (Klinger, Barta, & Glas, 1981). This may account for the apparent importance of nonjudgmentality for the rowers and nonreactivity for the runners with regard to flow. Thus, it may be useful in future explorations of the relation between mindfulness and flow to avoid drawing sweeping conclusions about all athletes. Alternatively, discussing which components of mindfulness relate to flow for which sports may be more informative, and could contribute to the development of more targeted, sport-specific mindfulness interventions.

LM and flow

Langer (2002) notes the likely connection between her conceptualization of mindfulness and flow, yet little research has explicitly explored this association. One of the earlier attempts to examine the relation between mindfulness and flow in athletes does provide some evidence for this possible connection. Kee and Wang (2008) defined mindfulness using an Eastern conceptualization (Bishop et al., 2004), but chose to assess the construct using Langer's Mindfulness/Mindlessness Scale (MMS; Bodner & Langer, 2001), which divides mindfulness into four characteristics: novelty seeking (openness toward new experiences), novelty producing (processing environmental stimuli to generate new and useful information), flexibility (seeing events from more than one perspective), and engagement (noticing details in the environment).

Kee and Wang (2008) found that flow was significantly related to all four of these characteristics. They also found that athletes higher in mindfulness were more likely to adopt mental skills, such as attentional control, emotional control, and goal setting, which were themselves positively related to flow. Although causal connections cannot be drawn from these correlational data, it is possible that mindful athletes may be more likely to engage in novel strategies that help to promote flow states. In contrast to Kee and Wang's findings, the MMS was not significantly related to flow in a group of collegiate cross-country runners (Pineau, 2013), but the small sample size ($n = 23$) may have limited the ability to detect significant results. Given these mixed findings, more research seems warranted on this topic.

Mindfulness and Attention

Attention and sport performance

Sport-specific definitions of attention generally consist of four components: selective attention, sustained attention, situational awareness or orienting attention, and

attentional flexibility or divided attention (Memmert, 2009; Weinberg & Gould, 2011). When effectively engaging these facets of attention, an athlete is focusing on relevant cues while disregarding irrelevant ones, holding an appropriate level of focus throughout the entirety of a performance, maintaining a constant awareness and understanding of relevant stimuli in the environment, and, when necessary, shifting attention between stimuli or allocating attentional resources to multiple stimuli. Despite the widely accepted importance of attentional processes in sport (Janelle & Hatfield, 2008; Moran, 1996), Boutcher (2008) comments that the literature base on this topic is underdeveloped, and thus the mechanisms through which attention affects performance are not well understood.

Some of the research on attention in sport performance has found that athletes who engage in “associative” strategies (i.e., directing attention to task-related cues) tend to perform better than those who use “dissociative” strategies (i.e., focusing attention on task-irrelevant cues; Masters & Ogles, 1998; Morgan & Pollock, 1977; Salmon, Hanneman, & Harwood, 2010). However, Hutchinson and Tenenbaum (2007) note that this effect has not been well established in sports other than running (see Spink & Longhurst, 1986, for an exception with swimmers) and that this difference has not always been supported even for runners (e.g., Stevinson & Biddle, 1998). Additionally, the dichotomous system of associative versus dissociative attention does not account for the fact that athletes often switch between strategies based on the type or intensity of the task they are completing (Hutchinson & Tenenbaum, 2007; Salmon et al., 2010). Salmon and colleagues (2010) propose that a mindfulness-based conceptual model of attention, with an emphasis on the nonjudgmental awareness of whatever arises in one’s present-moment experience, is able to account for this shifting of attentional strategies based on task demands.

Other research focusing on more objective phenomena, including response time, response accuracy, and patterns of visual fixation (e.g., frequency, duration), has found that, in comparison to novice athletes, expert athletes are quicker and more accurate in their physical responses and exhibit fewer, but longer visual fixations (Mann, Williams, Ward, & Janelle, 2007). This suggests that expert athletes may have more efficient attentional processes than their novice counterparts, being able to glean more relevant information from fewer environmental cues, and then react to those cues more quickly and appropriately. Like Salmon et al. (2010), Moore (2009) posits that mindfulness may be important to consider when discussing attention in sport, stating that, “mindfulness practice may very well facilitate the development of this more economical mode of using and allocating cognitive (in particular) attentional resources” (p. 294). In light of these suggestions, the effects of EM training on attentional processes will be explored, as well as how this may influence sport performance. The potential impact of LM on attentional processes will also be discussed, as Langer’s focus on the awareness of external stimuli and cognitive flexibility may be particularly relevant in a sport context.

EM and attention

A core feature of EM is the ability to pay attention (Kabat-Zinn, 1994, 2003), and, in fact, research has shown that mindfulness training can improve attentional abilities (e.g., Jha, Krompinger, & Baime, 2007; see Chiesa, Calati, & Serretti, 2011 for a

review). In nonathlete populations, mindfulness has been shown to relate to superior selective attention (Chan & Woollacott, 2007; Jensen, Vangkilde, Frokjaer, & Hasselbalch, 2012; van den Hurk, Giommi, Gielen, Speckens, & Barendregt, 2010), sustained attention (Chambers, Lo, & Allen, 2008; Valentine & Sweet, 1999), situational awareness (Jensen et al., 2012; Moore & Malinowski, 2009), and attentional flexibility (Hodgins & Adair, 2010). It has been suggested that these attentional enhancements may be an important mechanism through which mindfulness training can improve sport performance (Gardner & Moore, 2004; Moore, 2009), but little research has looked specifically at the effects of mindfulness training on the attentional processes of athletes.

Weinberg and Gould (2011) propose that several important dimensions of flow involve high levels of attention and concentration. Thus, the flow research provides some indirect evidence for the connection between mindfulness and attention, as mindfulness has been shown to relate to the merging of action and awareness, concentration on the task at hand and a sense of control, and the processing of unambiguous feedback (Aherne et al., 2011; Kaufman et al., 2009; Pineau, 2013; Pineau et al., in press), which have conceptual similarities to selective attention, sustained attention, and situational awareness, respectively.

Additionally, in her case study of a springboard diver, Schwanhausser (2009) provides qualitative data regarding the effects of the MAC approach on sustained and selective attention, as the athlete reported after the intervention that he noticed an increased ability to "stay focused despite distractions" (p. 390). This evidence seems to bolster Gooding and Gardner's (2009) conclusion that "the positive performance enhancing qualities inherent in mindfulness may be due to its relationship to the self-regulation of attention" (p. 315).

Salmon and colleagues (2010) propose a mindfulness-based model that includes both awareness and acceptance (e.g., nonreactivity) to explain how certain attentional processes can enhance sport performance. For example, while the enhanced awareness of bodily sensations may give athletes a more accurate perception of their level of physical exertion, it is the nonreactive attitude taken toward those bodily sensations that allows them to use their available resources more efficiently by avoiding the distracting, self-evaluative worries, and subsequent physical consequences that often accompany feelings of fatigue and exhaustion (see section "Mindfulness and physiology" for an additional discussion of this topic). This idea makes sense, considering that performance setbacks can cause attentional shifts from task-relevant cues to self-evaluative cues (i.e., being judgmental of oneself), which may result in performance decrements (Klinger et al., 1981), while "detachment" (i.e., nonreactivity) has been cited by elite pentathletes as an important strategy to counteract the debilitating attentional and emotional consequences of making mistakes during sport performance (Bertollo et al., 2009).

Some negative findings have also been found regarding the link between mindfulness and attention, with research demonstrating no difference between meditators and nonmeditators on measures of attention (Josefsson & Broberg, 2011), no improvement compared to controls in attentional processes following an 8-week mindfulness intervention (Anderson, Lau, Segal, & Bishop, 2007), and even a significant association between mindfulness and exaggerated lapses in attention

(Schmertz, Anderson, & Robins, 2009). Such mixed results may be due to a variety of methodological flaws within the body of research (Jensen et al., 2012), or to the use of varied measures of attention that may relate differently to mindfulness skills (Josefsson & Broberg, 2011). Considering this latter possibility, after finding no differences between meditators and nonmeditators on two measures of attention, Josefsson and Broberg (2011) conclude that

mindfulness meditators may have an increased awareness of internal processes and the ability to quickly attend to them but this type of refined attentional ability does not seem to be related to performance on attention tests requiring responses to external targets. (p. 291)

This conclusion is quite striking, since responding to external targets is precisely what many athletes are required to do. Given the recognition that a primary difference between EM and LM is that the latter focuses more on the awareness of external, rather than internal, stimuli (Baer, 2003; Bishop et al., 2004), it appears that LM could play an important role in the attentional processes of athletes.

LM and attention

Langer (1997) states that a commonly believed “myth” about attention is that “paying attention means staying focused on one thing at a time” (p. 2). She proposes that this mindset actually inhibits attentional capacity because, in accordance with this belief, one may put excessive amounts of mental energy into trying to maintain focus on a single stimulus from just one perspective. In studying this hypothesis, Langer and colleagues have consistently found that, for a variety of populations, when people are given instructions to vary their focus of attention in some way, their attentional performance improves (Langer, 2000; Langer & Bayliss, described in Langer, 1997; Levy, Jennings, & Langer, 2001).

Langer has not explicitly examined this idea in a sport context, but she does mention sport as a particularly well-suited atmosphere for the implementation of this kind of varied attention, noting, “in tennis or table tennis or any sport, we move around so that the stimulus is never quite the same” (Langer, 1997, p. 42). This notion of the usefulness of varied attention does have some indirect support in the sport psychology literature, as attentional flexibility has been linked with expert sport performance (Memmert, 2006; Nougier & Rossi, 1999; Pesce & Audiffren, 2011). In one particularly relevant example, Memmert and Furley (2007) found that, when not given a specific task to focus on (e.g., make a specific play), the breadth of athletes’ attention seems to broaden and become more flexible, as they search the environment for a variety of optimal tactical opportunities rather than just a limited few, potentially enhancing overall performance. Such broadening of attention may also produce significant increases in creative play in the complex environments of team sports (Memmert, 2007). These results seem to support Langer’s proposition that certain mindsets (e.g., “I need to make a specific play”) can inhibit one’s ability to attend fully to the environment, while other, more mindful mindsets can have the opposite effect.

For athletes, increasing levels of LM could result in a broadening of attention, which might allow them to more quickly notice relevant cues, shift their focus to new cues,

and make more creative connections between these cues. This could enhance their ability to solve emergent problems, make effective decisions, and ultimately improve performance. However, more research is needed to examine the possible effects of LM on attention in sport, as only one study to date has found a link between this conceptualization of mindfulness and attention in athletes (Kee & Wang, 2008).

Mindfulness and Affect

Affect and sport performance

The notion that both positive and negative emotions can impact athletic performance is firmly established in the sport psychology literature (Hanin, 2000; Lazarus, 2000; McCarthy, 2011). Feeling intrinsic enjoyment in sport participation (i.e., autotelic experience) is an integral part of flow (Csikszentmihalyi, 1990; Jackson, 2000; Jackson & Csikszentmihalyi, 1999), and both anecdotal and empirical evidence suggest that enjoyment of sport participation is a significant factor in sustained successful involvement in athletics (Fitzgerald, 2010; McCarthy & Jones, 2007; Scanlan, Russell, Beals, & Scanlan, 2003). A variety of positive emotions in athletes (e.g., happiness) have also been positively correlated with self-rated performance (Totterdell, 1999; Vast, Young, & Thomas, 2010), improved reaction times (Woodman et al., 2009), and a broadening of attention, leading to more openness, attentional flexibility, and an enhanced capacity to integrate information (Carver, 2003; Fredrickson, 2001). Additionally, hope and optimism may be protective factors against burnout in athletes (Chen, Kee, & Tsai, 2008; Gustafsson, Hassmen, & Podlog, 2010).

Regarding the impact of negative emotions, it appears that high levels of such feelings tend to have detrimental effects on sport performance. For instance, excessive levels of anxiety have been shown to be associated with more muscle tension and fatigue (Pijpers, Oudejans, Holsheimer, & Bakker, 2003), narrowed attentional focus (Landers, Wang, & Courtet, 1985), concentration disruption (Hatzigeorgiadis & Biddle, 2001; Otten, 2009), and an overall decrease in the efficiency of cognitive processing (Wilson, 2008). Increased levels of anxiety, as well as other forms of negative affect (e.g., depressive symptoms), are also characteristics of burnout (Hackney, Perlman, & Nowacki, 1990) and overtraining syndrome (Armstrong & VanHeest, 2002), which are largely defined by worsening performance.

Considering the importance of affect for athletes, the link between emotions and mindfulness will be explored, with a focus on the role of mindfulness in emotion regulation. Also, Langer's (1989, 2002) emphasis on the importance of perspective in determining affective responses will be discussed, as it may serve as an important point of departure from EM, and could have implications for the relation between anxiety and sport performance.

EM and affect

An ample body of literature has demonstrated a robust association between EM and psychological well-being (Greeson, 2009; Keng, Smoski, & Robins, 2011; Orzech,

Shapiro, Brown, & McKay, 2009). Evidence with nonathlete populations suggests that mindfulness training can both enhance positive affect (e.g., Anderson et al., 2007; Geschwind, Peeters, Drukker, van Os, & Wichers, 2011; Nyklicek & Kuijpers, 2008) and decrease negative affect (e.g., Chambers et al., 2008; Shapiro, Schwartz, & Bonner, 1998; Zeidan, Johnson, Gordon, & Goolkasian, 2010; see Toneatto & Nguyen, 2007 for contradictory evidence regarding the effects of mindfulness on depression and anxiety).

A smaller literature with athletes supports the association of mindfulness with higher levels of positive affect and lower levels of negative affect. For instance, significant inverse correlations have been found between mindfulness and sport-related anxiety (Pineau, 2013; Pineau et al., in press; Thompson, Kaufman, De Petrillo, Glass, & Arnkoff, 2011b), while positive relations have been found between mindfulness and sport-related optimism (Kaufman, 2009; Pineau, 2013; Pineau et al., in press). Additionally, in response to MAC and MSPE, athletes have been shown to demonstrate significant reductions in aspects of sport-related anxiety (De Petrillo et al., 2009; Gardner & Moore, 2004) and significant increases in sport-related optimism (Kaufman et al., 2009). Moreover, it appears that athletes continue to experience these benefits over time, as Thompson et al. (2011a) found that, 1 year after MSPE workshops, athletes exhibited a significant reduction in sport-related anxiety and reported an increase in general life satisfaction, with several indicating enhanced enjoyment of their sport.

While this ability to directly alter levels of specific emotions may be an important feature of mindfulness for athletes, it is possible that the promotion of emotion regulation may actually produce even greater benefits for sport performance. It has been suggested that enhancing emotion regulation may be a primary mechanism of change in mindfulness interventions (see Gratz & Tull, 2010, for a review), and emotion regulation is an important construct in the sport psychology literature (e.g., Jones, 2003). For example, an important distinguishing factor between unsuccessful and successful athletes may be their degree of susceptibility to changes in mood in response to situational factors (Coker & Mickle, 2000). Also, Lemyre, Treasure, and Roberts (2006) found that increased variability of negative affect was predictive of burnout.

Gratz and Tull (2010) offer that a useful conceptualization of emotion regulation "may arguably focus on adaptive ways of responding to emotional distress, rather than on the control of emotions or dampening of emotional arousal in general" (p. 111), since research has suggested that efforts to control or avoid internal experiences (e.g., emotions) often have a paradoxical effect, leading these experiences to be more frequent or intense (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Janelle, 1999; Wegener, 1994). Without discussing emotion regulation directly, both the MAC approach and MSPE describe the ability to resolve this "ironic mental process" (Wegener, 1994) as one of the primary benefits of a mindfulness- and acceptance-based approach over traditional control-oriented psychological skills training for athletes.

Evidence directly linking mindfulness and emotion regulation in athletes is lacking. However, such a connection is indicated by the work of Baltzell and Akhtar (2012), who recently found that athletes who received MMTS showed virtually no change across a variety of dimensions of positive and negative affect over 6 weeks, while a control group exhibited significant fluctuations on 10 different facets of positive and

negative affect. Additionally, athletes who receive mindfulness-based interventions appear to engage in less experiential avoidance and become more accepting of their current emotional experiences, whatever they may be (Gardner & Moore, 2004; Lutkenhouse, Gardner, & Morrow, described in Gardner & Moore, 2007; Schwanhausser, 2009). This is concordant with the conceptualization of EM as a way to cultivate emotional balance (Kabat-Zinn, 1990), and the demonstrated association in nonathletes between mindfulness and emotion regulation (Arch & Craske, 2006; Chambers, Gullone, & Allen, 2009; Hayes & Feldman, 2004). Taken together, this evidence implies that mindfulness interventions may help athletes improve their performance by not only increasing positive emotionality and decreasing negative emotionality, but also helping them to regulate their reactions to the strong emotions that are inevitably produced by competitive sports.

LM and affect

The accumulated body of research on LM has shown that greater levels of mindfulness are associated with increased feelings of competence, more positive affect, enhanced creativity, and a reduced risk of occupational burnout (Langer, 1989, 1997), all of which could suggest a link between mindfulness and improved sport performance. Indeed, there appears to be some empirical support for this proposed association. For instance, Denny and Steiner (2009) found that in a diverse group of athletes, mindfulness (assessed on the MMS) was positively related to happiness and overall life satisfaction, and negatively related to distress. Mindfulness also significantly predicted life satisfaction, while performance-related factors (e.g., amount of playing time, scholarship status) did not. Additionally, Haigh, Moore, Kashdan, and Fresco (2011) found that the MMS and a measure of emotion regulation were positively correlated in nonathletes, and Kee and Wang (2008) found that the MMS was significantly related to emotional control in athletes. These findings support a potential relationship between LM and emotion regulation, which, as noted above, may be important for superior sport performance (Jones, 2003).

Along with this empirical evidence, there are theoretical arguments to explain how LM may influence the emotional experience of athletes, and thus impact sport performance. Langer (2002) points out that everything individuals evaluate as negative can be seen as positive from a different perspective, and vice versa. The process of seeing this duality (i.e., being mindful) gives people a greater sense of control over their experience of the world. Thus, Langer (1997, 2002) suggested that one should actively seek out a variety of judgments or evaluations to create the possibility of changing one's perspective on any given situation from negative to positive.

Langer has documented the power of perspective, showing that when the same activity is presented as "play" or "work," people with the "play" perspective enjoyed the experience more and were more engaged than those doing "work" (Snow & Langer, described in Langer, 1997). This importance of perspective may relate to the concept of entrapment theory in the sport psychology literature, which suggests that athletes who feel like they have to participate in their sport or who have low levels of self-determined motivation are at greater risk for burnout than those who feel

like they participate because they want to or who have high levels of self-determined motivation (Lonsdale, Hodge, & Rose, 2009; Raedeke, 1997).

Langer's ideas on perspective also fit nicely with Jones's (1995) theory of facilitative and debilitating anxiety, which asserts that how an athlete interprets feelings of anxiety in large part determines the effect of that anxiety as helpful or harmful. According to Langer's view, in actively searching for these multiple interpretations of anxiety, athletes give themselves a choice to perceive, and to be affected by, the more beneficial interpretation in that moment. This aspect of choice is particularly relevant given Jones's emphasis on the perception of control in determining whether anxiety will be experienced as facilitative or debilitating. Langer (1989) writes that, “[e]ven the most apparently fixed and certain situations can become subject to control if viewed mindfully” (p. 74). In contrast, EM encourages the “letting go” of any judgment, positive or negative (Kabat-Zinn, 1990), and so an EM approach would guide athletes to observe their anxiety nonjudgmentally as a feeling that is not necessarily representative of reality (i.e., neither facilitative nor debilitating). This may neutralize the potentially negative effects of anxiety, but it could remove facilitative effects as well.

It seems that LM may play an important and distinct role in the association between affect and sport performance. However, when the theoretical and empirical evidence connecting affect to both concepts of mindfulness is considered, there appears to be support for the conclusion that EM and LM may complement each other such that interventions designed to incorporate both views might be more beneficial than either approach alone.

Mindfulness and physiology

Sport is an inherently physical pursuit, and sport psychologists have endeavored to understand the physiological correlates and determinants of optimal athletic performance. In particular, emerging neuroimaging technologies have allowed researchers to examine the neurological underpinnings of superior performance in sport (e.g., Hatfield & Kerick, 2007). Such technologies have also created the opportunity to explore the neurological correlates of mindfulness (Siegel, 2007; Treadway & Lazar, 2010). The neurological factors that have been found to be associated with both mindfulness and sport performance will be reviewed, with a particular focus on research relating EM, neurological processes, and the perception of pain and fatigue. Langer's mindfulness will also be addressed, as some literature suggests that training in LM can have similar effects on physiological process (e.g., blood pressure) to meditation (Alexander, Langer, Newman, Chandler, & Davies, 1989). Additionally, the openness to new ideas and perspectives that is characteristic of LM may be an important prerequisite for mindfulness-based interventions to produce physiological effects and may also alter the impact of pain and fatigue.

EM and physiology

A number of physiological effects relevant to sport performance have been shown in response to mindfulness-based interventions (e.g., decreased precompetitive cortisol

production indicating reduced precompetitive stress; John, Verma, & Khanna, 2011), but one of the more potentially intriguing associations between mindfulness and physiological processes with relevance for sport performance has to do with the experience of pain. Early research on MBSR involving chronic pain patients demonstrated that mindfulness training can decrease perceptions of pain intensity, emotional reactivity to pain, and the use of pain-relieving drugs, and that some of these benefits are maintained up to 4 years later (Kabat-Zinn, 1982; Kabat-Zinn et al., 1985, 1987). More recent controlled studies of mindfulness-based interventions using healthy participants also found decreases in pain sensitivity (Kingston, Chadwick, Meron, & Skinner, 2007; Zeidan, Gordon, Merchant, & Goolkasian, 2010), providing further support for mindfulness as an effective way to enhance one's pain tolerance. This relation between mindfulness and coping with pain seems potentially meaningful for athletes, since many sports involve pushing the body toward its maximum physical capacity, which is often a painful experience.

Most sport and exercise scientists assume that fatigue and exhaustion in sport, which are often accompanied by muscle pain, are the result of purely physiological phenomena (Noakes, St. Claire Gibson, & Lambert, 2005). However, it has been observed that the *perception* of effort while performing may predict exhaustion better than any physiological measure does (Noakes, 2008), and as such, "exercise tolerance in highly motivated subjects is ultimately limited by perception of effort" (Marcra & Staiano, 2010, p. 763). Considering this possible key role of perception in the reaction to and effects of physical pain during sport performance, Kaufman et al. (2012) argued that an enhanced ability to cope with pain might be one of the principal ways that mindfulness training could benefit athletes who participate in sports in which pain is often experienced as a limiting factor of performance.

This potential advantage for mindful athletes is highlighted by the work of Grant and Rainville (2009), who found that not only did meditators have a generally higher pain threshold than controls, but also, when they were asked to pay mindful attention to a painful stimulus, controls reported an increase in pain sensitivity while meditators showed a slight decrease. This finding seems particularly meaningful given the research of Hutchinson and Tenenbaum (2007), who found that attentional focus during physical activity is mediated by the intensity of the task, such that, "during high intensity exercise attention is focused on overwhelming physiological sensations, which dominate focal awareness" (p. 244). These studies seem to suggest that athletes engaging in physically demanding sports that result in muscle pain would necessarily have their attention drawn to that pain, resulting in increased pain sensitivity for those with no mindfulness training, but decreased pain sensitivity for experienced meditators. In light of the apparent importance of the perception of effort, which, for many athletes, includes the interpretation of muscle pain as an indication of physical exhaustion (Marcra & Staiano, 2010; Noakes, 2008), the potential implications for performance are clear: more mindful athletes may perceive a sport as less painful, thus allowing them to use more of their available physiological resources to outperform less mindful competitors.

Some authors propose that underlying this enhanced capacity of mindfulness practitioners to tolerate pain are actually a variety of structural (e.g., Grant, Courtemanche,

Duerden, Duncan, & Rainville, 2010) and functional (e.g., Zeidan et al., 2011) neurological adaptations. Specifically, meditation appears to be related to cortical thickening of brain areas typically associated with attention, such as the right anterior insula (Hölzel et al., 2008; Lazar et al., 2005), anterior cingulate cortex (Grant et al., 2010), and prefrontal cortex (Lazar et al., 2005). This observed effect in the anterior cingulate cortex also indicates a link between mindfulness and emotion regulation, while the cortical thickening of the right anterior insula, as well as the sensory cortex (Grant et al., 2010), demonstrates a connection between mindfulness and brain regions involved in awareness of bodily sensations (i.e., interoceptive awareness). Increased cerebral blood flow has also been found in several of these regions (anterior insula, anterior cingulate cortex, and orbitofrontal cortex) in response to painful stimuli following mindfulness meditation (Zeidan et al., 2011). As attention, emotion regulation, and interoceptive awareness are all involved in the perception of pain, this evidence provides support for the hypothesis that neuroplastic changes may account for the altered pain sensitivity of meditators.

This evidence may also warrant an even broader conclusion. Namely, mindfulness practice may produce most, or even all, of its benefits (e.g., improved emotion regulation and attentional capacity) through the promotion of neuroplasticity, or the brain's ability to adapt, both structurally and functionally, in response to a repeated task (Davidson, 2002; Siegel, 2007; see Treadway & Lazar, 2010, for a review of EM and neuroplasticity; see Marks, 2008, for a review of the neural correlates of EM in relation to sport performance). For instance, following an 8-week MBSR course, individuals exhibited a pattern of increased activation of left-sided anterior brain regions, which is associated with reduced negative affect, increased positive affect, and enhanced emotion regulation (Davidson et al., 2003). Similarly, fMRI studies have found that, compared to those with little or no meditation experience, experienced meditators tend to show greater activation of the medial prefrontal cortex during meditation (Hölzel et al., 2007), and greater activation of insula and cingulate cortices in response to emotional stimuli (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008), which are all brain regions known to be involved in emotional processing. Regarding attention, EEG research has shown a link between decreased brain activity and superior attentional capacity following 3 months of intensive meditation training (Slagter et al., 2007), which suggests that mindfulness practice may improve attention by increasing the efficiency of the allocation of neural resources for attention-related processes.

Given the importance of positive affect to peak performance experiences (Jackson, 2000; Jackson & Csikszentmihalyi, 1999), and the integral role of emotion regulation (Jones, 2003) and attention (Moran, 1996) in superior sport performance, this collective evidence supports the conclusion that the neuroplastic effects of mindfulness training could produce beneficial effects for a wide variety of sports, and not just those in which performance is limited by muscle pain. In fact, when discussing the potential effects of mindfulness on the brain, Marks (2008) posits that, taken in sum, the neural correlates research suggests that mindfulness training is related to "significant enhancements in areas that facilitate attentional control, emotion regulation, and the perception of others' actions and intentions—skills that allow for effective athletic training and make peak performance possible" (p. 220).

LM and physiology

Langer and colleagues have consistently demonstrated the potential impact of one's mindset on a variety of phenomena, including physiology, athletics, and exercise. For instance, Alexander and colleagues (1989) compared meditation, LM training, and relaxation training in an elderly population, and found that the individuals in the meditation and LM conditions had a lower blood pressure than the relaxation group 3 months after the training, as well as better survival rates 3 years after the training. Langer, Djikic, Pirson, Madenci, and Donohue (2010) found that, when primed with the mindset that athletes have better vision than nonathletes, participating in an athletic activity improved visual acuity. Crum and Langer (2007) designed a study to examine whether a mindless or mindful mindset could impact the physiological effects of exercise. They evaluated a sample of people engaged in an occupation (cleaning) classified by the Surgeon General as moderate physical activity likely to produce health benefits (Centers for Disease Control and Prevention, 1996). Despite the fact that participants were getting daily exercise through their work, when they were first asked whether they exercised regularly, two-thirds of the sample said that they did not. To help promote a mindful perspective on their daily activities, half of the participants were then informed that their occupation could be considered both work and exercise, while the other half were not.

After 4 weeks, while the actual eating and exercise behaviors of the group as a whole did not change, the people who were given a new way to view their work (i.e., as exercise) not only reported increases in their perceived amount of exercise, but also showed decreases in weight, blood pressure, body fat, waist-to-hip ratio, and body mass index when compared to the control group. These results suggest that mindfulness, specifically the capacity to be flexible in one's mindset when novel information is presented, may be necessary for individuals to experience the added potential benefits of activities about which they already have preconceived beliefs. This could be particularly important with regard to mindfulness-based interventions for sport performance enhancement, as openness to the idea that an unfamiliar approach to mental training could improve performance may be integral in allowing the training to produce its effects.

Additionally, like EM, LM may have important implications for sport performance through its potential effects on the perception of pain. Specifically, the emphasis on contextual reframing (Langer, 1989) aligns well with the work of Noakes and colleagues (2005; Noakes, 2008), who theorized that muscle pain and fatigue are not purely physical phenomena and are more correctly conceptualized as sensations that can be unattached to a specific physical manifestation (e.g., performance decrements). When athletes believe that feeling fatigued necessarily impacts their physical ability, this belief can become reality, and they may reduce their effort simply because they assume they must (Fitzgerald, 2010). However, if athletes can take on a new perspective and recognize that the feeling of fatigue is just that, a feeling, sensation, or mental event that has no more of a direct connection to their physical limits than any other thought or emotion, then they could potentially gain the capacity to outperform equally talented competitors who mindlessly believe in the physical nature of fatigue. In sum, this may be yet another important point of integration between the two concepts of

mindfulness, as athletes may first need an open and flexible mindset for mindfulness training to produce the level of physiological or psychological benefits discussed in this chapter.

Conclusions and Future Directions

Controlled research on mindfulness-based interventions for athletes using objective assessment of sport performance is just beginning to emerge (John et al., 2011; Pineau, 2013). However, controlled research indicating improvements in self- and coach-rated performance (Lutkenhouse et al., described in Gardner & Moore, 2007; Wolanin & Schwanhausser, 2010) and uncontrolled research and case studies showing significant effects on self-reported performance and important performance-related psychological variables (De Petrillo et al., 2009; Kabat-Zinn et al., 1985; Kaufman et al., 2009; Lutkenhouse, 2007; Schwanhausser, 2009; Thompson et al., 2011a) provide significant support for the potential effectiveness of mindfulness training for sport-performance enhancement.

Although the existing literature on mindfulness in athletes is predominantly from the EM perspective, this chapter proposes that there is strong theoretical support for the utility of LM in performance-enhancing interventions in at least two important ways. First, evidence seems to indicate that the openness to novelty that is characteristic of LM could play a crucial role in enhancing the potential effectiveness of EM interventions. Specifically, it has been observed that athletes who tend to conceptualize training as a physical pursuit rather than a mental one may exhibit resistance to dedicating time to unfamiliar training methods that do not provide the same immediate, tangible effects (e.g., muscle soreness) that are often experienced in physical training (A. Baltzell, personal communication, March 23, 2012; Pineau, 2013). Interestingly, Stanley, Schaldach, Kiyonaga, and Jha (2011), who discuss the possible resistance to mindfulness training that may be found in groups similar to athletic teams, found that levels of LM significantly predicted the amount of time participants spent meditating over an 8-week mindfulness training, while time spent meditating was positively related to changes in EM. This study was not in a sport context, but it could nonetheless be relevant for athletes. The results suggest that the open-mindedness associated with LM may attenuate potential resistance to an EM approach to performance enhancement, thus making athletes more likely to practice the relevant mindfulness skills, and ultimately benefit from the training.

The second way in which LM may complement EM is through LM's focus on the awareness of external stimuli. The foundational EM skills of awareness and acceptance, which are generally internally oriented (Baer, 2003; Bishop et al., 2004), may provide a variety of benefits for athletes with regard to their cognitive, emotional, and physiological processes. However, incorporating aspects of LM (e.g., cognitive flexibility and awareness of external contexts) in EM interventions may help athletes develop the capacity to apply EM skills, which are generally practiced in sedentary ways, to novel, dynamic situations in daily life (e.g., sport).

MSPE has attempted to address this application issue by prescribing a progression of meditations that evolve from sedentary to active. However, incorporating aspects

of LM into future versions of MSPE might facilitate this process even further (e.g., including didactic components in group discussions that explicitly address concepts integral to LM, and ensuring that conditional, rather than absolute phrasing, is used when introducing mindfulness exercises). This could improve athletes' ability to apply the mindfulness skills they develop in specific situations during the workshop (e.g., laying on the ground to do a body scan in a quiet room) to a variety of new contexts in which they have not previously practiced (e.g., waiting for the start of a race in a crowded stadium).

The evidence appears to suggest a complementary association between the two conceptualizations of mindfulness in relation to sport performance. Considering the potential benefit of including LM in EM-based sport-performance enhancement interventions, an important future direction for research could be examining the effectiveness of such an integrative approach. Additional research on the neurological correlates of both perspectives is also needed. While a growing body of literature contends that many of the psychological effects of EM training observed in athletes may be attributable to neuroplastic changes, the potential neurological correlates of LM remain unknown. Neuroimaging research would contribute to a better understanding of the mechanisms of LM and could elucidate how the two views of mindfulness overlap with, differ from, or complement each other with regard to the brain processes that likely govern how mindful attitudes are outwardly expressed. Finally, more research on the efficacy of current EM interventions for athletes, such as MSPE and the MAC approach, is also needed. In particular, studies using objective assessments of performance and randomized comparisons of mindfulness-based and traditional sport psychology interventions are a necessary next step to build on the emerging evidence demonstrating the performance-enhancing effects of mindfulness training for athletes.

Appendix A Summary Outline of the Expanded MSPE Treatment Protocol

- I. Session 1 (approximately 90 min)
 - A Orientation and rationale
 - 1. Concept of the workshop
 - 2. Rationale for the workshop
 - 3. Important definitions associated with mindfulness training
 - 4. Review of key mental factors in the sport of focus
 - B Group introductions
 - C Candy exercise and discussion (20 min)
 - D Introductory sitting meditation with a focus on the breath (10 min) and discussion
 - E Discussion of home practice for the week, which includes:
 - 1. Sitting meditation practice six times for 10 min each before Session 2
 - F Session 1 summary and discussion
- II. Session 2 (approximately 90 min)
 - A Discussion of home practice
 - B Discussion of applications of meditation training to the sport of focus

- C Body scan meditation (30 min) and discussion
 - D Sitting meditation with a focus on the breath (10 min) and discussion
 - E Discussion of home practice for the week, which includes:
 1. Body scan practice one time for 30 min before Session 3
 2. Sitting meditation practice five times for 10 min each before Session 3
 - F Session 2 summary and discussion
- III. Session 3 (approximately 90 min)
- A Discussion of home practice
 - B Mindful yoga practice (40 min) and discussion
 - C Sitting meditation with a focus on breath, and body (15 min) and discussion
 - D Discussion of home practice for the week, which includes:
 1. Body scan practice one time for 30 min before Session 4
 2. Mindful yoga practice one time for 40 min before Session 4
 3. Sitting meditation practice four times for 15 min before Session 4
 - E Session 3 summary and discussion
- IV. Session 4 (approximately 90 min)
- A Discussion of home practice
 - B Mindful yoga practice (40 min) and discussion
 - C Walking meditation (10 min) and discussion
 - D Brief sitting meditation with a focus on diaphragmatic breathing (3 min)
 - E Discussion of home practice for the week, which includes:
 1. Body scan practice one time for 30 min before Session 5
 2. Mindful yoga practice two times for 40 min before Session 5
 3. Walking meditation practice three times for 10 min before Session 5
 - F Session 4 summary and discussion
- V. Session 5 (approximately 90 min)
- A Discussion of home practice
 - B Sitting meditation with a focus on breath, body, and sound (23 min) and discussion
 - C Walking meditation (10 min) and discussion
 - D Sport-specific meditation (13 min) and discussion
 - E Brief sitting meditation with a focus on diaphragmatic breathing (3 min)
 - F Discussion of home practice for the week, which includes:
 1. Sitting meditation practice three times for 23 min before Session 6
 2. Walking meditation practice one time for 10 min before Session 6
 3. Sport-specific meditation practice two times for 13 min before Session 6
 - G Session 5 summary and discussion
- VI. Session 6 (approximately 90 min)
- A Discussion of home practice
 - B Sport-specific meditation (13 min) and discussion
 - C Body scan practice (30 min) and discussion
 - D Brief sitting meditation with a focus on diaphragmatic breathing (3 min)
 - E Workshop conclusion and discussion of continued practice
 1. Review strategies for continued practice
 2. Discussion of continued home practice, which includes:
 - a. Mindfulness practice six times per week for 30 min per day

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Part V

Education, Creativity, and Coaching

Mindfulness-based interventions have beneficial applications to educational practices. Langer (1997) has applied mindfulness principles to the classroom and revealed its importance in expanding thinking and in promoting a psychological flexibility that facilitates learning and more creative ways of thinking. This section explores the effects of mindfulness training on knowledge and education.

Langer (1997) argued that our system of education teaches children to be mindless. By teaching absolute facts without regard to their conditional truth and overreliance on evaluation (grades), children are taught the mindless illusion of certainty. Currently, researchers are addressing this problem. Weare presents growing evidence supporting mindfulness' success in the classroom. Studies examining the effects of applied mindfulness interventions in schools suggest that it has a positive impact on mental well-being, stress, and depression, and is associated with improved academic performance. The introduction of mindfulness in American and British schools is also associated with enhanced cognitive, social, and emotional skills.

Similar to some of Langer's earlier work exploring mindfulness in education, Reber identifies some of the consequences of overpractice, which he coins learned mindlessness, in the classroom. He argues that today's school curricula don't emphasize flexible problem solving. Reber discusses the implementation of mindfulness practice in school contexts, and how teachers can promote both situational mindfulness and dispositional mindfulness.

Willard argues that today's younger population is emotionally disconnected from its experiences. Factors such as technology (e.g., video games, movies, other electronics) easily distract younger people from building the capacity to be alone with their thoughts and feelings. Instead of practicing self-understanding, youth are encouraged to multitask and to look at things outside of themselves in order to deal with their emotions. This lack of self-awareness can cause uneasiness towards one's self, disregard for one's emotions and experiences, and, ultimately, disregard for one's self entirely.

McCown explores four definitions and discourses of mindfulness currently used today, and their potential utility in the context of the classroom. McCown also discusses how the unfolding of the teaching intentions of the Mindfulness-Based Interventions over the duration of a course may align with four different definitions and discourses of mindfulness.

Saarinen and Lehti connect both Buddhist and Langerian notions of mindfulness to Socratic philosophy. They suggest that the intention of a better life—which is a salient theme in Buddhist philosophy—be integrated in Western conceptualizations of mindfulness that emphasize thought and meaning.

Salomon discusses the importance of incorporating mindfulness practices into peace education. More specifically, he explores the relationships between mindfulness and peace education in the context of ethno-political conflicts.

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Mindfulness in Schools

Where Are We and Where Might We Go Next?

Katherine Weare

The Growth of Interest in Mindfulness in Schools

The time finally seems to be coming for mindfulness in schools and for children and young people. Across the world, we are witnessing a rapid growth of school-based programs, conferences, and meetings, and some early efforts at empirical research and evaluation. This new focus on education could be seen as an overdue redressing of a balance that has so far been heavily towards the mental and physical health of adults, due perhaps to the origins of secular mindfulness in the world of hospitals and clinics. Given that mindfulness is essentially about learning to pay attention and cultivate attitudes such as kindness, curiosity, and non judgmentalism, the link between education and mindfulness could be seen as even more obvious and fundamental.

As an indicator of this growth of activity, a database of what is called in the US “K-12” contemplative education programs (i.e., those that are taught to children between the ages of 5 and 18 years) taught in the US and Canada has been compiled by the Garrison Institute (2012a) and, at the time of writing, lists 37 programs, taught in a wide range of contexts. A recent review by Meiklejohn et al. (2012) concluded that 14 of them had been subject to some kind of empirical evaluation. Meanwhile, activity is growing in other parts of the world, including in Europe and Australia: the review by Meiklejohn et al. (2012) along with three other reviews (Burke, 2010; Harnett & Dawe, 2012; Weare, *in press*) carried out in the last few years, found 22 published empirical studies of mindfulness for young people, three of them based on work outside the US. Meanwhile, work on education originating directly from ancient contemplative traditions such as the Mind and Life Institute set up by the Dalai Lama and the Order of Inter-being set up by Zen Master Thich Nhat Hanh (Garrison Institute, 2012b; Mind and Life Institute, 2009) is achieving new impetus, and increased respectability and credibility in schools and universities.

Integrating mindfulness into mainstream Western schools is a recent and somewhat radical idea, but there is much existing experience from which to learn and build. Contemplative approaches in education are hardly new: Eastern cultures clearly have them woven into their very fabric, while in the West, educators who are themselves contemplatives have long quietly worked below the radar, using their experience to inform their work with young people. Some types of private school in the West, such as Montessori and Waldorf-Steiner schools have reflection, contemplation, and meditation as part of their core, and they have potentially a great deal of learning to offer those who have come to contemplative education in schools more recently.

Building on the Evidence Base

Education increasingly aspires to be an evidence-based discipline, and if schools are to be attracted to the idea of undertaking mindfulness as an addition to their already-busy agendas, they have to be clear what its benefits are likely to be and have a realistic view on the quality of the evidence base.

The evidence from adult mindfulness

There is certainly much to build from research on adult mindfulness, the benefits of which will also appeal to the school staff directly in terms of promoting their own well-being. In terms of measurable outcomes for mindfulness and adults, the evidence, based on an extensive and growing set of randomized control trials, is reasonably solid that interventions can address successfully a very wide range of health, social, and emotional problems, including stress, depression, anxiety, and pain, and help practitioners to feel a greater sense of calm, happiness, well-being, and engagement with others (Baer, 2006). Mindfulness in adults has been shown to have an impact, too, on intellectual skills, improving sustained attention, visual-spatial memory, working memory, and concentration (Chambers, Chuen, & Allen, 2008; Jha, Krompinger, & Baime, 2007; Zeidan, Johnson, Diamond, David, & Goolkasian, 2010).

The evidence from work with children and young people

Studies on the effects of mindfulness and young people are not yet anywhere near as extensive as work with adults, but the number of studies is now growing rapidly, particularly in developed countries such as the US and, to a lesser extent, the UK, and results are promising. There have been four recent reviews (Burke, 2010; Harnett & Dawe, 2012; Meiklejohn et al., 2012; Weare, *in press*) of work with children and young people that attempted an overview and/or meta-analysis. Based on just around 20 published studies, all four reviews have concluded that mindfulness interventions are promising, generally acceptable, and well liked by the young people and teachers who take part, and there have been no reports that any of them did any harm. The early evidence the reviews bring together suggests that some interventions for children and young people can have at least a modest impact on improved mental health and

well-being, reduce stress, anxiety, and depression, and enhance academic, cognitive, social, and emotional skills. We will review this evidence in more detail below. The processes and the effects of mindfulness in the young appear to be very similar to the positive and well-evidenced changes observable in adults, which gives cause for optimism that the same psychological and physiological processes are at work.

However, the four reviews also concluded that the field of mindfulness with children and young people is at present underdeveloped and methodologically weak. At the time of writing (April 2013), there were still only 22 published studies, and they constituted a very mixed set: Nine were of universal programs and 13 targeted, and 14 were of school-based programs, with a further six in clinical and two in community contexts. Most studies have been pilots with small numbers and investigated a mixture of universal and targeted interventions for a very wide range of age groups and conditions or needs, with so far almost no attempts at replication. The field is particularly thin in terms of what generally passes for methodological rigor in scientific contexts, where the gold standard is the large-scale randomized control trial (RCT). Only eight of the 22 studies were RCTs, with five others using nonrandomized controls: the other nine were before-and-after studies. Mindfulness was sometimes integrated with other techniques such as social and emotional learning, yoga, and relaxation, which may be good contemplative and classroom practice but makes uncoupling the impacts of mindfulness a methodological challenge. There are as yet no standardized measures, or even much overlap use of measures, a good deal reliance on self-report inventories, and a tendency for the same team both to evaluate the programme and to design and deliver it.

However, research necessarily lags behind practical action in any sphere, and the urgent need for better quality research is well recognized in the mindfulness community. Most of the larger programs aimed at children and young people are now putting serious efforts into robust evaluation, and calls for more rigorous research using a wider range of measures are among the conclusions of most recent academic papers on mindfulness for children and young people. In any case, there are other important indicators of the growing success of mindfulness in schools. "Acceptability" to students, teachers, and schools is vital, since, unless schools want to teach and students to learn, no impacts are possible. Most programs have carried out an assessment of their acceptability to students and staff. The four reviews cited above all concluded that these evaluations suggest that mindfulness is generally popular, well liked, and seen as useful, and with no adverse effects as yet reported.

There is also much that can be learned about "what works" in terms of strategy and principle from work in areas with children and young people that have some overlap with mindfulness and have had considerable exposure and success in recent years. Such areas include the promotion of mental health and well-being, character and values, social and emotional learning (SEL), and the reduction in conflict and violence in schools. These areas are not in themselves mindfulness, and they are often based on more cerebral approaches involving language and discussion rather than the transformational shifts of awareness that mindfulness can induce: We discuss later how adding mindfulness to them may enhance their impact. Nevertheless, they share goals, most notably a concern with the well-being of the whole child and recognition of the importance of the emotions, and the social and relational context in which the learner

operates; share some of the same rationale; and experience some of the same challenges in their acceptability, legitimacy, and integration into the mainstream. They form a solid foundation and background of sympathetic and supportive activity in schools within which mindfulness could usefully base itself, and unlike mindfulness in schools, they have all been subject to at least 30 years of research and development, and some recent comprehensive reviews and meta-analyses (Adi, Killoran, Janmohamed, & Stewart-Brown, 2007; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Weare & Nind, 2011), which have uncovered not only program outcomes and impacts but some of the principles that drive effective implementation. This chapter will include some suggestions for what can be learned from the long experience represented by this work, using the overall term “wider reviews on well-being in schools” for brevity.

Impacts on cognitive processes/executive function/attention

Schools are clearly centrally interested in learning and cognition, and wider reviews have shown that work with children and young people to promote well-being and SEL can have a direct impact on learning, attainment, and academic achievement (Durlak et al., 2011; Zins, Weissberg, Wang, & Walberg, 2004), findings that are a major attraction for schools. It is useful therefore that many mindfulness interventions appear to be contributing to this evidence base and are producing modest but significant changes in what is sometimes called “executive function” in children in the same way that they have been clearly shown to do in adults. “Executive function” refers to cognitive processes including attention, planning, working memory, problem solving, verbal reasoning, multitasking, and self-management (Chan, Shum, Touloupolou, & Chen, 2008). As we have indicated, mindfulness in adults has been demonstrably shown to have an impact on learning and on executive function (Chambers et al., 2008; Jha et al., 2007; Zeidan et al., 2010), and the impacts on children and young people appear to be similar, with some suggestive impacts on academic performance, school achievement, learning, concentration, and memory (Beauchemin, Hutchins, & Patterson, 2008; Flook et al., 2010; Semple, Lee, Rosa, & Miller, 2009; Semple, Reid, & Miller, 2005; Sibinga et al., 2008).

Of particular interest is the evidence of impact on attention. The central intention of mindfulness is of course to teach practitioners to pay attention in a particular way. As a seminal writer and researcher on the power of the mind in children, young people, and adults, Langer has long called for education to shift its focus to helping students to pay attention mindfully, in other words the here and now, with total focus, with engagement with what is the case and kind, open-minded curiosity towards the new and unexpected, and with discrimination and wisdom (Langer, 1990, 1997, 2009). Since Langer published her influential book on the “power of mindful learning” in 1997 (Langer, 1997) the need to help children and young people develop their ability to pay mindful attention has become ever-more urgent, due to the extraordinary and unprecedented rise in the sheer level of distraction and confusing “information” offered by the ubiquity of modern media, the Internet, devices such as cell phones, and 24/7 streaming. Young people as never before need to learn the ability to focus,

concentrate, and apply critical judgment to sort fact from fiction. Mindfulness interventions would appear to be starting to find ways to help students learn to pay mindful attention, and there is now some emerging empirical evidence of the impact of mindfulness training on awareness and clarity (Bögels, Hoogstad, van Dun, de Schutter, & Restifo, 2008; Broderick & Metz, 2009; Napoli, Krech, & Holley, 2005; Saltzman & Goldin, 2008; Schonert-Reichl, 2008; Semple et al., 2005; Zylowska, 2008). They also impact on the vital skill of metacognition, in other words, the ability to stand back from the thought stream and appraise thoughts in a reflective manner (Flook et al., 2010; Saltzman & Goldin, 2008).

Impacts on mental health and well-being

Schools increasingly see themselves as having a wider remit than academic learning and as also having a role to play in the task of protecting mental health and promoting well-being, through building resilience, providing their students with the inner resources to buffer negative stressors and thrive despite deficits, and to build confidence in self-worth, competence, and engagement (Weare, 2000). These skills and attributes can act as protective factors by preventing the development of risky behavior such as drug taking and crime, link directly to educational attainment and success, and have longer term benefits such as higher earning potential and greater success at work and in personal relationships (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Zins et al., 2004).

Many schools are concerned to help prevent the alarming, and growing, number of young people who experience mental-health problems, as affluence increases in the West and as life becomes more complex and stressful. Again, mindfulness appears to have a key role to play. There is a solid evidence base on the impact of mindfulness-based approaches on mental health in adults, particularly in relation to depression (Ma & Teasdale, 2004; Teasdale et al., 2000). Interventions are beginning to show evidence of impact on mental-health problems in the young, including depression (Biegel, Brown, Shapiro, & Schubert, 2009; Joyce, Etty-Leal, Zazryn, Hamilton, & Hassed, 2010; Kuyken et al., 2013; Liehr & Diaz, 2010; Raes, Griffith, Gucht, & Williams, 2013; Zylowska, 2008) and anxiety (Biegel, Brown, Shapiro, & Schubert, 2009; Kuyken et al., 2013; Bootzin & Stevens, 2005; Liehr & Diaz, 2010; Semple et al., 2005, 2009; Zylowska, 2008), and in reducing conflict, aggression, and oppositional behavior (Schonert-Reichl, 2008; Sibinga et al., 2011), stress (Kuyken et al., 2013; Sibinga et al., 2011), and sleep problems (Biegel et al., 2009; Bootzin & Stevens, 2005; Wall, 2005).

There is of course more to the promotion of mental health than the prevention of problems, and the paradigm within mental-health promotion in general, including for children and young people and including work with schools, has shifted powerfully in recent years towards a focus on positive psychology, optimum mental states, and the promotion of flourishing and well-being (Huppert, Baylis, & Keverne, 2005) an approach that recognizes strengths and capacities as well as vulnerabilities, and explores the social and emotional characteristics of mentally healthy people as well as those with difficulties.

Correlational studies show that mindfulness in the young is associated with better positive mental health and that adolescents who are mindful, either through temperament or through training, tend to experience greater well-being, more positive emotion, popularity, and friendship extensiveness, and less negative emotion and anxiety (Miners, 2007). These qualities can be partly fostered through education, and mindfulness interventions are starting to show the potential to help everyone in the school flourish: interventions have had an impact on overall well-being (Bögels et al., 2008; Huppert & Johnson, 2010; Kuyken et al., 2013) and induced greater calm and relaxation (Broderick & Metz, 2009; Wall, 2005).

Social and emotional impacts

Mindfulness has been shown to have effects on emotional and social qualities in adults, who include of course school staff. In adults, it can impact on the ability to feel calm and in control of the emotions, to make meaningful relationships, to experience compassion, empathy, and attunement, to accept experience, to manage difficult feelings, and to be resilient, motivated, persistent, and optimistic (Shapiro, Oman, Thoreson, Plante, & Flinders, 2010).

We have already alluded to the powerful evidence base for the impact of SEL in schools (Adi et al., 2007; Catalano et al., 2002; Durlak et al., 2011; Weare & Nind, 2011; Zins et al., 2004). Evaluations of mindfulness interventions are now suggesting that mindfulness has promise in enhancing the impact of SEL in young people. This may be because mindfulness addresses more directly skill deficits and emotional blocks that the more cerebral and wordy approaches of SEL cannot so easily reach (Jennings, Lantieri, & Roeser, 2012; Schonert-Reichl & Lawlor, 2010). Mindfulness interventions have been shown to assist in the self-management and emotional and behavioral regulation that underlie the ability to cope with school, pay attention in class, make effective choices, and avoid impulsive behavior (Broderick & Metz, 2009; Saltzman & Goldin, 2008; Schonert-Reichl & Lawlor, 2010; Semple et al., 2005, 2009; Sibinga et al., 2008; Wall, 2005), to bring about better social relationships and greater trust in friends (Sibinga et al., 2011), improve self-esteem, self-acceptance, and self-awareness (Biegel et al., 2009; Broderick & Metz, 2009; Schonert-Reichl & Lawlor, 2010; Wall, 2005) and to improve motivational skills of optimism (Schonert-Reichl & Lawlor, 2010), goal setting (Bögels et al., 2008), and resilience (Shapiro et al., 2010).

Balancing universal, targeted, and indicated work

There are interesting questions to explore around the level of need at which interventions to promote well-being should be directed: whether they should be taught to all children (the universal approach), to those who volunteer, to those who are at risk from the kind of problems interventions are intended to address (targeted), and/or to those who already have such problems (indicated). There is further discussion to be had about what the balance and relationships should be between these various approaches.

In the case of mindfulness, we have at present no direct answer to these questions. Reviews (Burke, 2010; Harnett & Dawe, 2012; Meiklejohn et al., 2012; Meiklejohn et al., Weare, *in press*) indicate that the 22 studies that at the time of writing make up the evidence base for work on mindfulness with young people are a mixture of nine universal and 13 targeted/indicated, and cover an enormous range of need. Groups studied include those with mixed issues (Sibinga et al., 2008), anxiety and depression (Biegel et al., 2009), depression alone (Raes et al., 2013), behavior problems (Bögels et al., 2008) attention and behavior-control deficits and ADHD (Zylowska, 2008), substance abuse and sleep (Bootzin & Stevens, 2005), and economic disadvantage (Mendelson et al., 2010). With so few studies over such a range of conditions and with such little replication between them, it is not possible to make generalizations about effectiveness for particular problems, or the optimum balance to strike.

However, this issue has been the subject of some solid evidence gathering the wider literature on interventions to promote well-being in schools. Reviews that have considered this issue have generally concluded that all three levels of intervention are necessary and in balance, and with a coherent strategy with articulated links between them (Adi et al., 2007; Durlak et al., 2011; Weare & Nind, 2011; Zins et al., 2004). A universal approach is the vital foundation to ensure that children can benefit from the promotion of well-being: It also reduces the recurrent problem of stigma that almost invariably attaches to special help, and helps foster a positive and civilized culture in the school from which all can benefit, including those with problems. Against this foundation, children with special needs can receive more intense targeted and indicated interventions that build on that solid foundation, that are appropriate for their level of difficulty: Indeed, interventions are likely to have their strongest impact with those with greater needs. Ensuring this level of congruence between interventions for all students and more vigorous help for those with particular needs will be a challenge for mindfulness in schools as it develops.

How it works—the evidence from brain-imaging studies

The idea that mindfulness can produce profound alterations in how the mind works is not now only evidenced by subjective accounts from those who practice it. Thanks to neuroscience and the new science of brain imaging, we now know that mindfulness meditation in adults can reliably and profoundly alter the structure and function of the brain and produce, for example, greater blood flow to, and a thickening of, the cerebral cortex in areas associated with sensory awareness, attention, and emotional integration (Davidson & Lutz, 2008). The changes are most dramatic in long-term adult meditators but are also perceptible in the short term, and participants on 8-week courses have been shown in pre-post analyses to have increased gray-matter density in the areas of the brain associated with learning, memory, self-awareness, compassion, and introspection, and reduced density in areas associated with anxiety, stress, and emotional reactivity, such as the amygdala (Davidson & Lutz, 2008).

In some follow-ups of mindfulness interventions for adults, the immediate beneficial effects on the reduction in stress and the promotion of well-being were still apparent

after 3 years, and the majority of subjects continued their formal mindfulness practice over this period. The time spent learning mindfulness does not have to be extensive to show benefits. Work with adults showed that 5 days of 20 min of mindfulness meditations in adults reduced anxiety, depression, anger, and fatigue, improved immune reactivity, and decreased cortisol (a stress hormone), and 4 days of mindfulness training was sufficient to improve mindfulness, visual-spatial memory, working memory, and sustained attention (Hölzel et al., 2011).

There are as yet no studies on the changes in the brain produced by the practice of mindfulness by children and young people: Such studies are clearly needed to help the field develop.

Staff Development

There is an emerging and strong rationale emerging within the mindfulness community for the axiom that those who would teach mindfulness to others, whatever the age of the student, need to be experienced practitioners themselves and practice mindfulness on a regular basis (McCown, Reibel, & Micozzi, 2010). It is argued that authentic mindfulness can be taught only by those who can model and embody the particular, and not always easy to acquire, attitudinal qualities mindfulness develops, such as open-minded curiosity, kindness, empathy, compassion, acceptance, trust, patience, and nonstriving, and the skills of focusing, and paying and switching attention. Much of mindfulness is metacognitive and to do with resting in an awareness that is beyond thought and words, which can be experienced only during and through practice. The paradoxes involved in learning mindfulness, such as success through non-striving, the relaxation that comes with accepting tension, and the relief from negative mind states produced by sitting with them rather than avoiding or denying them, have to be experienced from within to be grasped. Mindfulness practice has effects that can be surprising and upsetting, and can take some handling by the teacher: Students can experience a range of difficulties such as heightened awareness of painful feelings that they need to discuss with someone who has the empathy of the inside. Indeed, for some such as the very anxious or currently depressed, certain types of practice are not indicated and may even be harmful (Ma & Teasdale, 2004; Teasdale et al., 2000). For all these reasons, teaching mindfulness is not best carried out by the uninitiated reading from a script.

We should then perhaps be concerned that the growth in popularity of mindfulness in schools is leading to a widespread publication of online and off-the-shelf resources and classroom materials that are likely to be seized on by schools and funding agencies as low-cost, quick-fix solutions. Delivered by untrained teachers without a personal practice, the result may well be that at best the teaching is ineffective, or worse that students are put off mindfulness, or at the very worst may experience harm. There is no preventing the publication of resources in free society, but the mindfulness community needs to argue the case strongly for teacher education and ongoing personal practice, and attempt to spread the idea that easily accessible resources and quick-fix practices are fun “tasters” and sources of inspiration and support, rather than a sufficient basis for teaching mindfulness in schools.

Insisting that teachers practice mindfulness themselves is a fairly benign requirement, as learning mindfulness is likely to have direct benefits for the teachers themselves. Teacher stress is a growing problem and costs most nations a great deal of wasted funding in absenteeism and attrition, as well as reducing the quality of education for the students and creating a great deal of human misery (Brouwers & Tomic, 2000). There are well-evidenced improvements in physical and mental health that tend to follow the learning of mindfulness by adults, including conditions particularly relevant to the teaching profession such as stress and burnout (Grossman, Neumann, Schmidt, & Walach, 2003). Meiklejohn et al. (2012) reviewed three teacher education programs in the US and concluded that there was an impact not only on teachers' mindfulness and sense of personal well-being and self-efficacy but also on their ability to do their core job in managing classroom behavior and to establish and maintain supportive relationships with students. It is unsurprising, then, that most effective mindfulness in schools courses incorporate teacher education, and not only to help teachers teach mindfulness to their students but to nurture their own well-being.

Teaching, Learning, and the Taught Curriculum

Skills and attitudes

Teacher embodiment is vital, but not the whole story. Mindfulness is unlikely to be picked up entirely by osmosis: There are skills as well as attitudes to learn that can be acquired only through concrete experiential practice, and which point to the need for a mindfulness curriculum. The centrality of the learning skills and the taught curriculum in efforts to promote well-being in schools is supported by the evidence from wider reviews, which unanimously concluded that teaching skills and developing competence in students is at the heart of any comprehensive and effective intervention to promote mental health and well-being, and prevent mental-health problems in the school context (Adi et al., 2007; Catalano et al., 2002; Durlak et al., 2011; Weare, in press).

The basic qualities of mindfulness for the young attempts to foster are fundamentally the same as for adult mindfulness. As Langer has clarified so effectively (Langer, 1990, 1997, 2009), learning mindfulness at any age is centrally about learning to pay attention and see things clearly and as they are, to relate directly to experience, to step out of habitual ways of repetitive, ruminative, and biased thinking and automatic habits, and to relate to the world and other people without letting judgments and prejudices block the view. This process is not value-free, and authentic mindfulness sets out to cultivate in the learner a set of specific attitudinal qualities that originate in the ethical foundations of the ancient contemplative traditions from which mindfulness came: They include open-minded curiosity, kindness, empathy, compassion, acceptance, trust, patience, and nonstriving (McCown et al., 2010; Segal, Williams, & Teasdale, 2013). The practice of mindfulness and accompanying attitudes offer a powerful technique to help students and staff reshape and transform their own minds to become wiser, calmer, and more compassionate human beings.

Practice is at the heart of mindfulness teaching for children and young people, as it is with adults: All courses that claim to be contemplative/mindfulness based are, by definition, teaching children and young people experiential practices that help them to pay attention and focus on in the moment with curiosity and kindness. Some courses, especially for teenagers or those with particular problems, stick fairly closely to the template of the adult 8-week course in terms of structure, themes, and methods (Biegel et al., 2009; Garrison Institute, 2009; Semple & Lee, 2011), and most courses operating under the name of “mindfulness” in the Garrison database of contemplative programs (Garrison Institute, 2012a) use versions of adult practices such as mindful eating, body scan, attention to breath or to sound, observing the thought stream, and mindful walking and movement.

The need for experimentation in work with children and young people

We do not yet actually know for sure how appropriate these adult practices are, or whether other practices, or indeed other types of experience, might be more appropriate for different types of child or different age groups. A report by the Garrison Institute (2009) observed that adult practices are rarely applied to children in cultures from where they originate. Although, in the long run, the same kind of “programme fidelity” as has been largely achieved for adult mindfulness may be desirable for mindfulness interventions with the young, the field is not ready for this yet and is at present going through a period of exciting and innovative experimentation. A recent review by Meiklejohn et al. (2012) written by a large team, including many of those most active in program development, suggests that the details of appropriate pedagogy and curriculum are still being explored and that there is as yet much debate and discovery about the active ingredients of programs, the resources, messages, themes, methods, and practices that are most acceptable and effective for different age groups and contexts. We do know, for example, that getting children to practice at home and after the course is both vital for the impact of courses and not always easy to achieve (Huppert & Johnson, 2010; Kuyken et al., 2013), so inspiring young people enough to get them to practice on their own remains a major and unresolved challenge.

It's different for the young

Evidence from wider reviews of SEL points to the need for lively, experiential, and active methods and a teaching and learning pedagogy that is different to the rather quiet, steady, and sometimes slightly sombre approach taken in most adult mindfulness teaching (Adi et al., 2007; Durlak et al., 2011; The Mindfulness in Schools Project, n.d.; Weare & Nind, 2011; Zins et al., 2004). Children remain children, whatever context they are in, and they do not spill through the door as little contemplatives in waiting.

In a classroom setting with 30 or so lively children, both practices and inquiries are generally shorter than those with adults, and, given that most children have not signed up for this voluntarily, inquiry is carefully controlled and care taken not to probe their “soft underbelly” in ways that may cause them to say things that might cause them

to be teased and bullied later (Kaiser-Greenland, 2010). As the time spent in lessons, and on the course as a whole, is probably short, more time will be spent on teacher exposition to explain the purpose of the exercise, as the children may have little idea otherwise why they are doing it, especially if it is a compulsory class.

Over time, most children can learn to spend at least a short time in silent practice and “staying in your bubble,” and many (but not all) say they appreciate this and find they can gradually spend longer on this as practice develops. But some children find this very difficult and need alternatives, such as mindful movement, listening, or other activity. It may be that, as the Garrison report suggests (Garrison Institute, 2009), practices devised in alternative educational settings such as Montessori and Waldorf schools that use more sensory modalities and movement including art, dance, and music would also be appealing and effective, possibly more so. The 37 programs listed on the Garrison website (Garrison Institute, 2012a) already include many that combine mindfulness with yoga and tai chi, for example. Children need periods of silent practice and inquiry to be balanced and integrated with more familiar and lively classroom approaches that engage their enthusiasm and attention. Rather than a long, whole-class, adult-type inquiry, they can with benefit spend time processing their learning through interactive classroom methods such as pair and groupwork, games, and simulations. Children generally respond best to active methods and materials that are pacey and lighthearted, with a focus on fun and seeing mindfulness as in some ways a game, and with varied stimuli that reach out to all learning styles, such as images, film clips, music, poetry, sensory experience, and stories, to help them respond and remember. They need experience to be concrete, and so efforts being made by several programs to introduce striking objects into the classroom (e.g., glitterballs, shockballs, blindfolds, chocolate, chilli) and use vivid metaphors and images (e.g., the mind is like an animal, the attention is like a puppy, avalanches, rough seas, thoughts as passing traffic) can be helpful. Examples in class and suggestions for home practice need to be grounded in the children’s daily lives—of getting on and falling out, school and peer pressures, school deadlines, complicated relationships, managing social media, and surviving dysfunctional families—all the challenges of growing up in the 21st century.

Taking a long-term, integrated approach

Most mindfulness interventions in schools are of brief duration, and the framework of eight to 12 or so sessions has been widely adopted. The evidence from wider reviews suggests that courses need to be sufficiently long if they are to be successful (Adi et al., 2007; Durlak et al., 2011; Weare & Nind, 2011; Zins et al., 2004) and that such short-term interventions will help specific and mild problems such as minor anxiety, but interventions of at least 9 months to a year are necessary to have a long-term impact and in response to more severe problems.

In wider reviews of work on mental-health interventions, skills work had more, and longer term, impact when mental-health issues were integrated into the general classroom curriculum than when the skills were focused on in isolation (Adi et al., 2007; Berkowitz & Bier, 2007; Rones & Hoagwood, 2003), and only with normal classroom teachers’ involvement did the social and academic sides of the school come

together and academic results improve (Diekstra, 2008). Mindfulness at present is often taught as a stand alone but has much to gain from greater integration with other parts of the curriculum, and indeed with aspects of school life as a whole (Battistich, Solomon, Watson, & Schaps, 1997; Weare, 2004).

There are obvious links between mindfulness and growing work on related aspects such as compassion, empathy, yoga, tai chi, creativity, and relaxation, and such approaches would do well to work together under the banner of contemplative education to develop an evidence base and rationale. A reasonably well-established broader location and foundation for all this work on contemplative education is SEL, which has growing presence in the mainstream and a respectable and reasonably solid evidence base. The structure of SEL programs, with their regular curriculum-based lessons that often spiral through the years of schooling, explicitly building emotional and social skills, sometimes integrated with the mainstream subject curriculum, generally supported by staff development, and sometimes even radically affecting the whole school climate and ethos, offers a promising framework into which mindfulness can fit easily and naturally (Jennings et al., 2012). As evidence for the impact of mindfulness, and thus its respectability, increases, programs that integrate SEL with mindfulness are now developing (The Hawn Foundation, 2013). Such programmes sometimes very usefully integrate a third element concerned with nourishing a teacher's well-being and addressing their levels of stress (Garrison Institute, 2013; The Inner Resilience Program, 2013).

Conclusions

Work on mindfulness with young people has a developing presence in schools, and there is some exciting and innovative work taking place, although there is a some way to go in terms of determining how to teach mindfulness effectively to engage young minds. There is also a way to go in producing solid evidence of its effectiveness, but there are already some promising outcomes from existing evaluations: Well-conducted mindfulness interventions have been shown to be popular with students and staff, and are starting to be shown to improve mental health and well-being, as well as improving aspects of cognitive function. Some supportive locations for it are emerging, particularly within SEL and staff development. The future looks bright.

This is as well, as mindfulness has huge potential in its applicability to the challenges that face the young and is urgently needed. It can help all young people with the stresses they are under and provide an inner toolkit to help them manage their lives in an increasingly complex society. Young people inevitably face a world of difficult choices and challenge, such as finding jobs, handling complex relationships, and the breakdown of families, premature sexualization, and media and peer pressures. It is often hard for adults, even teachers, who did not grow up in this world to help them with this easily, or for the health services to cope with this rise in mental-health problems that result. Mindfulness has the capacity to provide young people with some portable techniques to help deal with these challenges by learning how to calm themselves, be less more resilient, be less impulsive, not get so carried away by thoughts and emotions, be more discriminating, and be able to resist outside pressures and influences. It is a life enhancer for all and for some can literally be a life saver.

Mindfulness also has the potential to help schools and teachers realize their core intentions. There are few Gradgrinds in education who still see the goal as the simple imparting of facts and content: most teachers would aspire to encourage in their students higher qualities, such as a sense of curiosity in the world and in the workings of their mind and bodies, to help them create a sense of meaning, to develop wise discernment and the ability to see the world as it is, to think clearly, to solve problems effectively, and to be innovative and creative. Many have a wish to help their students experience a sense of well-being and flourishing, to be emotionally and socially skilled and resilient, and to have sound character and values. Such aspirations will be routinely found in the information-for-parents web pages or school prospectus even if the students' classroom experience does not always match these lofty ideals.

As long ago as 1890, William James was calling for schools who would educate to civilize rather than just inform to put the training of the attention at their core:

The faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will... An education which should improve this faculty would be the education par excellence. But it is easier to define this ideal than to give practical instructions for bringing it about. (James, 1890/2006)

As James recognized, what schools lack is not ethical and holistic ideals but the practical means to achieve them (Jennings et al., 2012). Schools are as frustrated as anyone at frequent failure to engage the hearts, minds, and consciences of their students. The barrier is not the intentions but the Western mindset about how to realize them. Mainstream schools in the West have naturally been immersed in the dominant paradigm of "doing" and "thinking," and "the achieving self" as the only way to experience the world, tackle its challenges, and find satisfaction and meaning. They have simply not to date had the vital but simple tools that Eastern contemplative practice offers to help them realize their core ambitions, to help students look inwards into the organ through which all their experience is filtered, their own minds, and undertake the kind of clarifying and stilling practices that shape and cultivate these minds and help them process experience more effectively.

Through the use of mindfulness practice and the attitudes that accompany it, such as curiosity, kindness, patience, and nonstriving, we now have the potential to enable schools to educate their students, and their staff, be wise as well as knowledgeable, have fuller and more satisfying experiences, gain a sense of relatedness and connection, and gain a greater degree of happiness and well-being. It will help our teachers to teach from the heart as well as the head, and finally realize that long-held but elusive goal of educating "the whole person."

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Mindfulness in Education

Rolf Reber

The book *The Power of Mindful Learning* by Ellen Langer (1997) challenged traditional approaches to learning at school. Since the publication of this book, much research has been conducted on mindful learning. However, most researchers did not subsume their theoretical approaches and empirical findings under the overarching concept of mindfulness, leaving much research in education and educational psychology unconnected to each other. The major goal of this chapter is to rectify this lack of integration by reviewing important research that could be classified under the concept of mindfulness. Mindfulness interventions are used as an antidote to mindlessness (see Langer, Blank, & Chanowitz, 1978, for a demonstration). Let us therefore first discuss examples of mindlessness in education.

Mindlessness in Education

The following task was given to 97 first and second graders: “There are 26 sheep and 10 goats on a ship. How old is the captain?” Of those, 76 “solved” the task and gave a numerical answer (see Reusser, 1988). Adding 26 and 10 equals 36, which, after all, is a reasonable age for a captain. Children use sophisticated reasoning in order to justify the results in nonsense tasks, as can be seen in another task, “There are 125 sheep and 5 dogs in a flock. How old is the shepherd?” One pupil reasoned, “ $125 + 5 = 130 \dots$ this is too big, and $125 - 5 = 120$ is still too big … while … $125/5 = 25 \dots$ that works … I think the shepherd is 25 years old.”

The mindlessness in these two examples lies in the pupils’ assumption that the teacher is giving them solvable tasks that have one and only one numerical answer. The pupils therefore made ingenious attempts to solve the task at all costs and to

produce an answer that made sense; for example, that the age of a shepherd cannot be 130 years. This is not to blame the pupils who probably have never encountered an unsolvable task before. According to conversational norms (Grice, 1975), they are entitled to assume that the teacher gives them meaningful information, neither too much nor too little, and that the task can be solved; why, after all, would the teacher instruct them to solve a task that is unsolvable? However, what works for school may not work for life. Outside the school context, workers, engineers, or scientists usually find too much or too little information; some information may be irrelevant and problems unsolvable. This can be illustrated by the following realistic example from the study of Verschaffel, De Corte, and Lasure (1994), where a majority of 5th graders correctly solved the task, "Steve has bought 5 planks of 2 m each. How many planks of 1 m can he saw out of these planks?" In contrast, only 10 out of 75 pupils provided the correct response to, "Steve has bought 4 planks of 2.5 m each. How many planks of 1 m can he get out of these planks?"

Textbooks and teachers often use examples that add up. No wonder that the pupils think they are entitled to expect that the task has a neat solution, such as a whole number. Overpractice, especially for people in a subordinate role, has been shown to decrease mindfulness (Langer & Imber, 1979). Indeed, pupils—who are in a subordinate role, compared to the teacher—overpractice tasks without questioning the meaningfulness of assignments provided by the teacher. As a consequence, they are not able to escape mindless application of an overlearned algorithm if confronted with a new task. Analogous to the concept of learned helplessness (Seligman, 1992), one could call this phenomenon *learned mindlessness*. Pupils try to solve the task from the viewpoint of school mathematics, not from the viewpoint of everyday life. Instead of thinking about dividing planks of 2.5 m into planks of one meter each, pupils straightforwardly use the algorithms learned to solve the task and divide 10 by 1. As a consequence of the detachment of school mathematics from everyday life—already lamented by Dewey (1956)—pupils often apply an algorithm without understanding the underlying concepts; they rarely question the solvability of the task; and they solve even absurd tasks, like the ones that request the age of the captain.

If school wants to teach for life, it has to prepare students to respond mindfully to the problems in the real world. How, then, could we make school a more mindful place? In order to answer this question, we first look at what is meant by mindfulness in school contexts and review research about mindful learning before I confront this approach to findings obtained from proponents of cognitive load theory, which at first sight contradicts mindfulness theory. We then take aim at the unfortunate characteristic of psychology that there often exist several concepts that mean the same thing, or two concepts that are left unconnected, even though they are related. This also applies to research on mindful learning. Indeed, some research in educational psychology can be seen from the theoretical perspective of mindfulness, even though it has not been labeled as such. A selective review of examples will demonstrate the fruitfulness of the concept of mindfulness in integrating broad areas of research that were formerly unconnected. Finally, I shall shift the focus from mindful thinking to mindful feeling. Although I focus on mindful education at school, art education and the education of a politically mature citizenry will be touched on towards the end of this chapter.

Mindfulness in School Contexts

In the previous section, we saw examples of mindless problem solving. Even without definition of mindfulness, it became clear that these attempts at solving a problem at all costs were mindless. For further exploration of mindfulness in education, defining mindfulness is important for two reasons: First, we have to make sure that scientists and practitioners mean the same when they use the term mindfulness because some practitioners may be tempted to label *mindful* everything that goes beyond mere drill, and scientists may be tempted to dismiss the concept of mindfulness as too vague. Second, when later discussing educational research that could plausibly be seen as research on mindfulness in education, we have to demarcate the criteria for mindfulness in order to be not too inclusive.

Langer (1989) introduced three key qualities of mindfulness: the creation of new categories, openness to novelty, and awareness that there is more than one perspective. She later extended the definition by including two further qualities, alertness to distinctions and orientation in the present (Langer, 1997). This definition includes active cognitive activity like the creation of new categories and therefore differs from definitions that see mindfulness as nonelaborative—and therefore passive—attention to internal states like thoughts, feelings, and sensations (Bishop et al., 2004).

According to Langer's (1997) definition, mere drill of the multiplication table certainly is not mindful. However, neither is it mindful to let children discover solutions without giving them proper scaffolding (Mayer, 2004). Therefore, constructivist approaches that advocate learning by discovery do not necessarily propagate mindfulness as long as this method does not elicit the core features required by Langer's definition. Moreover, although mindful learners usually are more active than mindless learners, mere activity does not suffice for being mindful as long as it does not involve the defining qualities of mindfulness. Although the review in this chapter is limited to scientific research on mindfulness in education, it is worth mentioning that mindfulness theory could inform teaching goals in education and schooling (see Noddings, 2012).

In school contexts, mindfulness theory can be implemented in two ways: First, teachers may arrange instruction and assignments in a way that promotes momentary mindfulness in students. This could be called *situational mindfulness*. Second, educators may foster mindfulness as a long-term disposition or personal trait; let us call this kind of mindfulness *dispositional mindfulness*. If done successfully, students encounter tasks with a mindful mindset even if the task itself is routine or boring. Equipped with this conceptual armory, we can now look at research on mindfulness.

Educational Research on Mindfulness

From the perspective of mindfulness, learning and motivational outcomes are expected to be better if students create new categories, are open to novelty in the information given, or are aware of new perspectives and distinction and orient themselves in the present. We first discuss research on educational outcomes of mindfulness before we look at cognitive load theory that apparently opposes the tenets that mindfulness

yields positive outcomes. The section ends with methodological considerations before I review mindfulness research in education that has not been labeled as such.

Mindful learning: Research findings

We first discuss interventions that increase situational mindfulness and then look at possibilities to nurture dispositional mindfulness in learning situations.

Situational mindfulness I am going to highlight some signature findings without providing a detailed review of findings already reviewed by Langer (1997). One well-known intervention for increasing situational mindfulness is to make statements conditional. Instead of saying, “Object A is X,” we may say, “Object A could be X.” It has been shown that such an intervention increases learning and creative use of information (Langer & Piper, 1987). Recent research showed that conditional statements in mathematics teaching eliminate gender differences in mathematics performance (Anglin, Pirson, & Langer, 2008).

This simple intervention can be easily implemented in textbooks. In order to make statements conditional, researchers from the Langer lab rewrote a chapter from the Series 7 examination for stockbrokers, which is equivalent to the bar exam in law (Langer, 1997). One group of students studied the modified version with conditional statements, and another group the original version. After 25 min of learning, students were tested on factual knowledge and on the creative use of the learning materials. On direct tests, students in both groups scored similarly; when it came to the creative use of the materials, however, the group that studied the conditional version surpassed the traditional group. In another study on mathematics teaching, Ritchhart and Perkins (2000) introduced two algorithms instead of only one, accompanied by a conditional instruction. They found that this conditional instruction led to higher accuracy, greater creativity, and a decrease in mindless misapplication, compared to a group that received absolute instruction.

Other methods to increase situational mindfulness include introducing new perspectives, for example by thinking about learning materials, such as aspects of a story, in different ways (Langer, 1997); asking for several solutions to a problem instead of just one solution (Langer, Bashner, & Chanowitz, 1985); and introducing ambiguity in the learning materials (D’Mello, Lehman, Pekrun, & Graesser, 2014), which has also been recommended to nurture dispositional mindfulness.

Dispositional mindfulness Ritchhart and Perkins (2000) introduced three practices for nurturing the disposition of mindfulness, grounded in Langer’s (1989) key qualities of a mindful state. First is looking closely, which means that instead of speeding through and thus overlooking much of our environment, we explore it actively, become sensitive to its details, and thus cultivate openness to new information. Second, exploring possibilities and perspectives is derived from Langer’s notion that we look at things from different perspectives. This means that egocentrism and satisfaction with the first solution has to be overcome in order to look at things from the perspective of another person. Whereas children are naturally inclined to explore the

environment, perspective taking is an achievement that develops at preschool age (Piaget, 1970). Overcoming egocentrism is difficult not only for children but also for adults (Keysar & Barr, 2002). Third, introducing ambiguity seems to be counter-intuitive at first sight because educators are told that their instruction has to be clear and therefore unambiguous in order to prevent confusion (see the discussion on cognitive load theory in the next section). However, more subtle methods to introduce mindfulness in a way that increases learning outcomes are at hand. Whereas rigorous quantitative studies looked at situational mindfulness, educational studies on cultivating mindfulness as a trait are most often exploratory. For example, Ritchhart and Perkins (2000) reported a case study of an algebra teacher who fosters mindfulness by introducing mathematics as a constructed reality, by providing a wrong solution and then discussing it, and by exploring mathematics in a mindful manner and showing the pitfalls of mindlessness. In sum, research supports the assumption that mindful learning, compared to traditional learning, benefits students. However, an influential theory from mainstream psychology challenges this assumption and therefore mindfulness theory: cognitive load theory.

Cognitive load theory

In order to acquire knowledge or to solve a task, a learner needs to process a certain amount of information in working memory. This amount of information has been called cognitive load. The main tenet of cognitive load theory is simple: Reducing extraneous cognitive load is always beneficial for learners (Sweller & Chandler, 1994). In support of cognitive load theory, there is ample evidence that guided instruction is superior to unguided instruction, such as discovery learning (Alferi, Brooks, Aldrich, & Tenenbaum, 2011; Mayer, 2004), presumably because cognitive load exceeds working memory capacity of learners when they must discover essential information themselves (Kirschner, Sweller, & Clark, 2006). At first sight, cognitive load theory seems to contradict the notion of mindful learning. For example, creating ambiguity certainly disrupts thought and therefore increases cognitive load, compared to instruction that does not introduce ambiguity.

Much evidence has been accrued in support for cognitive load theory (Mayer, 2001; Paas, Renkl, & Sweller, 2004), for example, when so-called seductive details increase interest in a presentation without supporting the acquisition of the central principle (Garner, Gillingham, & White, 1989; Harp & Mayer, 1997, 1998). Adding seductive details related to the topic but unrelated to the core contents may lead to mindless amusement, but hardly adds those connections that enrich the learning materials and therefore impairs retention. Although there is much evidence that learning outcomes increase as cognitive load decreases, there are exceptions. When learners have to invest more mental effort because variability in the learning materials is increased, their learning becomes superior (see next section for examples). Sweller, Van Merriënboer, and Paas (1998) explained better learning following higher variability by introducing a distinction between extraneous cognitive load that harms learning and germane cognitive load that boosts learning. However, this distinction is fraught with conceptual and empirical problems (de Jong, 2010) so that it seems to be more fruitful to

distinguish the conditions under which cognitive load harms learning from the conditions under which cognitive load benefits learning. Evidence so far supports the notion that cognitive load is harmful when it is unconnected to the learning materials and that it is beneficial if it helps integrate the learning materials. In conclusion, current evidence suggests that higher cognitive load caused by complexity or ambiguity does not impair learning if complexity or ambiguity results in the mindful use of information.

High cognitive load that helps integrate materials does not harm mindful learning. Yet first evidence shows that mindful learning benefits when materials are familiar and simple, thus presumably decreasing cognitive load. This is illustrated by a study on perspective taking (Borke, 1975), a capacity that is essential for mindful learning. In studies on the ability of children to take the perspective of others, as measured by the Three Mountains Test (Piaget, 1970), young children usually perform badly. Borke tested 3-year-old children in two conditions: One group had to tell which mountain an unfamiliar policeman doll was looking at. The other group had to solve the same task with Grover, a familiar character in the TV series, *Sesame Street*. The author found that only 40% of the children demonstrated perspective taking if they were presented with the policeman. In contrast, 80% of the children showed perspective taking if presented with the familiar doll. This finding fits an interesting result in a study reported in Langer (1997). Participants read short stories. Two groups were instructed to vary three or six aspects of the text, like reading the text from different perspectives and imagining different endings, which are some of the typical instructions to increase mindfulness; other groups that served as control conditions were instructed to focus on three or six aspects of the text. Indeed, mindful reading by varying aspects increased learning outcomes, compared to the respective control conditions. Moreover, considering six aspects of the story led to better learning outcomes than considering three aspects. Interestingly, differences among the groups were smallest when the stories were novel. We can plausibly assume that mere novelty increases cognitive load without helping integrate information. Therefore, cognitive load stemming from novelty harms knowledge acquisition and minimizes effects of mindful learning compared to traditional learning.

In sum, mindfulness theory and cognitive load theory may learn from each other. Cognitive load theory may inform mindfulness theory about limiting conditions. When an intervention exceeds the cognitive resources, it fails at improving learning. For example, adding too much novelty or irrelevant details to ambiguous materials may impair learning outcomes. Mindfulness theory may inform cognitive load theory about underlying propensities—like being open for novel information or aware of different perspectives—that lead to the counterintuitive outcome that sometimes, higher cognitive load results in improved learning.

Measuring situational mindfulness in intervention studies

Before we discuss interventions to increase learning and interest that plausibly could be subsumed under the notion of mindfulness, we have to discuss the measurement of situational mindfulness. In contrast to dispositional mindfulness, where measures like the Langer Mindfulness Scale (LMS) have been developed, there are no routine measures for situational mindfulness. While experimental manipulation of mindfulness, as

carried out in studies by the Langer lab (Langer, 1997), may alleviate much of the concerns discussed here, they will become important when we want to subsume research that has not been carried out within the conceptual framework of mindfulness. The claim that this research manipulated mindfulness needs to be tested against alternative explanations, such as automatic (and therefore mindless) cognitive activation.

When testing a mindfulness intervention, we have to observe, first, whether the intervention increases mindfulness, and, second, whether mindfulness increases learning. The same logic applies if a mindfulness intervention fails; then, an experimenter does not know whether mindfulness simply did not affect learning, or whether the experimenter's intervention did not induce mindfulness in the first place. Indeed, in the earlier mentioned study by Ritchhart and Perkins (2000), one conditional instruction group did not show any effect; a later manipulation check revealed that participants understood as an absolute instruction what was intended as a conditional instruction, hence failing to induce mindfulness.

When we want to discuss research findings in terms of mindfulness theory, future research will have to demonstrate that mindfulness mediates the effects of the different variables discussed in the next section on learning and motivation. With this caveat in mind, we are ready to review this research.

Educational Research That Could Be Subsumed Under the Concept of Mindfulness

Educational theory and research often discussed phenomena related to mindful learning without subsuming it under the framework of mindfulness. This is unfortunate because mindfulness provides an overarching theoretical framework to integrate phenomena that have remained unconnected (Demick, 2000). For example, Schwartz, Lin, Brophy, and Bransford (1999) presented STAR LEGACY, a software shell that allows adapting learning design to individual needs. The developers built on a learning cycle that started with looking ahead and then continued with an initial challenge, generating ideas, being exposed to multiple perspectives, research and revision, "test your mettle," and going public, and ended with reflecting back before the learner again looks ahead and is exposed to a new challenge. Being aware of multiple perspectives is an important feature of mindful learning, and Schwartz et al.'s account could be fruitfully integrated into an overarching mindfulness theory.

Interventions to increase learning

In this section, I provide a selective review of findings from research on variability of learning materials, studies on problem-based learning, on making thinking difficult, and three different interventions to increase interest. Though unrelated at first sight, these six research topics can be easily subsumed under the umbrella of mindfulness theory (see Table 54.1). The examples demonstrate that the concept of mindfulness can shed light on lines of research that on the surface have no connection with each other.

Table 54.1 Interventions and tentative mindfulness categories.

<i>Intervention</i>	<i>Tentative mindfulness category</i>
Variability of learning materials	Distinction; Perspectives
Problem-based learning	New categories; Openness; Perspectives
Thinking difficulties	All
Relevance intervention	Openness; Perspectives; Present
Example choice	Openness; Perspectives; Present
Personalization	Perspectives; Present

Distinction = alertness to distinction; New categories = creating new categories; Openness = openness to new information; Perspectives = awareness that there are different perspectives; Present = orientation in the present.

Variability and learning There is ample evidence that a high variability in learning materials increases learning outcomes, presumably because a high variability increases the probability that similar features within the learning materials can be identified and that relevant features can be distinguished from irrelevant ones (Paas & Van Merriënboer; Sweller et al., 1998). This research tradition has not referred to work on mindfulness, but is fully compatible with it. A high variability in learning materials may promote mindfulness by drawing the learners' attention to distinctions and by enabling learners to see a problem from different perspectives. De Croock, van Merriënboer, and Paas (1998), for example, examined a computer-based simulation program to practice troubleshooting skills for a water-alcohol distillery plant. Each particular system failure was practiced with 12 cases. Participants had to diagnose the problem and stabilize the system. The researchers introduced a low-interference condition where a new system failure was introduced only after all 12 cases for the preceding failure were practiced. For a high-interference group, the same system failure was never presented twice in succession. This means that the low-inference group received a blocked practice schedule, and the high-interference group a random practice schedule. In the practice phase, the high-interference group took longer and made more wrong diagnoses than the low-interference group. After the practice phase, the participants were given a transfer test where their understanding of troubleshooting was tested. In contrast to the practice phase, the high-interference group outperformed the low-interference group in this test phase. A high variability could be seen as a mindfulness intervention because it forces learners to adapt to new information for every problem and therefore to focus on distinctions instead of identical features. Sometimes, a higher variability improves learning without the cost of a higher effort, as demonstrated in a study by Paas and Van Merriënboer (1994).

Not only variability in learning materials but also variability in solution methods increases learning. In a study on solving equations, Rittle-Johnson and Star (2009) showed that when examples were presented with two alternative solution methods, both conceptual knowledge and flexibility in using procedures to solve problems were improved compared to a control group seeing a single solution method. A group that was presented with different examples of equations but only one equation method

scored better than the control group on procedural flexibility but not on conceptual knowledge. Using different solution methods for the same problem enhances awareness of different perspectives and presumably openness to new information that increase the readiness to try different paths to solve the same problem.

Problem-based learning The instruction to discover new regularities within the information given is a mindful activity because it inspires students to be open to novel solutions. As mentioned above, pure discovery learning has been found to be ineffective (Mayer, 2004); instruction has to be guided by a teacher in order to attain optimal learning outcomes. However, so-called invention activities may enhance learning if followed by direct instruction (Schwartz & Martin, 2004). For example, when discussing how to compute a reliability index, students were given different outcomes of a dart game, and they had to find a meaningful measure for the reliability with which five darts were distributed on the target. Such invention activities often lead to discussions that force students to be open to new ideas, create new categories, and see the problem from different perspectives, which again correspond to key qualities of mindfulness.

Disrupting thought Based on ideas by Shklovskij (2004), Brecht (1964) revolutionized drama by implementing the alienation effect. The idea of alienation is to disrupt automatic identification with the characters of the drama in order to make the audience think. Interruption of ongoing thought processes may elicit all kinds of mindful elaboration because there are multiple ways to respond in this situation. Similarly, when the first painters renounced representational art and instead depicted abstract patterns, mindless appreciation of pictorial representation was disrupted (see Bullot & Reber, 2013). This is in line with Dewey's (1910) notion that that the starting point of each act of reflective thinking is a difficulty.

Psychological research supports the notion that making information processing difficult elicits analytical thinking (Alter, Oppenheimer, Epley, & Eyre, 2007; Song & Schwarz, 2008), a finding that has been replicated in educational settings (Diemand-Yauman, Oppenheimer, & Vaughan, 2011). If making thinking difficult elicits analytical thinking, the question arises whether such difficulties give rise to better learning. Indeed, empirical evidence supports this idea by showing that materials that make learning easy are not always best. In a study titled, "Are good texts always best?", McNamara, Kintsch, Songer, and Kintsch (1996) found that coherent texts promoted understanding in readers with poor knowledge about the domain. Knowledgeable readers, by contrast, benefitted most from minimally coherent texts where they had to infer the unstated relations themselves. Using a different empirical approach, Van-Lehn, Siler, Murray, Yamauchi, and Baggett (2003) analyzed learning protocols from tutorial dialog between expert human tutors and physics students. Again, tutoring that went smoothly did not yield the best learning outcomes. The key finding was that successful learning required students to reach an impasse with the realization that they lack an understanding of a specific piece of knowledge. In a recent study that fits neatly with Ritchhart and Perkins' (2000) idea of introducing ambiguity to nurture mindfulness, D'Mello et al. (2014) provided learners with contradictions between statements related to critical thinking. Some of these contradictions led to confusion, and if they

did, the learning outcome was better than when there was no confusion. In a similar vein, Kapur and Bielaczyc (2012) tested what they called productive failures. Students were given ill-defined problems where they apparently failed in their problem-solving efforts. On a posttest on well-structured and complex problems, however, these students outperformed a control group of students that received direct instruction.

Does this mean that learning materials have to be difficult in order to improve learning? Not necessarily, as we again learn from Brecht, who stated:

When your work is complete, it must look light, easy . . . You mustn't leave out the difficulties, but must collect them and make them come easy through your work. For the only worthwhile kind of ease is that which is a victory of effort. (Brecht, 1964, p. 174)

We have already seen that invention activities work only if they precede direct instruction. In a similar study, Schwartz and Bransford (1998) have shown that predictions of the outcomes of a hypothetical memory experiment were improved if direct instruction about the theory of memory was preceded by the analysis of contrasting cases. Students who analyzed contrasting cases and then heard a lecture made better predictions than students who analyzed contrasting cases twice without a subsequent lecture or students who first read and summarized a chapter about schemas in memory and then got the lecture. However, it is not enough to sharpen the alertness to distinction by analyzing contrasting cases, as shown by the group that analyzed contrasting cases twice. As in Brecht's drama, teachers have to collect the difficulties and make them easy through their lecture. Mindfulness, it seems, sometimes does not improve outcomes directly but opens up the mind for subsequent knowledge acquisition. This means that a mindfulness intervention does not necessarily replace direct instruction but in some cases could precede it in order to prepare the student's mind for the materials to come.

Interventions to increase interest

Mindful learning increases not only retention and understanding, but also liking (Langer, 1997), which is an important component of interest. Much of the research on interest fits well with the qualities of mindful learning. Dewey (1913) defined interest as sustained engagement in a topic; this roughly corresponds to developed personal interest in the model of Hidi and Renninger (2006). This sustained engagement is contrasted with mere excitation elicited by seductive, but irrelevant embellishments of the learning materials. As discussed earlier, such seductive details may increase immediate interest but harm performance (Garner et al., 1989; Harp & Mayer, 1997, 1998). For Dewey, the only legitimate way to increase interest consists in linking the learning materials to the life of the students. Several interventions have been developed to increase interest in the sense Dewey postulated, and all of them can be seen in the light of adding a mindful attitude to learning materials.

Relevance intervention Relevance intervention is aimed at connecting learning materials to long-term professional goals or to the everyday life of students. Students either are presented with reasons why a certain topic is relevant to their life

(external relevance intervention; Durik & Harackiewicz, 2007) or have to write down how the materials they have learned connect to their everyday life (internal relevance intervention; Hulleman & Harackiewicz, 2009). Studies on mathematics and science education have shown that relevance intervention improves learning outcomes and increases interest. Whereas external relevance intervention benefits those with high initial interest, internal relevance intervention benefits those with low performance expectations, suggesting an opportunity to increase interest for students with poor academic performance. This form of raising the awareness for how learning materials link to one's own life increases orientation in the present. Moreover, knowing the relevance of novel learning materials presumably increases openness to new information and provides a new perspective in which these materials can be seen, apart from mere subject matter to be learned for school.

Example choice The same qualities of mindfulness may play a role in example choice, an intervention method starting from the notion that learning with an interesting example might increase interest (Reber, Hetland, Chen, Norman, & Kobbelvold, 2009). In order to increase the likelihood that an example is interesting, learners can choose among different examples the one that interests them most. This example is then used to acquire the principle to be learned. Reber et al. examined this principle with students who had to learn about the confirmation bias. The authors indeed observed that interest in learning about this bias increased for students who could choose the example that interested them most, compared to a group of students who were given an example. As the second group was given the same examples that were chosen by the former group, the finding cannot be explained by differences in the examples the two groups had worked on. The task related to the chosen example is used to increase interest. However, the examples that were not chosen can later be used in practice tasks. Using different examples—both for choice and for later practice—increases mindfulness by illustrating the same principle from different perspectives. This also applies for Montessori education where choice is an integral part of the educational philosophy (see Lillard, 2005).

Personalization Research has shown that learning materials are more interesting if customized to the personal characteristics (name, birth date) and preferences (favorite music, hobbies) of the learner (Ku & Sullivan, 2002; Parker & Lepper, 1992). Seeing one's name or hobbies mentioned in a task or in the learning materials connects the materials to the here and now in which the learner is present. Moreover, students may see the materials from their own, personal perspective in a way they would not have done if the materials had not been customized and therefore remained abstract.

Future directions In this section, we have encountered several kinds of interventions that could be subsumed under the notion of mindfulness. I focused on experimental manipulations that could plausibly be considered mindfulness interventions. However, mindfulness theory might be fruitfully applied to areas where such evidence is scarce, such as instructional programs in critical thinking that feature prominently in philosophy of education (Noddings, 2012) but are neither embedded in psychological theories nor informed by empirical research (Kuhn, 1999). For example, neutrality of

viewpoint is an important characteristic of critical thinking (Vandenberg, 1983) and allows thinkers to question their own assumptions (Paul, 1993). In order to achieve this, a critical thinker has to draw distinctions between different viewpoints and to take the perspective of others. Therefore, the mindfulness framework may fruitfully link critical thinking to psychological theory.

From Mindful Learning to Mindful Feeling

By looking at the positive emotion of interest (Silvia, 2006), we already made the transition from mindful learning to mindful feeling. In the examples we have seen—relevance intervention, example choice, and personalization—the teacher arranges the situation in a way that elicits mindfulness that, in turn, influences a student's feelings. In this section, we shall consider an example of how confrontational styles of scientific and political debates result in mindlessness and how mindful use of feelings helps maintain a differentiated view of political debates. The findings teach us a lesson for the education of a citizenry mindful of different political and scientific viewpoints.

Recent research revealed the debilitating effect of confrontational styles in debates. In order to increase the entertainment value of an article, the press often uses emotional and confrontational styles when describing a scientific or a political debate. American presidential races often rely on negative ads about the competitor instead of raising the controversial issues with sobriety. In a recent study, Kienhues and Bromme (2012) demonstrated that confrontational styles result in mindlessness. They provided their participants with opposing scientific findings. In one condition, participants read a text about a scientific debate in a confrontational style that emphasized negative emotions between the two scientists. A control group received the same text with neutral descriptions of the debate. The researchers assessed the degree to which participants thought that scientific findings are variable, and trust in scientists. A confrontational style led to the belief that scientific findings are less variable than a neutral style, which can be taken as a sign of mindlessness because people do not consider different perspectives in the debate and are not alert to distinction. In addition, people trusted experts less when the debate was confrontational; conditions that led to mindlessness also led to less trust, or turned the other way, people trust experts who discuss opposing positions in an emotionally neutral way. Interestingly, another experiment by the same authors revealed that a debate can be emotional as long as positive emotions are emphasized; only negative emotions do harm. It is not even necessary for the debate itself to be confrontational; Kienhues and Bromme showed that it suffices to frame the debate as confrontational, as is often done by the press to increase suspense. When an explanatory statement focused on irascible and pejorative discussant behavior during a debate, participants perceived scientific evidence as less variable than when the statements emphasized that scientific debates are inherent to the topic; no effects on trust were observed in this experiment.

To add drama to a scientific or political debate by making it emotional and confrontational may attract attention and arouse momentary interest. However, the increase in entertainment value comes at a cost because the audience neglects variability of an issue. Consequently, people become mindless in their judgment about debates

because they are discouraged from looking closely and from exploring possibilities from multiple perspectives (see Ritchhart & Perkins, 2000). In public debates, politicians and scientists often prioritize attracting attention, whereas introducing ambiguity is seen as a sign of weakness. However, it would be too myopic to blame the politicians as long as emotional campaigns are successful at the ballot; in the same vein, scientific debates that turn emotional may attract more support from the public and therefore more public endorsement of granting research than sober argumentation. It is not sufficient to entertain the view that politicians and scientists should introduce ambiguity in order to elicit mindful thought in the public. It is at least as important that parents and teachers educate the youth to develop mindfulness as a disposition.

Concluding Remarks

In this chapter, I reviewed the core studies on mindful learning and noticed that much research not labeled as studies on mindfulness provided insights that can plausibly be explained by mindfulness theory. We saw that cognitive load hampers learning if it does not integrate different perspectives; but that it promotes learning when it varies perspectives on the same theme; that invention activities as a mindful activity increase subsequent learning; that interest can be increased by interventions that take principles of mindful learning into account; and that students may benefit from principles of mindfulness in order to deal with adverse feelings, for example when watching debates that are styled as confrontational.

Demick (2000) noted that the concept of mindfulness could serve as an overarching concept for psychological science. In order to substantiate that claim, we have to examine how existing learning research fits the notion of mindfulness, and what the limiting conditions are. Indeed, the few examples we examined showed that learning is improved when it is mindful. However, further research has to determine whether mindfulness indeed mediates effects of invention activities or of variability of learning materials on learning outcomes. Apart from the few studies discussed in this chapter (Langer & Piper, 1987; Ritchhart & Perkins, 2000), there is virtually no research on effects of mindfulness on metacognition, creativity, sudden insights, or art appreciation. A restructuring hypothesis of sudden insight (Weisberg, 1995) would predict that instructing problem solvers to look at the problem from different perspectives results in better solutions than problem-solving strategies that rely on a single perspective. Finally, research in neuroaesthetics usually starts from the assumption that audiences look at an artwork as a stimulus and classify its style implicitly (see Bullot & Reber, 2013, for a critique). However, in line with mindfulness theory, art educators assume that audiences play a much more active part (Parsons, 1987) and that becoming an artist requires the ability to overcome the assumptions and routines of the present age (Langer, 2006).

Note that most interventions aim at increasing situational mindfulness. Research on this kind of intervention is of course easier to conduct than research to follow up training and development of dispositional mindfulness. It would be interesting to examine interactions between situational mindfulness and dispositional mindfulness. Does providing learners repeatedly with ambiguity or different viewpoints promote

dispositional mindfulness in the long term? The future challenge for studies in education is to find means not only to increase mindfulness on the spot but to cultivate dispositional mindfulness in every future citizen.

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Mindfulness With Youth

Sowing the Seeds of a Mindful Society

Christopher Willard

In the Beginner's Mind there are many possibilities, in the expert's mind there are few.

—Suzuki Roshi

Young people already have a head start on mindfulness. They naturally notice the details in life that we adults overlook, ask the questions we've stopped asking, and are open to new experiences without the heavy weight of adult prejudgetment. They seek and make novel observations and insights, teaching themselves and the adults around them to delight in new perspectives that they offer, bringing mindfulness, in Langer's (1989) definition to us all. In another sense, they are the living embodiment of the "beginner's mind," the Zen notion that "in the beginner's mind there are many possibilities, in the expert's mind there are few" (Suzuki, 1970). Sadly, pressures in our contemporary culture push more and more adult stresses and expectations onto childhood, whether it's increased work and school expectations in the suburbs, or facing real-world violence in the inner city at an ever-younger age.

Simple practices of mindfulness can restore some of that natural state of openness and can be learned by anyone: from young children with significant developmental disabilities to rebellious adolescents struggling with past trauma, and everyone in between. Most any young person can learn and benefit from even a small dose of mindfulness that will continue to bear fruit over the course of a lifetime. That small seed of mindfulness is capable of growing and blossoming when supportive adults cultivate the right conditions. But, just as we cannot force a flower to bloom, neither is there a perfect formula for creating mindful adults, but there are best practices to teaching and cultivating mindful awareness. In this way, it is up to us as adults to create the conditions under which our young people are most likely to flourish for a lifetime—physically, emotionally, intellectually, and spiritually.

The research on “executive functioning” (EF) makes clear that a solid foundation of strong executive function skills is critical to lifelong success in across multiple domains of learning and mental health (Pokhrel et al., 2013), with poor EF implicated in behavioral, emotional, and academic difficulties in later life (Biederman et al., 2004). Mindfulness, in theory (Bertin, in press; Black, Belzer, Semple, & Galla, in press) and research (Black et al., in press; Flook et al., 2010) appears to have a powerful impact on various measures of executive functioning. Other studies of mindfulness training in youth have suggested improvements in resilience to stress (Biegel et al., 2009; Mendelson et al., 2010) with hopeful implications for the various health and wellness benefits of improved stress resilience across the lifespan, especially in those youth with higher levels of trait mindfulness as measured by various scales (Black et al., 2012; Brown et al., 2011; Burke, 2009; Marks, Sobanski, & Hine, 2010).

Many adult teachers have had meditation and mindfulness practice for many years, without necessarily having begun practice in childhood. Still many can look back at times and understand them as inherently mindful present-moment awareness with acceptance that opened them to new and fresh perspectives and insight. Perhaps these include watching clouds forming and unforming in the summer sky as a reflection on impermanence, walking quietly and mindfully through the forest, or resting in a meadow and listening to the sounds of nature in the “silence.” These calming activities can serve as the seeds of a later practice. The benefits can also come, as was quickly apparent: a calmer and clearer mind, which can spark a deeper interest and motivation to pursue a practice later.

For true believers in mindfulness, there is probably little convincing necessary for suggesting that practice be taught at a younger age. The benefits for adults have been clear to Western science for decades, with relief for depression, anxiety, and behavioral difficulties well documented as research on trauma and other disorders continues to grow. The advantages, to physical health, of these and other practices that induce relaxation are similarly well researched and include immune-system functioning, heart disease, and more (Lazar, 2005). Cognitively, there is clear evidence for enhanced concentration and creativity important for academic success, and improvements in resilience and emotional intelligence, critical for lifelong success and happiness. The evidence is compelling and clear: Mindfulness training has many advantages and few downsides.

But beyond the research, there are intuitive reasons why these practices are so important to teach in our attention-deficit culture. Mindfulness is about the power of single-tasking, rather than multitasking, which runs against the stream of our attention-fragmented culture. As a demonstration of the power of single-tasking, to take a moment, close your eyes and place one finger in the center of your forehead.

Focus on those sensations now for a moment ... what is the temperature ... noticing the pressure ... moisture of dryness ... ? How does your finger feel against your forehead. ... How does your forehead feel against your finger? Put your hand down and allow your eyes to open. How do you feel now? In your mind, in your body? Fewer thoughts?

Most people report feeling greater calm and a more settled mind after even just practicing this for less than a minute. This is a simple, portable, yet powerful lesson that adults or young people can practice anywhere. Such practice opens new perspectives to what is often overlooked and brings awareness of the power of context as well.

Although our culture can often seem the opposite of mindful, there is a counterbalance as the interest in mindfulness grows. Mindfulness appears to be gaining popularity in schools, hospitals, clinics, and other places where we find young people for the same cultural reasons that it has been catching on with adults. As Jon Kabat-Zinn points out, we adults spend too much of our time rushing around and doing, with no time to just be, turning into human doings rather than human beings. We do not need to spend very much time with today's young people to see how overbooked, overscheduled, and distracted they are as well. We seem to be creating miniature "human doings" at a younger and younger age, watching childhood innocence shrink away to just the earliest years of life as children become too overbooked to slow down, investigate, and learn about their own experience.

Adults inside and out of the mindfulness community have noticed young people everywhere seem more disconnected from their experience than past generations. This sad state of affairs appears just as true in communities of neglect where children are raised by violent video games inside and gangs outside or the helicopter parenting communities in the suburbs, where the emphasis is on achievement for achievement's sake. These all leave our young people lacking emotional intelligence and underprepared for the developmental tasks ahead, and hardly prepared for the emotional challenges of adulthood. Sherry Turkle, the author of *Alone Together: Why We Expect More from Technology and Less from Each Other* (Turkle, 2012), writes "If we don't teach kids how to be alone, we will teach them to be lonely." For any of us who work with young people, we can see this not just in the records rates of mental illness, but in the lack of identity, self-understanding, and ability to tolerate or even identify strong emotions.

And yet, that is precisely what we end up teaching young people in our culture whether we intend to or not—we are teaching them to be lonely, to be too busy to attend to themselves. More disturbing, we are teaching them to deal with their emotions by looking outside of themselves for distraction, rather than inside for understanding whenever they feel uncomfortable or confused. With mindfulness, however, we can teach children to understand, tolerate, and ultimately learn from whatever discomfort may arise. A friend of mine refers to mindfulness as "universal exposure therapy," teaching us to tolerate everything that crosses our conscious or even unconscious mind: the positive, the negative, and the neutral.

Today's technology, while ostensibly about connection and communication, is often more likely to ultimately disconnect us from our experience. For younger people, with executive functioning and impulse control often still not fully developed until well into their twenties, the lure of the glowing screen offers an extremely difficult temptation. The moment any one of us does not like how we feel, be it boredom, frustration, or sadness, we can instantly check out of our experience with a game, a video, or any other electronic distraction. Even the incredible ability to connect with others around the world in real time can become a way to disconnect with our own experience.

Yet running counter to this trend of multitasking and distraction is the growing interest in mindfulness, teaching the capacity to be alone with our thoughts and feelings. While technology lures with the promise of something more exciting or more important happening elsewhere, mindfulness reminds us that there is nothing more important than our present-moment experience right here, right now. Of course, this is hardly an easy argument to make to a 12-year-old holding an iPad. Yet ultimately, with practice and patience on our part as well as the child's, mindfulness teaches the capacity to be with ourselves, a capacity to be alone, and the present moment, whether pleasant, unpleasant, or neutral, can be important and interesting, possibly even enlightening—a powerful gift to offer future generations—because, really, what better way than mindfulness to teach resilience in an often uncompassionate world? The bad news is that difficulties will inevitably arise no matter how hard we try to protect and shield our children. They will get hurt, if they haven't been already. We adults may not always be there to protect them, but we can empower them to soothe themselves. What young people consistently report about "Eastern" mindfulness practices is that they feel empowered by mindfulness, in their bodies, in their minds and in their lives with something that is theirs, that no one can take away—whether they are quietly using mindfulness in the classroom to calm themselves or practicing techniques in the chaos of a difficult family.

Beneath these philosophical reasons to believe in mindfulness training at a young age lies solid scientific evidence. Consider for a moment what qualities come to mind when you think of adolescents, or the adolescent brain. Perhaps these are the brains of people in your classroom, your office, or maybe your own home. Of course, we all know that adolescents have many wonderful qualities: curiosity, open-mindedness, in fact many of the qualities that are inherently mindful and spark our own shift toward mindful awareness. However, there are many reasons, and good reasons, why our culture is increasingly concerned about adolescents. Increasingly, child-mental-health experts get referrals for problems such as impulsivity, mood swings, and concentration difficulties, among others. What we see and hear about is lack of perspective, poor decision-making, emotional reactivity, and other stereotypically adolescent qualities that reflect an underdeveloped brain that often isn't fully developed until early adulthood. There is good news, and what we know from the research on adults who meditate is quite promising. The main areas activated by meditation tend to be in the prefrontal cortex, the seat of executive functions—planning, problem solving, and inhibiting impulses. There is activation and change in the temporo-parietal junction, home of perspective taking (Lazar, 2005). Changes in the insular cortex where we process emotional stimuli and integrate thoughts and senses, and home to our mirror neurons, critical to interpersonal understanding and empathy, have also been observed. Notably, this area, which appears to grow with meditation practice, is often smaller in people with major mental illnesses. After even just a few weeks of meditation, the hippocampus appears to change and grow; this is the seat of learning and memory, important in school learning but also in learning from our actions and our mistakes. So, although we cannot draw a straight line between meditation and improvement in every problematic behavior, and correlation does not equal causation, there is certainly reason to think that meditation and mindfulness practices may contribute to changes

in the brains that we are most likely to be concerned about, and that are most vital to lifelong success and happiness.

Bringing Mindfulness to Young People

Evidence in hand, we now turn to the most difficult task—actually teaching mindfulness to young people. How can we convince a child to sit still and meditate or engage in similar practices, when these activities are hard enough for us adults? How can we integrate and emphasize Langerian models of mindfulness in young people? Most programs and practitioners who work with young people hardly advocate teaching children to sit *omming* in the lotus position for hours on end, although that has a certain appeal for many parents and teachers. Indeed, best practices and research follow common sense and suggest short, simple exercises and adaptations that can plant the seeds of meditative awareness in all aspects of our children's lives. Thich Nhat Hanh, the Vietnamese monk who has been instrumental in bringing Eastern notions of mindfulness to the West, suggests transforming everyday life into a meditation, and meditation into a way of life. We can think of "Eastern" practice in three parts—the first, informal practice such as bringing mindful awareness to our activities; the second, formal practice such as sitting meditation practice; and the third, retreat practice for days at a time. For young minds, only the first two make much sense, and we begin by teaching children to bring mindful awareness to not just breathing, but walking, playing, eating, working, movement, and all of their daily tasks. In a Langerian sense, we think of exercises, perhaps even "Eastern" practices that create mindstates of openness to new ideas, new categories, and an ability to hold and be aware of a multiplicity of perspectives that we can bring to school or play.

With young minds developing at different rates and with different cognitive styles, it is important to adapt existing exercises to these varied learning styles of young minds. A large part of adaptation is to provide more "zone of proximal development" or scaffolding for practices. This can mean more Socratic questioning about mindfulness practices, as well as encouraging verbal and nonverbal reflection about the experience. Exercises can be made more concrete and developmentally appropriate by integrating them into new or existing games, interactive stories, arts and crafts, and other forms of play. The goal becomes teaching and experiencing mindful awareness through the child's natural means of learning. Subtle forms of awareness in the Eastern tradition—like the idea of paying attention to thoughts, far too abstract for a child, are deemphasized in favor of more accessible awareness practices of the present moment like using the five senses, or visualization or movement to make the anchor of attention "stickier" for young people with smaller brains, bodies, and attention spans.

Explaining Mindfulness

Explaining mindfulness to anyone presents a challenge, but particularly to young people. Here metaphors, both visual and verbal, can come in handy. Many "Eastern"

mindfulness teachers use a snowglobe, or a jar filled with glitter to demonstrate the power of mindfulness. Holding the jar, we explain the different colored glitter as thoughts, feelings, and maybe urges. The instructor can then describe events that might stir up the glitter, gently turning the jar over and disturbing the glitter as we list off “an argument with Mom … a disappointing test grade … even something exciting like winning a game at recess can stir up our thoughts and feelings … worrying about who to sit with at lunch …” Eventually, the jar or snowglobe is spinning with glitter, and we can ask “what can we do to make the jar clear again?” The answer, of course, is stillness; there is no other way to keep our thoughts and feelings from getting in the way. Glitter jars are easy to make, and snowglobe kits can even be ordered online or bought at craft stores for a mindful arts-and-crafts activity.

To describe mindful awareness, or the practice of watching thoughts, there are many great verbal metaphors such as sitting by a stream and nonjudgmentally watching thoughts carried gently downstream on leaves without traveling with them, imagining mental events carried by conveyer belt (Linehan, 1993), thoughts going by on floats or signs carried by marchers in a parade (Hayes, Strosahl, & Wilson, 1999), autumn leaves landing softly on an empty and accepting blanket of consciousness, following the bouncing ball of thought or perception as in old TV sing-alongs, or Karaoke, thoughts as bubbles floating past in the air, or clouds that are forming and changing against a blue sky, watching the scenery pass by on a train without getting off the train, watching cars drive past from a distant height, or better yet, whatever metaphor a child might come up with. From these practices and metaphors, new perspectives in the Langerian sense begin to emerge.

Visualization, or any way of engaging the other senses makes practices easier by giving the child more to focus on than instructions such as “sit up straight and focus on your breath.” As an example, let us consider the breath. Practices of diaphragmatic breathing are a concentration practice that induces relaxation, and act as attentional strength training for the mind with tremendous benefits. The core strength of concentration builds a solid foundation on which a more substantial awareness practice such as mindfulness can be built. Visualizing the breath as a waterfall, with the air flowing flowing down into the belly, or the belly expanding as if inflating a balloon are a few examples of child-friendly images. Thich Nhat Hanh suggests breathing in like smelling a flower, and breathing out as if just barely blowing out a candle. Children can focus also on the sounds of the breath, as well as sensations such as a hand on their belly in any posture, or a pillow or stuffed animal on their belly if laying down. Breathing steadily, they can practice trying to blow bubbles of the same size, or keep a pinwheel moving continuously at the same rate as they exhale. Ultimately, these additional instructions and added stimuli again make that object of attention “stickier” and easier to focus on than instruction that emphasizes mere breath awareness. For sitting posture, playful imagery, such as “sitting up straight and regally like a king or a queen,” “imagining a string holding you up like a marionette,” or other such visuals, can help explain proper posture and make it easier and more fun than just “sitting up straight.”

Using contrasts and engaging the body are tricks that teachers who work with young children know well. To make a point about what mindfulness feels like in the body, it can be helpful to playfully demonstrate contrasts in the body between tension,

passivity, and openness. Encouraging playfulness and pointing out contrasts demonstrates clearly an attitude of mindfulness while opening up new perspectives on the body's own wisdom and messages it may be sending in various external and internal states. Here is a demonstration (Germer & Neff, 2012) that can be helpful to offer early on to demonstrate what mindfulness is and what it is not.

I'd like you to sit up as straight and tight as possible, and hold your arms out in front of you and make fists as tightly as you can ... now just notice what thoughts come up, what feelings and emotions come up ... notice what your breath feels like. And now I'd like you to let go, let your arms droop down, your body sagging and your back slouched. How does that feel in your mind and body? What kinds of thoughts and feelings? What is your breath like? And now sitting up not too tense, not too loose, but balanced, hands open and palms facing upwards ... How does this feel? What thoughts and feelings come up now? How does it feel to breathe in this position? Can you take that feeling with you throughout the day and notice when you become too relaxed or too tense and readjust yourself?

The first position is of course too tight, a fight or flight response in which breathing and thinking is constricted. Adjectives describing this posture include "tense," "rigid," "closed," "angry," and others along those lines. The second is overly relaxed, not enough energy to focus. Words include "passive," "tired," "lethargic," "depressed," and others like these. The third posture is "just right" and represents a stance of mindful openness in both mind and body that is tangible enough for young people to understand from childhood onward and creates an openness to new ideas and perspectives. Encourage your audience to notice when they are most likely to be in each pose, ask about those times, and help them notice what it can tell them about their mental state and openness.

Mindfulness Practices With Young People: Sound and Body

Many instructors have discovered the hard way that young people are rarely interested in breathing exercises. Mere breathing is difficult to focus on and often boring, and as a younger clinician I was once told by a disinterested teen who had already spent years in therapy that "deep breathing is played out." For those reasons, it helps to be prepared to offer a range of attentional anchors beyond just breathing, and hopefully some that could be more fun, and easier to focus on. As far as practices go, mindfulness of sound is often a good place to start, as it inverts the object of distraction into an object of attention. There are many ways to go about this, but one can start with basic concentration on the sound of a bell or gong. The instructions are simply to ring the bell, and pay attention as the sound fades away, noticing the different subtleties of the sounds and how long it takes for the sound to disappear completely. In a group, students can raise their hands and then put them down as they no longer hear the tone. This practice narrows the range of focus and so acts as a kind of concentration practice, rather than open awareness mindfulness practice.

From this narrow focus, however, one can start gradually to open the field of awareness. Children or teens can get out notebooks and write down what sounds they hear in 1 min of silence. Typically, they are surprised by how much they hear and, when they share with each other, become aware of still more sounds. Repeating the exercise, the group members typically notice more the second time with greater awareness, and a discussion can follow about why that might happen as we become still and listen more carefully. On the third time, ask the group just to be aware of what sensation arises in the body with each sound, or what thoughts, emotions, urges, or memories arise with each sound, and then go back to simply listening. Following this practice, a rich discussion often ensues about how many things we are unaware of on a daily basis that can affect our mood, our thought stream, and, in turn, our behavior. After learning this practice, children can go on to do this themselves, or practice “counting to five sounds” at various points throughout their daily lives as a means of self-soothing or just practice mindful awareness of the moment. Another sound-related activity is listening to music in a contemplative manner, focusing the attention on following just one instrument through the song, and shifting between awareness of the parts and whole of the music.

Mindfulness of Body: The First Foundation

Mindfulness of the body also offers important insights, and activities such as Jon Kabat-Zinn’s Body Scan can be adapted for young people with a minimum of effort. From an Eastern mindfulness perspective, mindfulness of body is the first foundation of mindfulness and is often taught early in mindfulness courses such as Mindfulness Based Stress Reduction (MBSR) or Mindfulness Based Cognitive Therapy (MBCT). The principle lesson in mindfulness of body is to come to identify the ways emotions and urges arise first in the body before being interpreted into thoughts by the brain, and to notice the ways in which sensations are temporary and ever changing. One can make the first foundation, and its insights, more accessible to young people with a few simple adaptations. A body scan may or may not be possible given a child’s attention span, or may be inappropriate for other reasons. We can sit individually or in a group and simply take turns noticing body sensations. For example, here is how the exercise might proceed with one child.

Adult: Starting with your eyes open or closed, just take a moment to scan through your body, maybe starting from the inside out, or from the bottom up, and let’s just name the sensations that we feel until we get to three each ... I’ll start ... My foot feels itchy ...

Child: My leg feels achey.

Adult: My stomach feels fluttery.

Child: My head feels heavy.

Adult: My hands feel cold.

Child: My hands feel sweaty.

At this point, there is increasing awareness of sensations in the body, which itself can be soothing as it directs mental attention toward one object of awareness in the

present, rather than many. However, humans are wired to have thoughts or interpretations of our bodily sensations, of which we may or may not always be aware. With further practice, we can notice what thoughts or urges arise, welcoming this flood of information.

Adult: This time we will pay attention to our bodies again, but also listen to what they are telling us—if we have any thoughts or feelings, or even any urges when we notice the feelings. I'll start again, I notice that my foot feels itchy, and I really want to scratch it.

Child: My leg feels achy, and I want to stretch it.

Adult: My stomach feels fluttery, and it reminds me of times that I'm nervous, and I don't like it.

Child: My head feels heavy, and it makes me feel sleepy.

Adult: My hands feel cold, and I want to put them in my pocket.

Child: My hands feel sweaty, and I feel gross.

Many observations may feel simplistic at first but in fact start to create insight into the connections between thoughts and feelings and behavior, and can lead to rich discussions with other children or adults when properly facilitated: for example, expanding outward from the fluttering stomach to say “I interpret that as being nervous, and when I’m nervous I want to run away … but instead of doing that, I think I will refocus on my breathing, or something else that calms me.” Here, an adult can model identifying feelings, tolerating them, and healthily coping with them, rather than getting pulled into the thoughtstream or into negative behaviors. In this way, the first foundation of mindfulness is made more tangible, structured, and safe than a body scan, and we can also process the experience in different ways. With some practice, the insight arises whereby there is in fact space between thought, feeling, and action. From there, young people can begin to feel more empowered in their own lives by responding in these moments rather than reacting or being hijacked by their emotions and behavior, and understanding the contexts in which different responses arise. New insight tends to beget greater curiosity, and so the motivation to search more deeply for insight and fresh perspective continues. Exploring through different media can also bring new awareness, and children can discuss sensations, draw feelings or thoughts on an outline of a body, or do creative writing exercises based on the experience.

Generating “Buy In”

While adapting or finding mindfulness activities that will work for young people offers one challenge, the greater challenge yet is getting them interested and engaged, or generating “buy in,” as child professionals like to say. Just as important as getting young people interested, is getting the systems around them engaged—this means families, schools, and the other institutions that support and work with children. Institutional support is critical both in starting practices and nurturing and sustaining them to realization.

Starting with the children themselves, whether in psychotherapy, the classroom, the family or any other setting, the priority is to build trust and rapport. This is best done by carefully considering the child's perspective and child's agenda. My own work is as a psychotherapist, and in that setting I encounter well-meaning parents asking me to teach their children mindfulness, often for a specific reason that can include everything from lowered anxiety and stress to better SAT scores or less family conflict. Such an agenda coming from the parents usually backfires for a few reasons. For one, it seems a dubious enterprise to offer mindfulness as solely the solution to a specific problem, as this removes it from the original contexts in which the goals are far more abstract. Second, it is a common challenge in working with young people to overcome anything that smacks of their parents' generation, another reason to be cautious about following the parents' lead on introducing mindfulness. But most important, children's agendas and parents' agendas do not always line up and may be miles apart.

For that reason, perhaps the best way to interest young people is to help them understand what *they* can get out of it, and so knowing your audience is critical. We want to figure out ways to sneak in some awareness practices, to rebrand them a little without going too far afield, or to make it interesting to them and something that they want. Clarify and distinguish the child-driven agenda from an adult-driven agenda of the parent or school. Get to know the young people you are with—what do they want to change or improve in their lives? What do they love and care about that mindfulness could improve? Do they want more powers of concentration? Maybe not, but maybe more creativity or calm would intrigue them. Athletic or musical performance could be a way in, or less social anxiety. Often, children struggle with quieting their minds before sleep in our busy world. Stress as an agenda cuts both ways; in many places, children are seeking relief, but with some of the children, stress is worn as a badge of honor. So, in bringing mindfulness to children and adolescents in any setting, we should always be asking ourselves, "What is in it for them?" Far better to know your audience, what their values and goals are, and align with them, than trying to align them to what you have to offer. No amount of scientific research on the benefits of anything healthy, whether it is mindfulness or green vegetables, has ever convinced a skeptical child to try something new.

To take a page from the playbook of advertisers, pop culture offers a number of role models and spokespeople for the benefits of meditation, including a number of professional athletes, performers, and other celebrities. Any list offered here however will surely be out of date by the time this book goes to press, itself a reminder that what is cool among young people rarely stays that way for very long. Attempt to be cool at your own peril. Star Wars, Beastie Boys, or The Wu-Tang Clan may or may not be the freshest pop culture references; still, things like ninjas and samurais are eternally cool, especially to boys.

But perhaps the best role model is you, the calm, capable, and complex adult who can model keeping their calm in the face of challenges, and not reacting to provocation. Along with this is the idea among adolescents that a relaxed, "chill" attitude is a good one to have, something that Dharma Punx author, Noah Levine, knows well. Opening to mindfulness through movement is also popular. Teens may find martial arts appealing, and yoga has grown in popularity among teens, particularly young women.

Bringing Mindfulness to Institutions

For anyone who has their own mindfulness practice in the Eastern sense, they have likely had the experience that starting a practice is far easier than maintaining and sustaining one. Making a practice regular, through making time or tying it to other activities, can help, but one of the most important ways to keep a practice going is with community support. For children and teens, this means families, schools, and extracurricular activities that provide support and structure for mindfulness to flourish. We need them to be committed and involved, believing in mindfulness in order to bring it to young people.

So-called “buy in” is a concern in institutions strapped for financial resources, with limited time and staff. Convincing families and institutions of the benefits of integrating mindfulness into their busy schedules is no easy task. Here, however, we can cite the scientific evidence for learning, mental health, and performance described earlier. Second, by engaging the family or school, we can give them firsthand experience of the benefits of practice, greater calm, less reactivity, and far less burnout and stress as goals of any family or institution. As the soil that allows the seeds of mindfulness to blossom, we adults need to encourage practice, in part by having a practice ourselves. We further can find ways to encourage practice in good times and bad, creating times for regular practice during the school day or at home.

And yet, mindfulness in the Langerian sense does not simply mean formal “practices” but rather a larger shift pedagogical approach by teachers in which concepts are taught more open-endedly, with a value placed on “creative distraction” and where the mind goes, rather than simply bringing attention and value to more rote tasks. Further, by bringing fresh perspective to new ideas to be learned and explored, the novelty allows for better retention, and retention that is more relevant to the young person’s life (Langer, 1997).

A common concern when bringing mindfulness to institutions is whether these practices are in some ways religious or spiritual in nature. While they can be used in conjunction with a spiritual practice, and Eastern-derived practices in particular may be spiritual in origin, they can be completely separated from those roots. Although words like “meditation” may send up red flags in some quarters, the word “mindfulness” has been successfully secularized and brought into the public conversation by researchers like Ellen Langer and Jon Kabat-Zinn to the point where it is far less threatening than in the past.

Interesting families in mindfulness practices benefits the whole family system. Parents who practice often report a contagion of calm effect, with everyone in the family interacting more thoughtfully and with far less conflict. Mindfulness practices can also be done together, both formally and informally. While mindfully eating every meal together may be a bit too ambitious for most modern families, there are ways to bring some mindfulness to family meals. Some gratitude practices at dinner in which everyone reflects on what they are grateful for can start off a meal, followed by a discussion on where the food comes from before taking just first three bites of the meal mindfully are manageable tasks. As society becomes more secular, many traditions like gratitude lose their place when not practiced through saying grace, but the benefits of practices

can be realized even when secular. Finding time to do chores mindfully or bringing a few moments of mindfulness to parts of the daily routine, or even one part of the daily routine, can establish habits that will last a lifetime. A boring drive or walk to school can be made more interesting and positive by noticing just one beautiful thing on the way. Along those lines, a student I worked with now uses her smartphone's camera to capture and bring attention to one thing of beauty and color each day to keep herself positive through the bleak New England winter.

Practicing as a family can bring its own dangers, however, and it is important to emphasize that mindfulness should never be a chore or punishment; "go practice your meditation" should not be a mandate. But finding ways to practice together, in good times and bad, models and encourages mindfulness when it is needed most. When it is a togetherness activity, it comes to have positive associations and allows young people to share with their peers more readily, as well as allowing everyone in the family to remind each other in subtle and more overt ways.

In clinical practice, many therapists not only use mindfulness for themselves but also to share and integrate practices with their younger patients. It is possible to "book-end" sessions with some brief moment of mindfulness, something that helps us get in touch with the present—a few breaths and noticing how we feel in our minds and bodies, or perhaps noticing colors or sounds in the room, something that teachers and other professionals can find space to do in their workday as well. An adopted attitude of open mindfulness by the clinician allows for far more possibilities to emerge in play or conversation without the limitations of judgment. Many clinics, both mental-health and medical clinics, have begun to integrate more mindfulness not just into work with patients but into staff meetings and professional development, creating a mindful environment top to bottom that brings positivity, awareness, and compassion to burned out clinicians who are rapidly draining their reservoirs of each.

Schools represent another opportunity to integrate mindfulness into the daily routine and may be the best place for intervention, as children most likely spend more structured time there than anywhere else. Although many schools are teaching children more knowledge at a younger age, they are failing on teaching noncognitive skills that will develop emotional intelligence. Moments of transition can be opportunities, at the start and end of class, and many teachers guide students in a brief exercise before exams or presentations. Physical education or health curricula can be used as opportunities to teach and practice mindfulness. A few schools already have yoga and meditation clubs that grew out of student interest, rather than faculty interest. More educators are finding money and time to bring mindfulness into an antibullying curriculum, one nonacademic curriculum that is being funded in a time of cutbacks. Furthermore, schools are a place of burnout and stress among staff and faculty, and some mindfulness for the staff and faculty could go a long way toward reducing burnout and turnover, and increasing job satisfaction and dedication.

Technology, mentioned earlier in this article, offers both a blessing and curse. There is an old Zen saying that "the mind can be your greatest servant or most terrible master," a quote that can be just as readily applied to our relationships with technology. The reality is, however, that today's young are the wired generation and live much, if not most, of their lives online. But mindfulness can meet them there and engage them

through their media. Smartphones have mindfulness bells, as well as gratitude journals and positive psychology apps, and social networking makes these ideas infinitely more shareable and potentially viral. Twitter, too, has hashtags such as "#wannasit" to find other meditators, and also one called #mettabomb for sending lovingkindness meditation to a user. Facebook makes it easy to start a group for interested, like-minded friends. Some have a Facebook group for an ongoing gratitude list with a group of friends and can plan sitting practice with friends from around the country or world through technology. Podcasts of exciting new ideas or meditations number in the dozens and are downloadable from anywhere with an Internet connection. Facilitators in classrooms or groups can record the groups and the meditations in vivo, and allow students to download them after the class and practice while listening to a familiar voice. Teachers can do this in the classroom, and parents and other adults can record guided practices directly onto someone's iPhone, iPad, or computer, leaving them with a virtual transitional object.

When we begin teaching mindfulness to young people, we plant the seeds for a lifetime of fresh perspective that can blossom in healthy, happy lives. It may not seem to us adults that we are doing much, but many of us have seen firsthand how transformative mindfulness can be to people of all ages, and the science of this holds up as well. Mindfulness may not be able to calm every storm that comes our way over the course of our lifetimes, but it can help us find the calm in that storm, the strength to wait it out, and to the perspective to see the course to the other side. In other words, it is about the best lifelong gift we can offer to our young people today.

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East Meets West in the Pedagogy of the Mindfulness-Based Interventions

Donald McCown

Introduction: Sharing an Experience Called Mindfulness

“So, maybe we can try doing something together to help make sense of all these words we’ve been saying about mindfulness,” I say, as I start rooting around under my chair. There are 20 of us sitting in the circle. There are 19 very different folks, older and younger, from a variety of neighborhoods in the city and its suburbs, who had their own reasons to sign up for the Mindfulness-Based Stress Reduction (MBSR) course that’s starting tonight. And there’s me, the teacher, who at the moment is having a little trouble getting raisins out of the box and into a bright orange plastic bowl. Successful at last, I turn around and hold out the raisins. “I have here a bowl of objects. You may think you know what they are. You may be saying to yourself ‘Oh, goodie!’ or ‘Oh, no!’ You may think you know everything you need to—and more—about these objects. I’m inviting you, however, to put all your preferences, prejudices, and prior knowledge aside, and see if you can have this experience, now.”

I start the bowl and its clashing pink spoon around the circle. “Working together with your neighbor so you each get three objects in your hand—or maybe four. It’s not easy, is it? Then closing your hand over them. Not peeking. If we were artists, we’d try to bring a ‘fresh eye.’ If we were Zen monks, we’d hope to have ‘beginner’s mind.’ Me, I ask the children I do this with to pretend they’re alien scientists from a galaxy far, far away.”

Working slowly, we encounter a single raisin through each of the senses. Beginning blindly, participants call out with their voices what they learn through their fingers. “Sticky.” Nods evident around the circle. “Soft,” then, “Hard.” A list develops as different participants contribute, “Rough . . . Slick . . . Oval . . .

Pointed . . . Flat . . .” I observe aloud that, “Raisins and people are all so different, there are always more and more right answers.” We smile at the courage of the one who says (slowly) “malleable.” She doesn’t know what it is that she’s squeezing so hard. Then on to the sense of hearing. Laughter at the very idea of holding the object to the ear. But could there be sounds? Indeed, with coaxing, and tests of malleability, a chorus of snaps, crackles, and pops arises, accompanied by memories of childhood breakfast cereals and Saturday cartoons. We reflect on how easily we travel in time: away from the present, where our object is.

Only then do we look. Eyeing all three (or possibly four) objects, we notice differences in color and texture, as well as wear and tear. Someone wants to switch their old for a new one, and so we notice judgments and attraction and aversion. And I wonder, “Is it possible to suspend all that and just stay interested in what we’ve got right now?”

We move the object towards the nose, where descriptions like musty and sweet quickly give way to similes: “like a very old book,” “like my grandfather’s pipe,” and (inevitably) “like a raisin!” How poor and ultimately frustrating our language is. Categories and analogies, abstractions and clichés simply can’t convey the true liveliness of this experience. If full communication is anywhere, it’s in the face, voice, posture, and gestures of the participants.

As the object rests between the lips and then comes into the mouth, complexity skyrockets with the rush of saliva. Noticing size, weight, temperature, texture, all amplified on the tongue. Adding taste, and the interaction with smell. Discovering—and resisting—urges to bite, chew, and swallow. Generating awareness of time and desire. And, from the first jaw-tensing bite-down, noticing the suffusion of sweetness and the shifting of textures, until the whole process of swallowing, from tongue, to throat, to—how far can you feel it?—the depths of body awareness.

Reflections on my simple question—“How was this for you?”—scatter light around the subject of mindfulness. Says one, “I thought it was really stupid. I was really judging. But once I let go and went along, I saw that you can have a mindful experience with every little thing, and that every part of everything is pretty incredible.” Another says, “I can’t believe I just spent that long eating one raisin. I never pay attention like that—but it would sure change things if I did.” And, of course, “That was the best raisin I ever ate!” With the reply, “The raisin wasn’t special, it was you—you made the difference,” and nods and smiles all around the class. (McCown 2013 © Donald McCown)

Toward a Pedagogical Definition of Mindfulness

The vignette above (McCown, 2013, pp. 69–70) is the key to my attempt to comply with the directions given by the editors of these volumes, to “state your working definition of ‘mindfulness’” (Ie, personal communication, 2011). I trust this will become clear through the somewhat lengthy explanation required.

As a teacher of MBSR (Kabat-Zinn, 1990) and a practitioner of mindfulness-based psychotherapy, my work is located within the discourse of the Mindfulness-Based Interventions (MBIs). As such, I am sympathetic to the urgency that researchers feel to develop a single scientific account of mindfulness despite the difficulties that many admit (e.g., Allen, Blashki, & Gullone, 2006; Baer, 2003; Bishop et al., 2004; Brown & Ryan, 2004; Grossman, 2008; Hayes & Wilson, 2003; Ivanovski & Malhi, 2007; Shapiro, Carlson, Astin & Freedman, 2006), and despite the added complexities of challenges and critiques from Buddhist teachers and contemplative scholars (e.g., Rapgay & Bystrisky, 2009; Rosch, 2007; Williams & Kabat-Zinn, 2011, and the entire special issue of *Contemporary Buddhism* they introduce). Such an account would certainly clarify and help further the empirical research enterprise that has generated the burgeoning evidence base that is greatly responsible for the acceptability and popularity of the MBIs in the academy and in clinical practice, as well as the current openness of the popular culture to meditative and contemplative practices for health and well-being. In other words, the scientific discourse makes my work, my livelihood, possible. It is the hand that feeds me as a teacher. I have no intention of biting it.

I also have no intention of endorsing any particular definition of mindfulness, for two reasons. The first is that the pedagogy of the MBIs is located within a different discourse than the scientific one (see box, “Disparate Discourses”). The two discourses developed on parallel trajectories but, as it were, on different planes. There is a palpable force that keeps them connected and traveling together—viz., researchers also often take the role of teacher, which was particularly true in the earlier studies. There is also turbulence between the discourses, of which those with the dual identity have been keenly aware. This turbulence might be characterized overall as a scientific drive for *fidelity*—the strict reproduction of a highly structured and defined intervention—and a pedagogical desire for *integrity*—an authentic responsiveness when delivering the intervention within the relational context of the emerging moment in a class or dyad (McCown & Wiley, 2008, 2009). Viewed specifically in terms of the definition of mindfulness, there is the scientific drive to define by *exclusion* and the pedagogical desire to enrich by *inclusion*.

That brings me to the second reason for not endorsing a definition. Each different attempt to define mindfulness from within a particular discourse offers nuances of language and perspective that cannot be found elsewhere. Such specific insights can be vital in helping a teacher navigate the emerging experiences of a class session. In fact, I am suggesting that the need to be familiar with a wide range of definitions and discourses of mindfulness is a corollary to the insistence within the MBIs that the central feature of teacher training is the development of the teacher’s personal mindfulness practice. For example, in MBSR, Jon Kabat-Zinn (2010, p. xviii) has stated that “the teaching has to come out of one’s practice,” and in Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), an analogy is proposed that to teach swimming, one must be a swimmer. Such statements comprise both the *knowing* and the *embodiment* of mindfulness. This corollary adds the capacities for *recognizing* and *articulating* fine distinctions in the dialogue about mindfulness as it arises in each moment of an MBI class or dyadic experience. Here, as well, is the justification for including the vignette of the raisin experience. Within it, a knowledgeable observer

might identify (at least!) four different definitions of mindfulness—not to mention the discourses in which they are found, or even the dimensions of experience in which they fit. All of these offer the teacher known points by which to navigate and language with which to punctuate the “working definition” of mindfulness that is active at that moment.

Effectively, then, I have rejected the need to adopt a specific working definition of mindfulness. Rather, I have chosen to hold a perspective that, as my colleagues and I have noted (McCown, Reibel, & Micozzi, 2010), seems perfectly to suit the pedagogy of the MBIs. This is a social constructionist perspective (e.g., Gergen, 1999), in which knowledge is not an “objective” reflection of what is “out there in the world,” but rather is seen to be cocreated within relationships. Within the relationships of each particular class or dyad, a myriad of different “working” definitions of mindfulness arise, shift, and change with each new experience and its attendant communication around the class—whether in words, gesture, posture, facial expression, or affect. It is this cocreated, infinitely variable, very often tacit, nature of mindfulness that this chapter explores. It suggests how knowledge of a wide range of definitions, discourses, and dimensions of mindfulness is a significant advantage for teachers in the MBIs.

Disparate Discourses

In cultural and critical theory, the term *discourse* is most often associated with the work of Michel Foucault. We might loosely translate his use of the term as referring to a particular worldview or way of knowing established in a time and place. For example, what might be known and said in a university chemistry lab is very different from what might be expressed in the laboratory theater. And both would know and say precisely the right thing if the police arrived. Foucault’s work identifies the sociocultural mechanisms through which discourses are formed and controlled—by which one comes to know what may be “legitimately” known and expressed. A major mechanism in forming discourses is exclusion; that is, making certain subjects illegitimate or taboo, dividing the “rational” from the “irrational,” and willing toward a truth. Once formed, a discourse is controlled from inside through such mechanisms as privileging particular texts and developing layers of commentary on them, and through rules, definitions, techniques, and instruments to define specific disciplines (say medicine or psychology) and boundary out other ways of knowing and speaking (Foucault, 1972, 1981; Lock & Strong, 2010). Ultimately, it’s about power. Some discourses have voices that dominate, while others are effectively silenced.

In literary theory, Mikhail Bakhtin’s approach suggested that conflict among discourses can be enriching rather than negating. Bakhtin (1984) found this principle at work in Dostoevsky’s highly complex novels, where the independent consciousnesses of each character offer a textured view through many voices:

[W]e are dealing not with ordinary dialogic form, that is, with an unfolding of material within the framework of its own monologic understanding and against

the firm background of a unified world of objects. No, here we are dealing with an ultimate dialogicity, that is, a dialogicity of the ultimate whole.

Polyvocal dialogue, then, is a model for collaboration among separated or competing discourses. When the independence of each is affirmed, the discourses can enter into dialogue. The objective of such dialogue is not to bring about resolution, but rather to generate options and possibilities, and explore them (e.g., Gergen, 1999).

The point for the pedagogy of mindfulness in the context of this chapter is simple. There is a range of definitions of mindfulness to be found among various discourses. Such definitions must be appreciated *within* their own discourses and, more important, *from* the discourse in which the teacher is situated. It is not necessary to choose one definition or to synthesize one from many. Rather, teaching may be enriched by all of them as they come into dialogue to help generate as many “working” definitions as there are teachable moments.

Definitions, Discourses, and Dimensions

The raisin exercise, sometimes called “eating meditation,” is an iconic module in the MBSR (Kabat-Zinn, 1990) curriculum, and is therefore present in many of the interventions developed on that armature, including MBCT (Segal et al., 2002), Mindfulness-Based Relapse Prevention (MBRP; Marlatt & Gordon, 1985), Mindfulness-Based Relationship Enhancement (MBRE; Carson, Carson, Gil, & Baucom, 2004; Carson et al., 2006), Mindfulness-Based Eating Awareness Training (MB-EAT; Kristeller & Hallett, 1999), Mindfulness-Based Childbirth and Parenting (MBCP; Duncan & Bardacke, 2010), to name a few. Pedagogically, the raisin exercise is used to ground the introductory dialogue about “What is mindfulness?” in experience. The teacher often provides a brief definition of mindfulness—perhaps the statement by Kabat-Zinn (1994, p. 4) that it involves “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally.” She may also contrast mindfulness to the “automatic pilot” mode that participants laughingly recognize in scenarios such as, “In the shower this morning, I reached for the shampoo, and I thought ‘Did I do this already?’” This is spare scaffolding. Yet, through the multitude of contingencies and imperfections of a raisin experience, the teacher and participants together create a shared definition of mindfulness in the moment, as in the vignette above. Although a formal definition from one particular discourse of mindfulness may have preceded the experiment, it’s possible to see, as I have suggested, the outlines of at least three other formal definitions as well. And here is the most interesting part: The unspoken definitions may have more salience for the class at this moment than that which was spelled out.

The next logical step then is to name and elaborate each of the four definitions, noting their presence in the raisin experience and their contribution to the pedagogy of the moment. With that complete, the final task will be to suggest how an acquaintance

with and understanding of many definitions of mindfulness can be of value throughout the entire unfolding of the curriculum within the MBIs.

An MBI definition of mindfulness

The wellspring of the defining work within the discourse of the MBIs is the statement from Kabat-Zinn given above, and others like it, such as “Mindfulness meditation is a consciousness discipline revolving around a particular way of paying attention in one’s life. It can be most simply described as the intentional cultivation of nonjudgmental moment-to-moment awareness” (Kabat-Zinn, 1996). Those three elements of intentionality, present-centeredness, and absence of judgment were more than influential.

The first attempt was a two-part definition, omitting the element of intention (Bishop et al., 2004). The next iteration found all three present (Shapiro et al., 2006). It posits three axioms: intention, attention, and attitude (IAA) as simultaneously manifesting elements of the formal or informal practice of mindfulness. The axiom of intention actually overflows the implications of the Kabat-Zinn versions, as Shapiro suggests it involves not merely a decision to attend, but a personal vision or motivation for mindfulness practice. Such a vision has been shown to shift over time, and presumably through practice, from immediate needs for health and well-being to broader exploration of, and even liberation of, the self. Attention refers to the different capacities—both sustained and flexible focus from moment to moment—that are cultivated explicitly in the MBIs through a sequence of formal mindfulness practices that early on emphasizes sustained focus and later opens to emphasize flexibility. The axiom of attitude pushes well beyond the denotative meaning of nonjudgment to comprise the connotations of acceptance of and kindness towards one’s own experience that are salient in the discourse of the pedagogy of mindfulness.

These three axioms come together to actuate a shift in consciousness, a new relationship of self and world—identified by Shapiro et al. (2006) as a metamechanism called *reperceiving*—the awareness of an observing consciousness that is both *a part of* and *apart from* the experience. In the context of an MBI class, this is often expressed in such statements as, “I am not my thoughts” or “I am not my pain.” The scientific discourse on meditation, going back at least to the 1960s, highlights this same shift (for a review, see McCown, 2004), offering many terms, including *de-automatization* (Deikman, 1966), *de-habituation* (Kasamatsu & Hirai, 1973), the *observing self* (Deikman, 1982), and *decentering* (Safran & Segal, 1990). Kabat-Zinn (2005) used the phrase “orthogonal rotation in consciousness” to describe this shift in which “everything old looks different because it is now being seen in a new light—an awareness that is no longer confined by the conventional dimensionality and mindset” (p. 350).

While Shapiro et al. went on to elucidate other mechanisms flowing from *reperceiving*, we might stop here to notice how well the three axioms and a metamechanism supply insight and language for teaching. Such simple, succinct definitions are most helpful for keeping teachers grounded in the ever-shifting territory of the present moment in the classroom or therapeutic dyad. Elaboration is for later reflection. If we

read this definition back into the vignette of the raisin experience, it's clear to see. After all, the teacher's prelude to the experience included the elements on which the three axioms rest, and the metamechanism is implicit in every move. For example, as the class participants overcome their giggles and silliness about "listening" to the raisin, they find a certain understanding and appreciation of "intention," of what it takes to turn towards an experience, even though it may seem offputting—a central motion in mindfulness practice. What's more, they also sample the possibilities and results of encountering not merely the new domain of the "sound" of a raisin, but also the thoughts and feelings that arise in response. They sample that shift in consciousness, the metamechanism of mindfulness in which it is possible to be in an experience and to observe it as well. There is even a hint of the kindness and acceptance implicit in the "attitude" axiom, as a participant notes that in letting go of judging "every part of everything is pretty incredible."

A "Western" definition

In the discourse of contemporary academic psychology, there's a definition of mindfulness that arose from the study of its opposite, mindlessness (Langer, 1989). The doorway to this defining duality was through experiments demonstrating the ultimate costs of mindlessness. For example, in one study (Langer & Rodin, 1976; Rodin & Langer, 1977), seniors in a nursing home were either encouraged or discouraged to make simple choices: one group selected a houseplant for which they were expected to care and were presented with other daily decisions about their lives as well; control group members on the other hand were simply given a plant, for which staff cared, and were not expected to make daily life decisions. The group that cared for plants and made choices were in better physical, mental, and emotional health than the others after 18 months—in fact, their mortality rate was less than half of the control group's. It is evident that the decision makers had to consider and act, central notions in what Langer eventually framed as mindfulness in opposition to mindlessness (but neither term is used in the papers about the studies).

Langer's conception of mindfulness might be described as "Western" because it arose without particular engagement with Asian meditative traditions, and, perhaps a bit stereotypically, because it might be described as active and externally focused. That is, one overcomes mindlessness by changing how one thinks about what is "out there" in the world. Langer (1989) opposed the mindlessness of *already knowing*, of *premature cognitive commitment*, to the mindfulness resulting from the process of drawing novel distinctions. Consider a little scene in which a mindless attendee of a formal banquet confronts some playful ideas, proposed in W. H. Auden's (1970) commonplace book. As his wineglass is filled with coffee, our man begins to feel a bit disturbed, and when he looks at his place setting for the prime rib dinner and sees scissors instead of a knife, he is horrified. Things are not in their proper categories. Rules have been ignored. This is not how *his* world works! How different his experience would have been if he had read the fine print on the invitation: *We are trying new ways to improve your formal dining experience. Please notice as many of the small and large changes we have made tonight, and be prepared to join a dialogue about them after dinner.* He might have had a mindful and fun time, as the push to make novel

distinctions kept him in the present moment, made him more aware of the arbitrary nature of categories and rules, and helped him better define the subtleties of context and others' perspectives.

This definition and discourse of mindfulness is succinct and easily applicable to the pedagogical situation in the MBIs or a therapeutic dyad, particularly in the earlier sessions. Because it is actively conceived, it is perhaps a more available mode of working. The instruction in the raisin experience to encounter this "unknown" object for the first time prompts novel distinctions and challenges accepted contexts and perspectives. The progress through the senses, particularly in suspending the use of vision and describing through touch or listening, explores (and even explodes) categories and rules. The pleasurable engagement in this experience in the present moment also may make the idea of "mindfulness" (beyond specific discourses) more psychologically available for the participants: "Hey, I can do this!" In fact, the elegant simplicity of Langer's definition keeps it available for teachers as well.

In a related way, Langer's (1997) insight that, when we learn something *conditionally*—that is, as an immutable category, fact, or rule, for all contexts—we will do or use our learning mindlessly, is a powerful reminder about the use of language in the MBI classroom. The MBI teacher uses an approach to language that supports meditative practice, that is, avoiding imperative commands (not "lift your left leg," but "lifting the left leg"), offering permission for a broad latitude of experience ("perhaps you are noticing warmth or coolness, moisture or dryness . . ."), and being open to outcome ("What's in this for you?"). Such language also ensures that what is learned is learned *unconditionally*, with potential for something entirely new, or a new application, in another context or from another perspective. In learning (and teaching) mindfulness, there are no mistakes, only *mis-takes*, as Kabat-Zinn (2010) calls them, which can be approached and used in a myriad of positive ways depending on the needs of the moment. What's more, a mis-take may be just the right thing in another context, another moment.

Word Trouble

Ellen Langer chose to begin her 1989 bestselling book, *Mindfulness*, with a description of how the nursing home work led to her Western psychology-based conception of mindfulness. Jon Kabat-Zinn chose to include the nursing home study in his 1990 book, also a bestseller, *Full Catastrophe Living*, that brought an "Eastern" meditation-based conception of mindfulness into popular use. He reinterprets Langer's study to cast the outcome as a result of "connectedness" in a web of relationships. This oblique meeting of two discourses using the word mindfulness comes at exactly the moment when the word became current in popular use in the popular culture (Dryden & Still, 2006). Here, then, is the trouble with words, writ large. Meanings, like the connotations we're discussing, are not implicit in a word. Rather, meanings are contingent on those who use them, as among those drawn to Langer's work or Kabat-Zinn's.

The insight from Wittgenstein (1953) that language is a game is useful here. Specific speakers use words in specific contexts, or what Wittgenstein refers to as “forms of life.” For example, in a form of life called “chess,” game pieces like “kings” and “rooks,” and moves like “castling” and “check” are meaningful and useful. Players agree to agree on the language, and so the players’ relationship allows a game to progress and to be won or drawn. Likewise with mindfulness. Inside Langer’s form of life (read “discourse”) in academic psychology, the word has particular connotations. Within another, more clinical, discourse, the Kabat-Zinn-based connotations are preferred. In this case, Langer’s meaning has been regarded with heart-felt appreciation for its challenging perspectives yet has been, in practice, boundaried out with statements, for example, that “This review . . . does not address Langer’s cognitive model of mindfulness . . .” (Baer, 2003, p. 126), or “Following Baer, I will not discuss the social-psychological construct that Langer has termed ‘mindfulness’ . . .” (Kabat-Zinn, 2003, p. 153). The sword cuts both ways; thus “[W]e agree with Langer that her construct is quite different from mindfulness as described in the context of mindfulness-meditation techniques” (Bishop et al., 2004, p. 235).

What is important for the pedagogy of the MBIs is not the making of boundaries, but rather the capacity for the teacher to see them as porous—for the teacher to understand the discourse she works within and then to appreciate, reflect on, and use, as appropriate, the insights of other discourses.

An “Eastern” definition

In a reflection written more than 30 years after he developed MBSR, Jon Kabat-Zinn (2011) noted that

[F]rom the beginning of MBSR, I bent over backward to structure it and find ways to speak about it that avoided as much as possible the risk of it being seen as Buddhist, “New Age,” “Eastern Mysticism” or just plain “flakey.” (p. 282)

Nonetheless, he did choose in the early papers on MBSR, and in the book about it, to call out its connections to a range of Buddhist discourses, including Theravada and Mahayana (particularly in the Zen traditions), and including some yogic traditions, including Vedanta, and teachers such as Ramana Maharshi and Jiddu Krishnamurti (Kabat-Zinn, 2011). He further noted that his colleagues in the early work had also studied within a range of Buddhist traditions and other Asian traditions “that value the wisdom of mindfulness” (Kabat-Zinn, 2011, p. 296), which would add Sufism and Taoism to the list. This “Eastern” mixture was perhaps only possible given the centuries-long history, confluence, and influence of the Asian meditative tradition in North America (McCown & Micozzi, 2012).

Kabat-Zinn spoke of this background and its expression within MBSR (and, by extension, the MBIs) as a “universal dharma framework,” and noted that it is “not different in any essential way from Buddhadharma” (Kabat-Zinn, 2011, p. 296). While

the central concern for the MBI teacher is development of one's own personal practice, in which the capacity for not-knowing is cultivated, a sense of knowing the framework, Kabat-Zinn suggests, is also, to put a fine point on it, required (Kabat-Zinn, 2010). Essentials such as the four noble truths and the eightfold path, the three marks of existence, the four foundations of mindfulness, the four immeasurables, and the klesas, can be seen in one's own experience and in the classroom. They are thus beacons for navigation, even if the terms must remain sequestered within the discourse of Buddhism. Deeper learning, unfolding, perhaps, within a very particular Buddhist tradition (and therefore a specific discourse) may also be enriching, as may academic study of the "Buddhist psychology" of the Abhidharma.

A complete overview of even just the most essential framework is beyond the scope of this chapter. Perhaps what can be accomplished here is a look at the most important parts of the frame—the load-bearing walls and main joists, as it were—revealing much of the background to major concepts, if not vocabulary in the MBI classroom. As a start, the Buddha (the title means "awakened one") awoke to an understanding of "how it is" that he summarized in the *Four Noble Truths*. The first truth is *dukkha*, usually translated as "suffering," although a more accurate definition might be "unsatisfactoriness"—the world is not as we want it to be, and even when it is, it changes, slips away. The second truth is about *tanha*, often translated generically as "desire" or "craving," although it literally means "thirst"—an elemental metaphor. It is craving that causes suffering; when craving ceases, suffering ceases. The third truth is the experience of this ceasing, *nirodha*, which is liberation. This realization must be cultivated, for which the fourth truth offers the support of the *Eightfold Path*—right view, right resolve, right speech, right conduct, right livelihood, right effort, right mindfulness, and right concentration.

These truths, however, are not points of belief, a creed to be recited or debated. Rather, they can be seen as a process one may follow, which will lead ultimately to liberation—the ending of suffering. In the second half of his first "sermon," the Buddha discusses his threefold experience of each truth—that he glimpses each one, recognizes that he should get to know it deeply, and, finally, knows it completely. This is a process that, as Batchelor (1997) suggested, is iterative: one practices to come to know each truth as fully as possible, and on reaching the fourth, one is on the Eightfold Path, the final steps of which are right mindfulness and right concentration. And so, one is *ipso facto* in meditation practice—a way to deepen knowledge of suffering, ceasing, liberation—and begins the process again. This idea of glimpsing (that is, turning toward) and coming to fully know an experience is inherent in the raisin experiment—like it or not, find it silly or serious, yet in the process much is revealed about the object and the one who is turning towards it.

The three hallmarks of existence are a way of saying what experience is like, in this particular discourse. *Annica* (impermanence), *Dukkha* (unsatisfactoriness), and *Anatman* (nonself) are logically linked, in the order stated (Gombrich, 2009). Things arise, change, and pass away: people, loves, material goods, status, any experience at all are impermanent. For that reason, everything is ultimately unsatisfactory. And, since it is unsatisfactory, it cannot be essential—an unchanging "self," "soul," or *atman*. It is therefore *anatman* (not-atman). The world in which "I" am involved is continually in flux, unsatisfactory, and ungrounded. Although my "not-self" self may sense a strong

continuity as flux follows flux, there's no precise moment, no distinct place or particular fluxing that I can point to as a *permanent “I”*. In raisin language, the question is, “What is this object?”

The four foundations of mindfulness are presented in an early Buddhist text, the *Satipatthana Sutta* (e.g., Anālayo, 2003), which is a privileged text in the “Eastern” discourse in which the MBIs are located. Mindfulness translates the Pali term *sati*—as in *samma-sati*, the right mindfulness fold of the eightfold path. *Sati* may have originally denoted “remembering,” with connotations that led Buddhist scholars towards terms such as “self-possession” or “mind development” (Batchelor, 2004; Dryden & Still, 2006; Nyanaponika, 1965).

The foundations are a way of talking and exploring—precisely what teachers are looking for in any definition or discourse. The first foundation is mindfulness of *body*, particularly the breath, which can calm the body-mind and open it for further exploration. The second is mindfulness of *feelings*, which may be identified as pleasant, unpleasant, or neutral, and then simply observed as they arise, stay, and pass away. Third is mindfulness of *mind*, or mind-states, such as distraction, concentration, or one of the three poisons, which can again be observed as impermanent. Finally, mindfulness of *dhammas* (*dharmas*), refers to categories of factors that affect the quality of practice. These are the canonical points for navigating meditative experience, including the five hindrances (to concentration or insight), five aggregates (that make up the sense of a permanent “I”), six sense-spheres (the five senses plus the classifying, interpretive mind, helping to create an observing “I”), the seven awakening factors (mind-states that lead to liberation, which include mindfulness!), and the four noble truths. Again, it is beyond the scope of this chapter to present these in detail, but teachers in the MBIs will find help here. Just to put the raisin brand on it, the hindrances of doubt, restlessness/worry, sloth/torpor, aversion, and sensual desire are indeed easy to locate, even in such a simple, active meditation practice.

The four immeasurables, so called because they are all-pervasive like the sound of a conch trumpet (Gombrich, 2009), are four virtues to be cultivated to attain the highest good. They are, in Pali, *metta*, *karuna*, *mudita*, and *upekkha*. *Metta* is often translated into English as “lovingkindness.” It derives from *mitta*, meaning friend, making “friendliness” a possible translation as well. *Karuna*, translated as compassion, is much as we conceive it in English. Emphasis on either *metta* or *karuna* results in essentially the same way of being in the world (Gombrich, 2009). We might think of the two as the underpinning, the basic fabric of the presentation of mindfulness in the MBIs, which is rarely invoked directly (Kabat-Zinn, 2005). *Mudita*, meaning sympathetic joy, is uniquely Buddhist—to participate in the joy of one who has just beaten you in a game, say, is unusual and challenging within our culture. *Upekkha*, as equanimity, may be related to the professional ethos of the medical doctor, who must be both benevolent and detached (Gombrich, 2009). It might also be seen as “equanimity-in-community” (Flanagan, 2011, p. 108), so that the idea is not personal serenity, but rather an *equality of care* for all beings.

Beyond the raisin here—although we care for ourselves and each other in the experience—there is significant evidence emerging that, at least in MBCT, it is participants’ capacity to cultivate self-compassion that helps them avoid relapse into

depression. Further, it may be that, even without specific practice in or even mention of compassion or lovingkindness, just the embodiment of these virtues by the teacher makes self-compassion possible for participants (Feldman & Kuyken, 2011; Kuyken et al., 2010).

An “intersubjective” definition

This round-about definition of mindfulness has been developed by my colleagues and me expressly for the discourse of the pedagogy of the MBIs. It has roots in the recognition that mindfulness experience, and thereby its ever-changing definition, is cocreated in the classroom or dyad. This recognition very much runs counter to the current discourse of the vast majority of mindfulness research, in which mindfulness is conceived as an individualist undertaking. Each participant learns mindfulness practice for herself or himself, and any benefits produced by the practice accrue to the individual alone. Although the studies report on differences between the “MBSR group” and the “control group,” they are merely considering an aggregate of isolated individuals, not a cocreated and sustained community.

It took nearly 30 years, but a significant study was finally done that looked at the effects of the group itself on participants (Imel, Baldwin, Bonus, & MacCoon, 2008). Through multilevel statistical modeling, the researchers were able to gauge how much the 600 participants, in 60 different groups, differed in symptom change from pre- to postintervention, adjusting for preintervention severity. The group effect, with the effect of the teacher factored out, accounted for 7% of variability in outcome. To put that number in perspective, the fabled therapeutic alliance in psychotherapy, the most significant predictor of outcomes, accounts for about 5% of variability (Horvath & Bedi, 2002). The “co” in the cocreation of mindfulness and its working definition is powerful. Teachers would have predicted such a finding, as participants regularly refer to the sense of support of the class, note that practice is often easier and “deeper” in the presence of the others, and acknowledge gratitude for the presence of relative strangers.

This definition and discourse draws on interpersonal neurobiology for its descriptive power, recognizing as well that insights about the transformative qualities of being together with others date back decades, centuries, and even millennia, and can be located in discourses of systems theory, anthropology, philosophy, and religion to name a few. Key to a description is the action of mirror neurons (Gallese, Fadiga, Fogassi, & Rizzolatti, 1996), which help to inwardly sense, represent, and track another’s actions and intentions (Gallese & Goldman, 1998). Evolutionarily, such mechanisms may have developed to optimize group behaviors such as hunting, gathering, and collective protection (Cozolino, 2006). Humans attune and resonate with each other. We’re empathic.

When you witness another’s pain or joy, you feel it and, in the neurobiological account, activate the “resonance circuit” as Daniel Siegel (2007) calls it. The route, described by Carr, Iacoboni, Dubeau, Mazzotta and Lenzi (2003), carries the first sense of the other’s movement or expression from the mirror neuron system where it is “tried on,” to the superior temporal cortex that predicts sensory consequences, then through the insula to the limbic system for emotional content, and back through

the insula to the prefrontal cortex (PFC) for interpretation and attribution—with the completed circuit you know how the other feels.

Siegel (2007) posited that this interpersonal resonance circuit also works *intrapersonally* in the process of meditative practice. Meditators attune with their own intentions—to breathe out and in, or perhaps to be open to whatever arises. As the breath coincides with intention again and again, there is intrapersonal attunement, which is analogous to the primal attunement of infant and caregiver. From another perspective, what may be happening is that the task the prefrontal cortex takes on actually harnesses the capacity of the PFC to regulate the limbic system, particularly the amygdalae, thus reducing reactivity and “negative” affect (Creswell, Way, Eisenberger, & Lieberman, 2007; Lieberman, Eisenberger, Crockett, Tom, Pfeifer, & Way, 2007).

Let’s pause for a moment, with participants in the class potentially resonating with themselves and feeling some equanimity or even something akin to “happiness.” In fact, evidence is emerging that meditators are perceived as happier by observers (Choi, Karremans, & Barendregt, 2012).

Now, let’s deepen our explanation, with Stephen Porges’s (1995, 2001, 2003, 2004, 2007, 2009) “polyvagal theory” of regulation of the autonomic nervous system (ANS). This theory is based on the evolution of the ANS in vertebrates. In mammals, there are three phylogenetic stages expressed as three subsystems, with each subsystem linked to three behavioral strategies for adapting to catastrophic and life-threatening situations, or those just dangerous or challenging, and—surprising, perhaps—situations of safety and caring. The strategies, in order, are *freeze*, *fight/flight*, and what Porges calls *social engagement*.

Freezing is a reptilian strategy associated with the subsystem of a primitive, unmyelinated vagus nerve that reacts to threat by significantly slowing the metabolism. Fight/flight is the mammalian strategy associated with the hypothalamic–pituitary–adrenal (HPA) axis “stress response” that tunes the metabolism for combat or active avoidance. Social engagement is the strategy that Porges introduces, associated with the myelinated vagus, that responds to a sense of safety by slowing the heart, inhibiting sympathetic nervous system reactivity, dampening the HPA axis response, and—here’s the social part—regulating the muscles of the face and head for optimal meeting with others. In detail, the eyes open wider for clearer sight, the inner ear tunes to the range of the human voice, and the muscles of the face and neck gain in tone and capacity for nuanced expressions and telling gestures, while laryngeal and pharyngeal muscles offer subtleties of sound and speech. Additionally, there is a release of oxytocin (the “love” hormone of birthing, nursing, and pair bonding), prompting approach and embrace.

Now, we can try to explain the intersubjective power of the group. Porges (2003, 2004, 2009) suggested that we unconsciously and continually scan for risk and safety through “neuroception,” a subcortical process. If we discover familiar or friendly faces, voices, gestures, and postures, the social engagement response begins, which in turn promotes a sense of safety—and the changes in expression, posture, and openness that go with it. So, the response may travel throughout the group in a recursive and self-reinforcing way—amplifying the possibility of approaching what is here in the moment in both intra- and intersubjective experience.

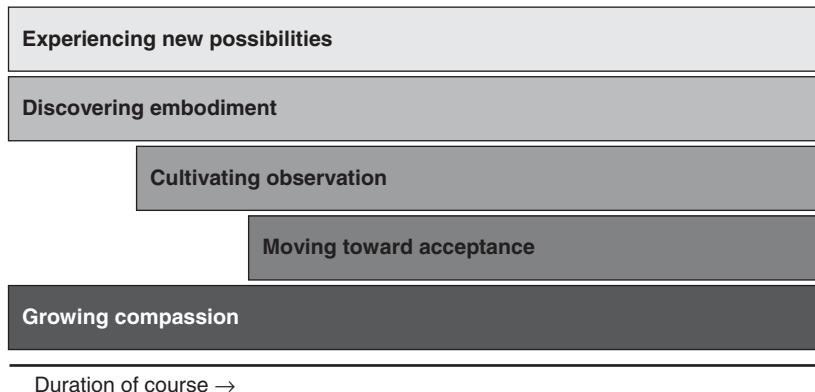


Figure 56.1 A spectrum of teaching intentions for the MBIs.

Even in the raisin experience, this kind of cocreation can be seen at work. Picture the responses (unconscious) around the room as participants, say, notice suffusions of sweetness, or recognize “that every part of everything is pretty incredible,” or exchange nods and smiles as the experience winds down. So much more is possible as the curriculum unfolds, and participants can approach even aversive experiences with less reactivity and more support—when seen through this definition/discourse.

Beyond the Raisin Experience

The definitions and discourses reviewed above offer potential assistance to teachers across the duration of an MBI class, of whatever kind, as well as in ongoing work within a dyad. The applicability, or perhaps dominance, of any definition will shift as the curriculum and its experiences unfold. A valuable tool for tracking such shifts and unfolding might be the model of the teaching intentions of the MBIs that colleagues and I have proposed (McCown et al., 2010). The model is derived from an analysis of the MBSR program and many MBIs based upon it, revealing the common curricular themes and motives, and providing a practical armature for creating new curricula or for pedagogically navigating a course from session to session. While Figure 56.1 is built with distinct bars, it is more useful to think in terms of a spectrum, where the interrelatedness of the intentions is given the importance it deserves. Both the vertical and horizontal structure of the model are important, as the vertical suggests an overall structure with much happening simultaneously, while the horizontal suggests growth and deepening through experience.

Experiencing new possibilities

Right at the start, participants’ expectations are subverted. When they hear the statement often quoted in MBSR, “...as long as you are breathing, there is more right with you than there is wrong, no matter how ill or hopeless you may feel”

(Kabat-Zinn, 1990, p. 2), participants who have come to identify themselves closely with their conditions are faced with a situation in which their condition is suddenly less interesting to everyone. Taken-for-granted frames of reference are immediately challenged. Perhaps the “Western” is most helpful within this intention, as it suggests that considered introductory frames, statements, and questions about experiences—whenever introduced—can catalyze the drawing of novel distinctions and help ensure engagement. Certainly the pedagogical discourse is valuable as well in watching the group come together, not pushing to make it happen!

Discovering embodiment

Contemporary culture privileges the head over the body—seeing and talking over feeling and knowing directly. The MBI curriculum, with immersion in the raisin and the bodyscan experiences right at the start, works to disembed bodily experience from stories *about* experience, and to separate anticipation or opinion from the present-moment happening. Certainly, the MBI discourse is dominant for this intention, yet it is also helpful to remember that work with the body calls attention to interoceptive information and can thereby catalyze and deepen resonance with others. It should be noted here that the “Western” discourse, despite characterizations as overly cognitive, actually provides for powerful encounters with body sensations (Delizonna, Williams, & Langer, 2009; Langer, 2011).

Cultivating observation

Participants, through the first two intentions, quickly or slowly discover the capacity to detect their own inner experiences. As they realize that the experiences can be borne—and how—they may also learn something about the nature of the “I” that is observing. This is Shapiro et al.’s (2006) metamechanism, so the MBI discourse is highly salient. Yet, it is perhaps the “Eastern” discourse that is most useful for the teacher in working (oh, so carefully!) with these insights about the self.

Moving toward acceptance

In the MBI definition, the axiom of *attitude* (Shapiro et al., 2006) may blossom with friendliness. This is not merely a function of reduced reactivity; in each participant it also is supported by the authentic presence of the teacher and the cocreated mindfulness of the group—even in the face of aversive sensations, thoughts, and emotions in the moment. The pedagogical definition holds some sway in this intention, as does the “Eastern,” with the further engagement (and care!) required with the softening of the “I.”

Growing compassion

Compassion in the early weeks is implicit in the curriculum, and mostly demanded by the self; later, it may be engaged explicitly (as lovingkindness practice) and extended

Table 56.1 Salient definitions and discourses across the MBI spectrum of teaching intentions.

<i>MBI Template: Themes and content weeks 1–8</i>	<i>MBI Template: Formal home practice assignments weeks 1–8</i>	<i>“Eastern” discourse for orientation (1 = Four Noble Truths, 2 = Four Foundations of Mindfulness)</i>	<i>Spectrum of Teaching Intentions (by greatest intensity of focus in class)</i>	<i>Salient Definitions and Discourses (by greatest intensity of focus in class)</i>
1: There's more right than wrong with you	1&2: Body scan meditation (plus sitting meditation with focus on breath)	1. Fully understanding suffering 2. Mindfulness of body	• Experiencing new possibilities	• “Western” • MBIs
2: Perception and creative responding	3&4: Alternate the body scan with standing or floor yoga practice (plus sitting meditation with focus on breath)	1. Letting go of craving 2. Mindfulness of feelings	• Discovering embodiment • Discovering embodiment • Cultivating observation	• Pedagogical • “Eastern” • MBIs • “Western” • “Eastern” • Pedagogical
3: Pleasure and power of presence (pleasant events)	5&6: Alternate sitting with choiceless awareness with yoga; add walking meditation	1. Realizing liberation 2. Mindfulness of mind	• Cultivating observation • Moving toward acceptance	• “Eastern” • MBIs • Pedagogical • “Western”
4: Shadow of stress (unpleasant events)	7&8: Choose the practices you prefer	1. Cultivating the path 2. Mindfulness of dharmas	• Moving toward acceptance • Growing compassion	• MBIs • “Eastern” • Pedagogical • “Western”
5: Finding space for responding				
6: Working with difficult situations				
7: Cultivating kindness				
8: A new beginning				

towards the other as well as the self. In the template MBSR curriculum, lovingkindness is introduced during a full-day session when participants have cultivated mindfulness for several hours, and the group has built intra- and interpersonal resonance that allows and supports approach to such tender, vulnerable emotions, so the pedagogical discourse is in play, as well as the “Eastern,” where the explicit practices of lovingkindness and compassion are most explicitly described. The MBI definition has been useful all along, as it holds compassion as an inextricable part of any mindfulness practice—informal or formal.

Conclusion: Staying Oriented

The suggestion for teachers in the MBIs is that they come to understand deeply the definition and discourse of mindfulness in which they find themselves working. Further, they and their class participants (and therapeutic dyad partners) will be best served when a wider range of definitions and discourses is used to help clarify and navigate the continually changing cocreation of mindfulness with an attendant definition and discourse that is specific to the class or dyad in the moment.

To that end, Table 56.1 shows how the unfolding of the teaching intentions of the MBIs over the duration of a course may align with four different definitions and discourses. The table, as well as the pragmatic outlines of the definitions and discourses, may be used as a reference by teachers to assist in navigating the process of cocreation.

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Inducing Mindfulness Through Life-Philosophical Lecturing

Esa Saarinen and Tuuli Lehti

Mindfulness in “Auditorium A”

Since 2001, the senior writer of this paper has held a mass lecture series at Aalto University, Finland (formerly Helsinki University of Technology, now part of the new Aalto University), on what seems like a presentation of some key ideas of the philosophy and psychology of the good life. The course is entitled “Philosophy and Systems Thinking,” but little theory is presented. Instead, numerous stories, anecdotes, personal reflections, and selected video clips in interplay with conceptual lines of thought are employed to create a space for free thought. Explicit reference to great thinkers of the past is merely occasional. From the very beginning, the lecturer makes clear that the aim is not to teach academic theories but rather to create a context in which the participant could engage in *the thinking of their own thinking* with insight and sustained focus, accompanied by the possibility to *experience the significance of those thoughts* from the point of view of their everyday life. Instead of being addressed as cognitive processors for the delivery of objectively defined contents, the participants are invited to the lecture hall as human beings with an abundant internal world and with a rich cognitive and affective endowment. In other words, the participants are welcomed as agents capable of attention, metacognitive insight, and thinking of their own thinking, and as adept observers of human reality. With personal agency as the engine and thinking as the instrument, the aim is to reach personal insights on how to live one’s life.

During the 12 years of its history, many students have decided to retake the course, often several times. Many students also pop in for a lecture or two after they have graduated (in Finnish universities, lectures are open to anybody). It is not uncommon for a student to ask friends, parents, or other loved ones to join in for a session or two, and indeed the lectures have become something of an event at the campus. The course

format and contents have remained essentially unchanged. The annual enrollment has increased from the initial 100 to around 600 students.

In formal and informal feedback, participants point out three features of their Auditorium A lecture experience: (1) the atmosphere is heightened and uplifting; (2) associations that emerge are rich, even when already-familiar themes and examples are discussed; (3) the moment-to-moment experience is intense and flow-like, often involving emotional elements.

For hundreds of participants, the experience has been enchanting and in many cases life-transforming. This is palpably reflected in the essays participants write at the end of the course. In these so-called reflection essays, participants are asked to reflect freely on processes in their personal lives, observing microchanges and other significant experiences that may have been inspired or illuminated by the course. Most indulge in remarkably personal self-observation, and many report impressive personal change.

We submit that the state achieved every spring in “Auditorium A” is essentially a state of *mindfulness*. More generally, we submit that the event exemplifies what could be called a *mindfulness-inducing philosophical lecture*—a life-philosophically illuminating lecture that has the ability to invite the participant to an internal experiential process that promotes mindfulness.

Mindfulness as a State of Consciousness

The concept of mindfulness is a key mental factor on the path to enlightenment in Buddhist philosophy and fundamental in balancing the mind (see, for example, Bodhi, 2000; Wallace, 2011). During the past two decades, and stripped of its religious underpinnings, mindfulness has also become somewhat of a hot topic in the West, inspiring a growing body of research across a number of fields, from psychology and medicine to organization and education studies. In Western discourse, mindfulness generally signifies a *state of consciousness* characterized by sustained attention in the present moment with particular kinds of attitudinal qualities. John Kabat-Zinn (2003) defined mindfulness as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment to moment,” and Bishop et al. (2004) defined it “as a process of regulating attention in order to bring a quality of nonelaborative awareness to current experience and a quality of relating to one’s experience within an orientation of curiosity, experiential openness, and acceptance” (Bishop et al., 2004, p. 234).

Mindfulness as moment-to-moment, nonjudgmental awareness of whatever arises is a different notion from that of classic Buddhist sources. Emphasizing the difference, Wallace refers to the classic Buddhist definition that says

Mindfulness, when it arises, calls to mind wholesome and unwholesome tendencies, with faults and faultless, inferior and refined, dark and pure, together with their counterparts ... Mindfulness, when it arises, follows the courses of beneficial and unbeneficial tendencies: these tendencies are beneficial, these unbeneficial; these tendencies are helpful these are unhelpful. (Wallace, 2009, p. 62; the original source is the Buddhist saga Nagasena as quoted in *Minlindapañha*, pp. 37–38; cf. also Wallace, 2011, p. 55)

Ellen Langer's notion of mindfulness is primarily cognitive. Langer defines mindfulness as an active, distinction-drawing mental state characterized by:

- 1 openness to novelty;
- 2 alertness to distinction;
- 3 sensitivity to different contexts;
- 4 implicit, if not explicit, awareness of multiple perspectives; and
- 5 orientation in the present. (Langer, 1997, p. 23)

Langerian mindfulness, sometimes referred to as *sociocognitive mindfulness* (Langer, Pirson, & Delizonna, 2010), pointedly extends to any context of human action: "Though we cannot and would not want to be mindful of everything simultaneously, we can always be mindful of something" (Langer, 1989b, p. 199). Langer's emphasis is different from that of Buddhist-inspired discussions of mindfulness in that their primary focus is on the active construction of conceptual categories and adoption of perspectives. Mindfulness is seen "as a state of alertness and lively awareness" which is "expressed in active information processing," characterized by cognitive differentiation, the noticing and the creating of multiple perspectives, and the being aware of context (Langer, 1989a, p. 138).

A key feature of the Langerian sociocognitive concept of mindfulness is the way it contrasts with "mindlessness," a state of reduced attention. Mindlessness "is expressed in behavior that is rigid and rule-governed rather than rule-guided. The individual becomes mindlessly trapped by categories." Mindlessness involves rigidity on both cognitive and emotional levels and is typically unintentional (Langer, 1989a, p. 139). "When in this 'mindless' state, the individual is no longer engaged in actively constructing their environment; instead, the individual responds to an already constructed environment" (Chanowitz & Langer, 1981, pp. 1051–1052; on mindlessness theory, see also Langer, Blank, & Chanowitz, 1978; Langer, Perlmutter, Chanowitz, & Rubin, 1988; Langer & Piper, 1987; Langer et al., 2010).

The contrast between the Langerian notion of mindfulness and the Buddhist-inspired notion should be noted but not overemphasized. From the point of view of the present discussion, both involve aspects relevant for the kind of philosophical practice discussed here.

Impediments for Mindfulness in Western Philosophical Practice

What components of a philosophical lecture, as conducted in a Western university setting, might seem to exclude mindful awareness? The following are some of the obstacles that might be suggested to prevent connecting mindfulness with Western philosophical practice:

- 1 Western philosophy deals with atemporal, eternal truths, whereas mindfulness stresses the now-moment.

- 2 Western philosophy aims at mental growth through the internalization of generic, apersonal truths, whereas mindfulness works in terms of personal experience.
- 3 Western philosophy seeks to guide its student to thinking about significant themes verbally and by conceptual articulation, whereas mindfulness in its contemplative and meditative forms works with bodily sensations and awareness turned back from externalities to internal states of mind.
- 4 Western philosophy appeals to judgment and seeks to convince with argumentation and logical reasoning, whereas mindfulness in its contemplative and meditative forms makes an explicit effort not to superimpose preferences and seeks to train the mind for acceptance.
- 5 Western philosophy aims at conceptual elaboration, whereas mindfulness in its contemplative and meditative forms fosters nonelaborative mental-processing and conceptual silence.
- 6 Western philosophy looks upon thoughts as an ally, whereas mindfulness in its contemplative and meditative forms regards thoughts as an unreliable counterforce to the fundamental aim of being in the present.

We do not wish to discuss the contemplative traditions and their connections to Western philosophy here. Nor shall we address classical Buddhist thinking vis-à-vis the contrasting categories just given. Our aim is to remind the reader of the *prima facie* tensions that might prevent a fruitful dialogue between Western philosophical practice and the contemplative mindfulness tradition.

Recall that Western philosophy is strongly biased towards written expression and thus away from the communicative possibilities of the present moment, in spite of the fact that Socrates never wrote anything, any more than Buddha did. Wittgenstein was extremely reluctant to publish, and many leading students of Heidegger insist that the true nature of his philosophy could only be experienced in his lecturing (Steiner, 1992). Yet, given the assumed superiority of the written expression for conducting philosophy, lecturing as a philosophical practice has not received the respect it deserves in the West (Saarinen, 2008, 2013a; Saarinen & Slotte, 2003).

Any philosophical lecturing is by its nature an oral endeavor. Life-philosophical, mindfulness-inducing lecturing relies on the possibilities of using the spoken word in an effort to practice philosophy for the purposes of enhancing life. While this might seem like a strange undertaking in a contemporary university setting, classic Buddhism strongly emphasizes the value of learning through direct hearing, especially from one who has deep experiential insight. Furthermore, much of the actual practice of philosophy took place through talking and listening in antiquity in settings such as Plato's academy and Aristotle's peripatetic school (Plato, trans. 1966).

Indeed, in Western philosophy, right from the beginning and even before an urge to clarify the foundations of knowledge and the ultimate categories of representation, there existed a call for "edifying discourses" (Rorty, 1979), "philosophical modes of life" (Hadot, 2002) and "content philosophy" (Wilk, in press). Socrates operated with the spoken word in dialogues. His focus was upon challenging his fellow citizens to live more virtuously. In the footsteps of Socrates, a legacy has lived on in philosophy to cultivate "the art of living" (Nehamas, 1998). Even if this grand tradition has been marginalized in the course of the rise of intellectualized academic philosophy,

its legacy remains powerful. Leading names in the Socratic tradition include Pascal, Montaigne, Kierkegaard, Nietzsche, William James, John Dewey, and, more recently, Richard Rorty. The fundamental nature of philosophy as a Socratic, spiritual exercise for a good life has been articulated with particular force by Pierre Hadot (1995, 2002) who emphasized philosophy “in its original aspect: not as a theoretical construct, but as a method for training people to live and to look at the world in a new way” (Hadot, 1995, p. 107). It is a view according to which “to learn philosophy, even by reading and commenting upon texts, meant both to learn a way of life and to practice it” (Hadot, 2002, p. 153).

While Socratic philosophy as a spiritual exercise deals with atemporal, eternal truths, it also addresses the now-moment, personal experience, and internal states of mind. As Martha Nussbaum put it, Socratic philosophy “exists for the sake of human beings, in order to address their deepest needs, confront their most urgent perplexities, and bring them from misery to some greater measure of flourishing” (Nussbaum, 1994, p. 3). The same is true of Buddhist contemplative tradition as a whole. The emphasis is on spiritual maturation and the deepening of one’s insight. From this perspective, Socrates comes across as a life-philosophical teacher, whose chief interest is the use of thinking and the love of wisdom for the actual conduct of one’s life.

Socratic Sounds in a Lecture Hall

We perceive mindfulness-inducing philosophical lecturing as exemplifying Socrates’ intention of creating communicative practice that:

- 1 unfolds in the present moment;
- 2 focuses on accelerating the insights of the listener rather than focusing on the insights of the speaker; and
- 3 addresses the theme of the good life in a way that is subjectively significant to the participant.

In a lecture context, this will involve bypassing the obstacles (1)–(6) noted above as impediments for introducing mindfulness in the context of Western university philosophy. In particular, it amounts to a philosophical practice that:

- 1 deals with atemporal, eternal truths in a way that stresses the now-moment;
- 2 aims at mental growth through a discussion of generic, apersonal truths, but in terms of personal experience;
- 3 seeks to guide its students to think about significant themes that are articulated verbally and conceptually, but allowing for insights that cannot be reduced to the verbal or conceptual and might bear on awareness turned back from externalities to internal states of mind;
- 4 appeals to judgment and seeks to convince with arguments and elaborations without restricting its discourse to that mode while allowing for insights that might benefit from the training of nonjudgmental acceptance;

- 5 aims at conceptual insight by fostering nonelaborative and nonconceptual mental processing; and
- 6 looks upon thoughts as an ally in the aim to be in the present.

Our conviction is that these are outstanding themes, and we believe they can be incorporated with a wide range of meditative practices when approached in the light of the classical Buddhist definition of mindfulness. In the present paper, our focus is on Western philosophical practice. Our conceptual thesis is that *philosophical lecturing as a philosophical practice* is possible in a way compatible with the themes just cited. Our ethical thesis is that such a philosophical lecturing practice is desirable and highly beneficial in a Western university context. Our practical thesis is that such a practice offers a methodology that extends mindfulness to a fruitful new context. Our historical thesis is that when successfully conducted, such a practice amounts to the implementation of ancient Greek philosophy as a quest for a way of life, as articulated by Hadot, Nussbaum, and others. Our empirical thesis is that the lecture series “Philosophy and Systems Thinking” since 2001 has been such a practice.

Beyond the Argumentative Paradigm

“The real question, and the real adventure, is how do we *live* our lives while we have the chance?” Jon Kabat-Zinn writes in the Introduction to the 15th Anniversary Edition of his *Full Catastrophe Living*, as he describes his reasons for writing his influential book. As in Kabat-Zinn, the life-transforming, ethical aspects of mindfulness and meditation are paramount in the writings of Alan Wallace (2005, 2009, 2011, 2012a). As we see it, the ethical core in both Kabat-Zinn and Wallace’s work parallels that in ancient Western philosophy when perceived as a spiritual practice in the service of the good life, along the lines articulated by Pierre Hadot (Hadot, 1995, 2002).

In reaching out to the betterment of life, “metamorphosis of our inner self” (Hadot, 1995, p. 83), “cultivation of humanity” (Nussbaum, 1997), “genuine happiness” (Wallace, 2005), and “flourishing” (Seligman, 2011), mindfulness-inducing philosophical lecturing seeks to enrich the participant in an aspiration to live life more meaningfully and more fully aligned with the fundamentals of the human condition. Dealing with life’s grand themes but emphasizing the participant’s own thinking as it arises in the course of the lecture, mindfulness-inducing philosophical lecturing amounts to a practice that opens the participant to the “richness of the present moment” (Kabat-Zinn, 2004, p. 6) for the purposes of an enhanced life through reflection. Applying the words of Bishop et al., the idea is to create “a process of gaining *insight* into the nature of one’s mind and the adoption of a de-centered perspective” (Bishop et al., 2004, p. 234).

Academic lecturing is paradigmatically a form of practice that Deborah Tannen (1998) calls “the argument culture,” and is based upon the idea that progress is a function of rationally debated arguments and counterarguments. The ideal is one of open, critical debate, and the advocacy of explicit positions is considered fundamental. In contrast, in mindfulness-inducing lecturing, the context is one of welcoming

openness and acceptance of alternative positions while at the same time maintaining focus and engagement. The participant is immersed in an intellectually stimulating situation in which the orientation is not one of agreement or disagreement but one of reflecting on possibilities. The set-up is one of *nondirected guidance*, reminiscent of the approach Carl Rogers advocated in his humanistic psychology (Rogers, 1951, 1961).

In universities, the argumentative paradigm prevails (Wilk, in press). Mindfulness-inducing philosophical lecturing, however, in its quest towards insight about “the real adventure” of life, reaches beyond argumentation. Many of the core assumptions of academic philosophy as conducted within universities are challenged as a result.

Embracing Associations

Thoughts are elusive. This is a cornerstone of the Buddhist mindfulness literature. Our minds tend to get agitated and to jump quite rapidly from one thing to another. The fact that one’s mind so easily “wanders away” (Bishop et al., 2004, p. 232) is recognized as a key reason for many of the malfunctions and sufferings in a human life in the Buddhist literature. Learning how to calm down one’s elusive thoughts and “inner busyness” (Kabat-Zinn, 2004, p. 23) becomes a chief challenge for mindfulness training. It has been demonstrated beyond doubt that Buddhist mindfulness practices, when applied, lead to considerable health and well-being benefits (see Baer, 2003; Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007; Chambers, Lo, & Allen, 2008; Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Ljótsson et al., 2010; MacLean et al., 2010; Sahdra et al., 2011; Shapiro, Bootzin, Figueiredo, Lopez, & Schwartz, 2003; Shapiro & Carlson, 2009; Shapiro, Carlson, Astin, & Freedman, 2006; Shapiro, Oman, Thoresen, Plante, & Flinders, 2008; Shapiro & Schwartz, 2000; Shaver, Lavy, Saron, & Mikulincer, 2007; Siegel, 2007, 2010; Wallace, 2009, 2011, 2012a; Williams, Teasdale, Segal, & Kabat-Zinn, 2007).

In particular, as methods to develop equanimity, the balance of mind and inner peace, the value of mindfulness practices is beyond dispute. Mindfulness-inducing philosophical lecturing acknowledges inner peace as one potentially desirable outcome but does not focus on it. Equanimity is recognized as one human excellence among others. This means that the wandering nature of the mind and involuntary thoughts, negative as they might be from the point of view of the ideal of equanimity, can be approached as a possibility and potential ally. The point is not so much to silence the mind but to help to cultivate its elaborative activity, in a way that opens the present moment more fully as a platform for enriched personal insights.

In Buddhist meditative practice, destructive mental states are singled out as a particularly important topic. A paramount point is to cope with the malfunctions (see, for example, Ekman, Davidson, Ricard, & Wallace, 2005). The idea is to cultivate and refine “one’s abilities to introspectively monitor one’s mental activities, enabling one to distinguish disruptive from nondisruptive thoughts and emotions” (Ekman et al., 2005, p. 60). In mindfulness-inducing philosophical lecturing, in contrast, the primary aim is to cultivate one’s abilities to monitor how *ideas* influence us. The cultivation of attention in life-philosophical lecturing is intended to lead to increased awareness

of constructive and destructive *perspectives, lines of thought, and concepts*. Momentary thoughts, elusive or not, are not singled out as the key focus.

The process itself is considered fundamental. In contemplative traditions, a chief benefit is the increased ability to calm one's awareness, even as one tends to a busy mind. As Wallace emphasizes, in this way one avoids turbulence of the mind and obsessive, compulsive rumination that is often delusional. In attending life-philosophical lectures, such calming of one's mind, strengthened by meditative practices, most certainly will be beneficial.

Life-philosophical lecturing regards no methodology or practice as intrinsically privileged. It is the mental and spiritual growth of the participant that is considered primary. The aim is to create a platform for the emergence of gradually self-enhancing thought and the buildup of insight for contemporary people with various backgrounds and leanings. In the case of Professor Saarinen's life-philosophical lectures, the external norms and requirements for attendance are reduced to a minimum: the lecture series is open to anybody and is not compulsory to anybody, no checkup is conducted for attendance, and all lectures can be viewed online. In such an ill-defined setting and in front of a highly heterogeneous audience, several factors need to fall in place for the lectures to succeed as a life-philosophical practice.

A leading idea of this paper is to state that it is possible to build a process of unfolding insight on life-philosophical themes that is respectful of the student and subjectively relevant to them, which enhances the participant's human and mental growth, is engaging, creates inspiration and spirit, and does *not* reduce to the lecturer's charisma or the internalization of specific lecture contents. Some charisma is undoubtedly needed, along with relevant contents, but we believe it critically important to recognize the relativity of their status. For an orchestra to play well, the conductor needs to succeed, but it is naïve to address too much of the magic to this one causal factor only.

In Auditorium A, part of the uplift is due to the easy accessibility of the lectures as well as certain entertaining aspects. Thanks to the engaging nature of the lecture, the participant undoubtedly ends up following the lecturer much of the time, but in a way that allows for personal associations and the parallel processing of one's idiosyncratic own thoughts. It is important that even when getting carried away with their thoughts, a participant can and is likely to return to the lecture for reinvigorated energy and inspiration. The logic could be compared to that of attending to a music concert and using one's mind as Barfield's "Aeolian Harp," (a wind harp) as opposed to "a camera" (Barfield, 1977). Some parts of the performance might be spent in personal musings without an undue toll on the overall quality of the experience. The point is to facilitate the cultivation of thought, recollection, and insight in the present where the subject matter of the lecture makes it likely that one's emerging associations concern themes relevant to the participant's life philosophy.

The word *experience* is the key here. The participants approach philosophical themes not as abstractions but as part of their lived experience. The primary aim in life-philosophical lecturing is to provide for the participant an abode for personal thoughts of subjective significance regarding "wholesome and unwholesome tendencies, with faults and faultless, inferior and refined, dark and pure, together with their counterparts" (to apply the classical Buddhist definition of mindfulness cited by Wallace here).

In the lecture situation, the participant will attentively and associatively ponder on “the courses of beneficial and unbeneficial tendencies: these tendencies are beneficial, these unbeneficial; these tendencies are helpful these are unhelpful” (Wallace, 2009, p. 62). They engage in *introspection* of the ideas that lead their life (on the significance of introspection in the context of mindfulness, see Wallace, 2009).

Consider the well-established meditation technique of sitting meditation as a point of comparison. In sitting meditation, the participant is led to maintain attention on a particular focus, most commonly the somatic sensations of their own breathing. If their thought wanders away, the instruction is simply to take notice of their wandering thoughts, and then return attention to the breath. The point is to bring one’s thought back to the here and now using breath as an anchor.

In mindfulness-inducing philosophical lecturing, *the lecture itself* is the anchor. That anchor is temporally extended and allows temporary distraction. The participants can allow their thoughts to float away because sooner or later the energy of the situation is going to draw them back to the lecture itself. Recall that in the mindfulness-inducing lecture, the specific content covered by the lecturer at a given time is not of supreme value. Should it be, wandering away from the content would backfire. Now, the occasional departures from the stream of the lecture might well enhance the personally relevant experience of the lecture, rather than weaken it.

Both sitting meditation and life-philosophical lecturing, thus, approach the participant as an individual capable of fruitfully experiencing their own thoughtful presence and gaining insight into their human endowment from within the present moment. Still, the two approaches differ in character. In particular, life-philosophical lecturing does not seek the “single-pointed concentration with highly refined attention” (Wallace, 2011, p. 4) of Buddhist meditation practice, nor does it seek meditative quiescence. Inactivity is needed, but not in the pointed form necessary for meditation. This is because the focus is on ideas, perspectives, and lines of thought, as opposed to momentary thoughts, experiences, or emotions. One is reminded of mindfulness as defined by Wallace (2012b, p. 9) in connection of his discussion of “lucid dreaming”: “*Mindfulness* can be defined as a continuous attention to a chosen object, which requires that one remembers what the task is and not become distracted by other phenomena.” The task in a mindfulness-inducing philosophical lecture is the reflection on life-philosophically relevant themes, and the lecture aims to foster the participant’s continuous attention to that effect.

Philosophy as an Affective Experience

In mindfulness-inducing philosophical lecturing, the lived experience of the participant as well as their “self-attunement” (Shapiro & Carlson, 2009, p. 22) is fostered by making room for the emotional realm. As already noted, the participants are encouraged not only to think thoughts but to experience their thoughts. Given that themes relevant to one’s life are discussed, some of the emerging thoughts are likely to involve emotional components. Many of them involve compassion and foster “the universality of being human” (Shapiro & Carlson, 2009, p. 23). In life-philosophical lecturing of the kind described here and exemplified by Auditorium A, emotions are addressed

as a natural aspect of the human condition. As Carroll E. Izard, a leading emotions researcher, recently put it in a meta-article, “emotions play a critical role in the evolution of consciousness and the operations of all mental processes” (Izard, 2009, p. 1). This basic fact about emotions is part and parcel of life-philosophical lecturing.

Approaching philosophical university lecturing as an affective experience, however, as opposed to a cognitive stream of contents, signals a radical move away from mainstream standards. It poses significant challenges for the lecturer, some of them reminiscent of what a symphony orchestra conductor or a therapist encounters. The lecturer needs to be able to fine-tune with the participants and sense the particulars of the flow of the lecture as it unfolds. We believe the lecturer’s honesty and authenticity are prerequisites for the functioning of the situation. As in many forms of therapy, the lecturer’s own human credibility and presence become critical.

The Lecture as a Secure Base for Sustained Attention

In the model of mindfulness proposed by Bishop et al., “self-regulation of attention” is a fundamental factor. It involves two skills that may be cultivated through mindfulness practice: the skills of sustained attention and the skills of switching. Sustained attention helps to “maintain an awareness of the current experience,” whereas “switching involves flexibility of attention so that one can shift the focus from one object to another” (Bishop et al., 2004, p. 232). These two attentional skills parallel Langer’s emphasis on “orientation in the present,” “openness to novelty” and “alertness to distinction.” Mindfulness-inducing philosophical lecturing promotes these skills by inviting the participants to attend vigilantly to their own thoughts and experiences in the course of the lecture.

To be sure, mindfulness-inducing philosophical lecturing does not stimulate *conscious* self-regulation of attention in the course of the lecture. Indeed, no special effort is made to encourage the participant to that effect. Instead, as already observed, the participants are encouraged to associate and to let their minds move spontaneously in emerging directions. One reason why the experience in Auditorium A is so rich for the participants might be the delight of returning to an already-familiar experience, story, or example with regained insight. Indeed, the participants often relate how rewarding they had found the return to an example with which they were already familiar. This fosters a mindset that welcomes the possibility of encountering the familiar with a fresh, energized touch. Having found uplifting nuances from the commonplace, the participant experiences alertness to distinction in the sense of Langer.

Wallace and Shapiro (2006, p. 696) emphasized an “anomalous state of attentional balance” as a feature of Buddhist-inspired mindfulness. They acknowledged that generally attentional arousal is correlated with effort. Yet “one of the most intriguing aspects of Buddhist attentional training has to do with the development of the simultaneous qualities of relaxation, attentional stability and vividness” (Wallace & Shapiro, 2006, p. 696). Intriguingly, Langer made a related point of sociocognitive mindfulness (mindfulness in her sense): “The transition from mindlessness to mindfulness may be effortful, but mindfulness is relatively effortless” (Langer, 1989a, p. 154). Langer pointed out that “paying attention to something without drawing new distinctions

is likely to be effortful” but “If the person mindfully engaged herself in finding new ways to do the task, the time would pass quickly” (Langer, 1989a, p. 154). In line with these characterizations, Professor Saarinen’s lectures are “relatively effortless” for the participants, although they quite clearly involve heightened cognitive activity.

This is an important point that underlines an often-bypassed possibility. In life-philosophical lecturing, of course, relaxation is not a priority. Nothing like meditative quiescence and calming down the mind is ever achieved. Yet it is very much part of the idea of mindfulness-inducing philosophical lecturing that attentional focus, vigilance, and vibrancy of thinking are combined with a particular kind of *sense of safety*. This is reflected in the explicit rejection of the threat mechanisms that characterize a lecture setting in a university. External criteria for successful progress, such as objective checkups of the internalization of the lecture content, or sudden “activating” questions from the lecturer, are conspicuous by their absence from Auditorium A. Instead of being “challenged out of their comfort zones,” the aim is to make the participants feel their comfort zones as extending. The lecture will form *a secure base from which to explore* (Bowlby, 1969). The intention is that each participant feels *unconditionally accepted and respected* as an individual in the lecture hall. Such a sense of safety cultivates inner calm in the participant. But inner calm can be viewed as the first step in Buddhist *shamatha* practice, or meditative quiescence, as the opposite to excessive tension and stress. One could think that such an ease in body and mind could well facilitate mindfulness as induced by life-philosophical lecturing.

The Prevention of Mindlessness

Since her early studies in 1970s, Langer has emphasized the deleterious effects of mindlessness. Research has indeed demonstrated that the effects of mindlessness can lead to maladaptive consequences on both psychological and physical levels (Langer & Piper, 1987; Langer & Rodin, 1976; Langer et al., 1978, 1988, 2010; Rodin & Langer, 1977). While demonstrably maladaptive, mindlessness is prevalent, and “much of human activity that appears mindful is in fact conducted in what has been called a mindless fashion” (Langer et al., 1988, pp. 289–90).

Yet mindlessness can be prevented with interventions that are surprisingly simple. We submit that this fact has not been sufficiently appreciated (even if underlined in Langer, 2009, for example). Taking the original nursing-home studies with the aged as a paradigm (Langer & Rodin, 1976; Rodin & Langer, 1977), along with the psychological stress study with surgical patients (Langer, Janis, & Wolfer, 1975) and the linguistic variation studies of Langer and Piper (1987), we observe that mindlessness interventions can lead to astonishing effects. Just how far the results can be generalized is not the point here; the results certainly show that dramatic life-enhancing effects are *possible* through minimalistic mindfulness-inducing interventions.

The observation that life can be dramatically enhanced by minimal interventions is important. It signals a major difference between Langerian mindfulness interventions and Buddhist-inspired interventions. The latter require considerable effort and sustained focus of mind. Langerian mindfulness, with its emphasis on the creation of new categories and the making of distinctions, allows for major blink-like

transformations, sudden revelatory moments, to take place. Obviously, people can indeed become sociocognitively mindful of something significant in a split second without any prior formal training. Yet what serves as the trigger might reflect some quite idiosyncratic factors.

In the light of the concluding essays in which the participants write on their experiences, one striking fact is the sheer diversity of aspects of the lecture series that have been found by the participants to be illuminating, inspiring, significant, or life-transforming. What has struck a note in a particular participant varies from one person to the next. This is how it should be, in the light of Langer's emphasis of variety as a source of mindfulness.

It is tempting to see here a positive reflection of the "busyness of mind" discussed above along with the associative force of people's thinking. In any case, the fact that people can cite quite idiosyncratic aspects of the lecture series as pivotal, including aspects that most others entirely bypass, demonstrates the fact that in the fine art of mindlessness prevention, a thematically liberal, abundant, and creative approach seems more beneficial than one that seeks methodological purity or favors stinginess on some rational grounds. Given that mindlessness is a state of reduced attention, what makes someone become more attentive might be the result of highly subjective associations. Who cares if a critically significant insight came from impure sources?

In particular, there is no reason to assume that only some particular kind of scholarly content, delivered according to some rational protocol, is optimally effective, much less the only way to prevent mindlessness in living one's life. On the contrary, no matter how learned, analytically brilliant, or hungry for knowledge some people might be, they can be staggeringly mindless when it comes to living their lives. The creation of a context to prevent some of such mindlessness is the point of life-philosophical lecturing.

In Langer's work, there is a strong emphasis of the conditional, as opposed to the absolute, mode of thinking as a key antidote to mindlessness (see Langer & Piper, 1987, and subsequent studies). In one of the original studies, the shift from mindlessness to mindfulness was brought about linguistically. The research pointed to the possibility that deceptively simple linguistic form can encourage mindlessness (Langer & Piper, 1987). But similarly, mindlessness can be prevented by communication that varies only marginally from communication that encourages mindlessness.

Life-philosophical lecturing is a linguistic activity and one that looks for major impetus through minor interventions. The nonlinear leverage possibilities of sociocognitive mindfulness theory are among its chief allies. To facilitate that effect, life-philosophical lecturing operates with subtle linguistic forms and conditionality as a key mode of thinking. Conditional mode of thinking is encouraged in the lecturer's style in presenting the cases, as opposed to generic lessons based on theories, as well as in the often high-profile personification of the cases. Also, many of the cases draw from environments everyone is familiar with and, as a lived experience, do not fall into the authority of some specific group of experts (family life, sports, music). Each case that is discussed is offered as an interesting example only, rather than as a paradigm of a pointedly identified pattern of behavior or an ideal. Theories and research results are presented when applicable, but only in the sense in which a conductor might occasionally refer explicitly to the score when working with an experienced orchestra: mostly using it as a

prerequisite in the background. Readings, theories, and scholarship are part of the lecture in a kind of bassline manner. They serve as an implicit integrating material for the presentation, and as something that someone might want to look into, but the main point is to become more mindful to the possibilities of one's life as a result of the process that ensues.

In Auditorium A, a point is made explicitly that no particular perspective, ideology, value system, or opinion will be privileged. To be sure, the lecturer does not hide their own thoughts or feelings, and addresses the topics at hand with sincerity, commitment, and compassion. Yet the lecturer's values or perspectives are not forced upon anyone but are openly displayed and presented as part of a particular life-choice. Students are encouraged to maintain an attitude of "maybe" and "this is one way to think" in their reflection, while at the same time they are also encouraged to be serious with their thoughts, as opposed to just playing around with intellectually fancy options.

The Atmosphere of Realistic Positivity

Keeping in mind that life is a real process to be lived as opposed to an intellectual construct to be reflected upon, and with an emphasis on the categories of possibility, resource, and abundance, a positive and realistic undertone is carried through the discussion not unlike that of the humanistic psychology of Carl Rogers and others (Rogers, 1951, 1961).

Life-philosophical lecturing amounts to a *positive philosophical practice* in placing emphasis on participants' strengths and already-existing resources. It sides with positive psychology (Seligman, 2011; Seligman & Csikszentmihalyi, 2000; Snyder & Lopez, 2002) in focusing on "life worth living" (Csikszentmihalyi & Csikszentmihalyi, 2006) rather than on deficiencies and malfunctions. The insights of Barbara Fredrickson's "broaden and build" perspective on positive emotions very much apply (Fredrickson, 2001, 2009). An effort is made to create in the auditorium an emotional space with an appropriate positivity–negativity ratio, as emphasized by Fredrickson and Losada (2005). This means that painful aspects of life are also acknowledged, sometimes to the extent of participants holding back their tears. Positive meaning is sought also from among negative life experiences. The broaden-and-build effect of positive emotions is thus made use of for the benefit of Langerian breakthroughs in perspective taking and for the purposes of the development of one's attention skills. Positive meaning is sought through what Langer calls "the psychology of possibility."

In line with the intention to invigorate perspective taking, mundane events and seemingly trivial personal encounters of personal life are addressed, as are song lyrics, movie passages, and other forms of popular culture drawn from familiar sources. By presenting novel interpretations and surprising yet credible combinations of the pluses and minuses of recognizable life events and patterns, a mindfulness-inducing lecture not only suggests new potential interpretations for life experiences but also promotes curiosity in participants towards recalling and observing situations from novel perspectives.

Orientation to Experience

Bishop et al. (2004, pp. 233–234) stress an “orientation to experience,” characterized by an attitude of curiosity and openness, as a fundamental feature of mindfulness. Here, Bishop et al. echo Langer’s concept of mindfulness. Yet there is a difference in emphasis that is important for our purposes.

As already noted, since her early field studies in the 1970s, Langer has been intrigued with phenomena of mindlessness, mindless scripted behavior (Langer et al., 1978) and “rigid use of information during which the individual is not aware of its potentially novel aspects” (Langer & Piper, 1987, p. 280). When mindless, “one deals with information as though it has a single meaning and is available for use in only that way” (Langer & Piper, 1987, p. 280).

A key driver of mindlessness is what Chanowitz and Langer call “premature cognitive commitment.” This involves information that is accepted without questioning and unwittingly, often as a result of a single exposure, and is encoded in a single, rigid form (Chanowitz & Langer, 1981). “The information would thereby be committed to one predetermined, that is, rigid, use and other possible uses would not be accessible” (Langer, 1992, p. 292). The Langerian project of mindfulness is largely one of finding ways to overcome premature cognitive commitment and other forms of mindlessness.

In the prevention of mindlessness and in overcoming premature cognitive commitments, curiosity and openness undoubtedly help, but a key point of Langer’s is that more is needed: the active adoption of new alternative perspectives and the creative construction of categories. This highlights the fact that Langerian mindfulness is first and foremost an active undertaking. Hers is a vitalistic project. In effect, Langer’s mindfulness theory promotes positive human dynamism somewhat like Nobel laureate Edmund Phelps in the context of economy (Phelps, 2007; for a discussion, see Saarinen & Kenttä, 2011). But, alas, research shows how stunningly *inattentive* people tend to be when going about “ostensibly thoughtfully” (Langer et al., 1978). Mindlessness is more the rule than the exception.

Langerian mindfulness, as an active vitalistic category, does not point to cognitive vigilance only. Mindfulness and mindlessness are “basic modes of human life” (Langer, 1989a, p. 37) and as such intertwine with any kind of human endeavor and concern potentially any form of human activity. It is important to notice that mindfulness in Langer’s sense does not take place in the context of externally calm life of nonaction, but right there in the middle of the hassles of everyday concerns and in the midst of practical life with its haggle and tussle. To the extent a living philosophy of life concerns the actual life of actual people, it should deal with the same realm Langer addresses with her mindfulness/mindlessness distinction.

This is what life-philosophical lecturing aims to accomplish. The point is to create a platform for the participants to attend to their life mindfully, and to find ways to prevent mindlessness. These goals are addressed indirectly in the sense of not being explicitly stated. Mindfulness is not being “taught,” and indeed the term “mindfulness” or “mindlessness” is typically not even mentioned. Yet what results is *openness to novelty* with respect to one’s life emerging in the thinking of a participant, along with *alertness to distinction* vis-à-vis one’s life’s idiosyncrasies, generalities, and contextual

features. As observed above, in life-philosophical lecturing, the very lack of ostensibly dominating disciplinary subject matter creates room for associations. It creates space for sociocognitive mindfulness to emerge. When the participants attend to their associations conceptually, those associations are likely to give rise to *the creation of new categories* precisely as required by the criteria of Langerian mindfulness. Furthermore, it would be surprising if the participants did not associate conceptually, given they are encouraged to do so, explicitly and by the example of the lecturer, and in view of the fact that any privileged, fixed, and rigid categories are conspicuous by their absence.

As Langer, Pirson, and Delizonna crystallized in a recent article,:

The result of mindful awareness is that continually emergent aspects of the immediate context take experiential precedence over the categorizations that have been useful in the past. Mindfulness presents a method for adopting a less evaluative mindset and for approaching situations with awareness of their conditionality. (Langer et al., 2010, p. 70)

In mindfulness-inducing philosophical lecturing as described here, these features of Langerian mindfulness are achieved by making sure that:

- 1 the immediate context of the lecture gives rise to experiences in the minds of the participants that bear on significant aspects of their own life;
- 2 the experiences emerge in the context of a rich associative and conceptually suggestive environment where prior categorizations and distinctions regarding the experiences intertwine with atmosphere, vocabulary, emotional colors, and inspirational material that are fresh to the participant;
- 3 the cases that are discussed are addressed in conditional mode, not absolutely, and involve specific, even idiosyncratic and context-bound elements.

In this way, Langerian mindfulness/mindlessness theory becomes a natural theoretical framework for understanding the effectiveness of an unorthodox lecture practice in facilitating life-philosophical discourse.

Philosophy as a Performing Art

Being embedded in the university system, mindfulness-inducing lecturing faces the challenge of escaping the potential iron cage of conceptuality.

In the Buddhist practices of mindfulness, conceptuality is tamed down with exercises that call the mind to attend to one's bodily sensations. Silence is valued and used consciously for deepening insight. In a lecture context, such a route is difficult, if not impossible to follow as lecturing operates through the verbal and conceptual modes of expression.

Yet it is clear there is no reason why an orally delivered philosophy lecture could not involve nonconceptual elements and stimulate nonconceptual processing in the participants. Theatre integrates the verbal with the nonconceptual as a matter of course, and so do many avant-garde forms of performing arts. There is no reason why

philosophy lecturing could not be viewed as one of the performing arts (Saarinen, 2008, 2013a, 2013b; Saarinen & Slotte, 2003).

Building on the idea of a philosophy lecture as a performing art, mindfulness-inducing lecturing operates beyond the realm of the verbal and the conceptual. In the case of Saarinen's lectures, participants experience a wide range of emotions from joy and excitement to compassion and sorrow. The experience points to modalities beyond the verbally explicit.

Verbalism and conceptuality are rich, but hardly any notions are elaborated in any such way as one might expect at a university lecture. Much of the verbalism is introduced in terms of words that have intuitive meaning. Even when the concepts have been discussed in the research literature, for instance in positive psychology, attachment theory, infant research, or organizational science, no particular effort is made to drive home the scholarly meaning of the term. The lecturer also plays around with words and makes up words. (In the Finnish language, one can join separate words to make a new word with an immediately comprehensible content.) It is even unclear what words are introduced as "concepts." Instead of emphasizing the abstract dimension, the lecturer stresses accessibility and speaks of "lighthouse notions" and "conceptual handles" as metalevel names for the key words.

The verbal content in a life-philosophical lecture could make use of everyday language, but with a degree of creativity and freshness. As in any artistic performance, the contextual and communicative elements are crucial. In fact, the efficacy of the lecture relies to a large extent on the fact that the vocabulary is immediately and instinctively grasped sufficiently well by the audience. At the same time, it is clear that much remains implicit and open to interpretation. The verbalism of a life-philosophical lecture like that of Professor Saarinen in Auditorium A is not an invitation to a conceptual iron cage but rather a jump to a springboard that invites the participant to engage associatively with their intuitive-emotional endowment. As already noted above, the associative force of the lecture makes it particularly effective in facilitating mindfulness in the sense of Langer. New distinctions come to mind, along with fresh categories. Rigid interpretations give way for alternative possibilities. What might be called the metatheoretical conceptual anarchism of life-philosophical lecturing is one of its chief assets and defining features. As far as the terminology and choice of words are concerned, "anything goes" (cf. Feyerabend, 1975). The recategorization of their individual life experience by the participants themselves is considered primary. It takes precedence over any fixed categorizations by the professor, however well founded and scientifically sound they may be.

These considerations demonstrate that life-philosophical, mindfulness-inducing lecturing departs in some key respects from academic philosophy lecturing, or any academic lecturing. Notice that even paradox might work in life-philosophical lecturing. The discussion might involve a combination of forms of discourse the participant might not expect to hear discussed in unison. Saarinen's lectures typically draw from culturally conflicting discourses coming up with constructs such as "James Bond philosophy," "Side table logic," or "Non-Rose Buying Finns." One is reminded here of the usefulness of paradox in Buddhism as a form of liberation and as "an instrument of taking one beyond the usual, discursive way of viewing things to a place of greater flexibility and perspective" (Shapiro & Carlson, 2009, p. 39).

The Systems Intelligence of a Mindfulness-Inducing Lecture

With more than 500 participants in a lecture hall, the emotional energy (Collins, 2004) can be quite considerable. In a mindfulness-inducing philosophical lecture setting, this energy is yet another key factor in the buildup of the lecture experience of each individual participant. As the participants' attitude of positive curiosity, attention, and increased personal commitment become increasingly apparent, the lecture attunes the participants to the fact that they share that moment together. The lecture turns into a communally cocreated buildup of a shared sense of something significant in the making. It becomes a self-reinforcing loop rather like an orchestra that gradually starts to play better together with each musician becoming more sensitive to the tune of their own instrument in the context of the inspiring unfolding whole.

The lecture setting becomes an emotionally *systemic* process generating "sustained attention" and "switching" with a particular respectful, open, and nonjudgmental "orientation to experience" (using the terms of Bishop et al., 2004). In that reinforcing and self-supporting systemic process, each person in the lecture hall is a cocreator of the *atmosphere of mindfulness* in aid of a better life. Rather than being created by the lecturer, the atmosphere of mindfulness *emerges* in the auditorium as a shared, cocreated, communal, moment-to-moment process.

Given that a life-philosophical, mindfulness-inducing lecture is a holistic, emerging entity, individual parts of it should be viewed as components in a configuration. Individual parts of the lecture (such as the personality, dress, and style of the lecturer; the personality and student status of the participants; the themes discussed; the slides used; the vocabulary; the video clips, etc.) are components in a whole that brings out emergent features not necessarily present in the components when viewed separately. In particular, the experience of the participant unfolds in real time and as embedded in the lecture; the thinking that occurs might be hard to reproduce outside the lecture situation. In the "enriched environment" (Wallace, 2009, p. 28) of the lecture, the participants are engaged with interesting subject matter but also with *their relation* to that subject matter as it emerges within the stream of the lecture. The contextuality of experience becomes a chief element in the service of increased mindfulness.

In the systems intelligence theory of Raimo Hämäläinen and Esa Saarinen, the fundamental contextuality of the human condition is taken to require the integrated functioning of a first-person intelligence perspective with a systems perspective. As Hämäläinen and Saarinen define it, a *systems intelligent* subject engages successfully and productively with the holistic feedback mechanisms of their environment, perceiving themselves as part of a whole. They concomitantly perceive the influence of the whole upon themselves as well as their own influence upon the whole. By perceiving their own interdependence in the feedback intensive environment, the subject is able to act systems intelligently (Saarinen & Hämäläinen, 2004, p. 9; cf. also Hämäläinen & Saarinen, 2008; Luoma, Hämäläinen, & Saarinen, 2011; Martela & Saarinen, 2013; Saarinen & Hämäläinen, 2010).

In other words, systems intelligence requires the subject to be attuned to the most significant wholes—systems—of their environment. They will act intelligently to the extent they are able to integrate generic understanding of the situation with their

first-person sensibilities. With their implicit, emotional, nonverbal sensibilities, they will sense their environment as it unfolds as well as their own interdependencies in it. Such an attunement with the context is crucial for the full functioning of mindfulness in Langer's sense. We are tempted to suggest that indeed it is mindfulness of wholes, rather than mindfulness of their specific aspects in isolation, that is pivotal to Langer. Langer's perspective of mindfulness might thus be coined *systems-intelligent mindfulness* rather than sociocognitive mindfulness. From this perspective, mindfulness is a systems skill—perhaps the original systems skill.

Life-philosophical lecturing helps to bring to focus the systems intelligent aspects of the human condition. A key point is the sensibilities-stimulating and associatively rich simulation of the various systems of one's life. As the participant of the lecture becomes more mindful of their life in the relevant environments, they are likely to become more adaptive—more systems intelligent—with respect to them. Even when ignorant of many of the features in the unfolding system, by being mindful, they can act intelligently.

The Centrality of Intention

Most universities have star lecturers who can mesmerize an audience. Artistic performances, spiritual gatherings, and political rallies often succeed in capturing the attention of the participants. In Auditorium A, instead of being mesmerized by a lecturer-performer, the participants actively engage with their own thinking. In fact, we propose that the originality of mindfulness-inducing philosophical lecturing lies not so much in the participants' attentive engagement but rather in the *intentionality* embedded in the lecture-system. This intention involves approaching life-philosophically relevant themes through the instrument of private introspection in a socially shared context.

For Shapiro et al. (2006), intention represents one out of three core elements of mindfulness along with attention and attitude (cf. also Bishop et al., 2004). By explicitly incorporating intention into their model, Shapiro et al. (2006, p. 375) wished to restore what was lost when "Western psychology attempted to extract the essence of mindfulness practice from its original religious/cultural roots"; that is, "the aspect of intention, which for Buddhism was enlightenment and compassion for all beings."

Empirical research has demonstrated that the nature of the intention one brings to meditation practice may affect the outcomes that emerge. A study by D. H. Shapiro (1992) showed that the intentions meditation practitioners set for themselves correlated with what was attained during practice. What is more, the intentions too turned out to be dynamic, shifting on a continuum from self-regulation, to self-exploration, and finally to self-liberation (transcendence of the self, the experience of the self as an inseparable part of a larger whole). Taken to the context of *nonmeditative* mindfulness practice, such as participation in a life-philosophical lecture, these findings point to the importance of the participants' intentions in setting the level for potential outcomes.

Much like meditation practices, life-philosophical mindfulness-inducing lecturing sharply distinguishes between intentions (or aims) and identifiable and reachable goals (or targets). Intentions, being elusive to exhaustive definitions, set a direction for

action and indicate an orientation such as an intention to live one's life more fully, or realize one's potential, or develop one's compassion and understanding of life. None of these can be reduced to reachable targets.

Yet targets dominate people's thinking. As Buddhist-inspired mindfulness literature has made clear, most people's lives are filled with goals with the result of creating striving, grasping, craving, suffering, and separation, as opposed to balance of mind, integrity, compassion, and happiness. Part and parcel of life-philosophical, mindfulness-inducing lecturing is the platform it provides for the personal interpretations of one's life *beyond* the discourse of targets and reachable goals. Because no skills or competencies are set as the target, given the subject matter and the spirited context for reflection, most participants engage in active introspection and internal dialogue regarding their intentions in life. For many participants, new intentions evolve, fresh interpretations emerge, and shorter-term goals become subject to scrutiny. Because such an internal dialogue is likely to be experienced as beneficial and cannot be concluded once and for all, the participant might well feel an interest to return to the lecture again at a later stage.

The Three Intentional Levels

We propose the following three core intentional levels for a mindfulness-inducing philosophical lecture:

- 1 orientation to the present moment;
- 2 clearer reflection;
- 3 a better life.

Notice that these aims are entirely generic. Even if most universities do not address the challenge (Kronman, 2007), it is possible to envisage a university lecture series based on the idea of edifying the participants in their orientation to the present moment, in clearer reflection and in striving towards a better life. More specifically, it is possible to envisage a university lecture series with the intention of facilitating in the participants an integration of Kabat-Zinnian, Wallacian, and Langerian mindfulness, and the Socratic project for a better life.

In the specific case of Professor Saarinen's lectures, most participants report being somewhat perplexed at first. The lecturer is at the door welcoming each participant with a handshake. Music is playing. The group is heterogeneous with students of different backgrounds mixing with nonstudents. The atmosphere is auspicious. Once the lecture starts, the lecturer invites the participants to say hello to people around in a "gentle and dynamic manner," suggesting give-me-fives, power hugs, and cheek kisses as a possibility—implemented with discretion, of course. Thanks to the lecturer's engaging style and the unconventional course format, the participant is likely to be less concerned with questions dealing with either past or future ("Have I already heard about this?," "What should I retain from these slides to do well in the test?," "When shall we have the break?") and be more fully present in the here and now (intentional level 1). Nevertheless, at this intentional level, the situation differs little from any other

interesting lecture context¹ in which the lecturer manages to keep the participants engaged and alert.

What bring us forward towards the second and third intentional levels are the course aims, more or less explicitly stated at the beginning of the term, then freely recapitulated along the lecture series. It is stated that the course intends “to create a process that will enable you to come to think, by the end of the semester, more in the way you actually think.”

As participants gradually commit to a better understanding of their own ways of thinking (in line with the course aim), they aspire to *clearer reflection* (intentional level 2). This entails “engaging with the world of experience without imposing conceptual assumptions or ideas on events and thereby misapprehending or distorting them,” to quote the words of Wallace and Shapiro (2006, p. 696) in their description of the state of cognitive balance in Buddhist practice. The participants practice *self-exploration* and *introspection*. From the point of view of Langerian notion of mindfulness, the participants exercise “clearer reflection” by applying new concepts and categories to familiar events and potential future states. Participants reflect through examples and via fresh concepts pivotal aspects of the human condition. For many students, the experience is powerful: in their concluding essays, many relate that they have engaged in serious thinking of their lives in the course of the lecture for the first time. They become mindful of the possibility to be mindful as a way of life.

Turning to Buddhist-inspired forms of mindfulness, one can note that one benefit of mindfulness meditation is the strength with which it can increase the ability to disidentify from the contents of consciousness. This shift from “self as content” to “self as context” may be “a continuation of the naturally occurring human developmental process whereby one gains an increasing capacity for objectivity about one’s own internal experience” (Shapiro & Carlson, 2009, pp. 96–97). Consequently, the practitioner learns “to stand back from and observe his or her inner commentary about life and the experiences encountered” as well as “begins to stand back from his or her ‘story’ about who and what *he* or *she* ultimately is” (Shapiro & Carlson, 2009, p. 97). Shapiro et al. (2006) refer to this shift in perspective as “reperceiving” and propose it as a metamechanism for driving mindfulness-based positive change.

As Shapiro and Carlson made clear, reperceiving creates cognitive, emotional, and behavioral flexibility, which may in turn lead to subsequent positive effects. In Auditorium A, the students likewise gain access to their “self as a context” as they consider internally their customary interpretations and ideas of life in favor of fresh alternatives. Given the life-philosophical subject matter of the lecture series, as well as the inspiring nature of the examples discussed, it is fair to say that a participant engages in an internal dialogue on “who or what he or she ultimately is.” Indeed, the fact that this does happen is amply demonstrated in the 3000 student essays that the students have written in the conclusion of the series since 2001 as well as in their self-evaluative assessments on what were the main lessons of the series. We believe reflective self-exploration during the lectures produces a process comparable to the disidentification in meditation contexts and carries with it the potential of profoundly changing the way participants view subjective thought in the context of their own lives.

This is the intentional level where Langerian mindfulness is clearly useful. The call of life-philosophical, mindfulness-inducing philosophical lecturing for clearer reflection

will involve invigorated drawing of distinctions as emphasized by Langer. The process would also reduce the degree of mindlessness, or clouded reflection. In terminology more faithful to Buddhist thinking, this would imply a reduction in what Wallace and Shapiro described as cognitive imbalances: “cognitive deficit” or absent-mindedness, “cognitive hyperactivity” or the inability to distinguish between perceived realities and one’s fantasies, and “cognitive dysfunction” or proneness to misapprehending events (Wallace & Shapiro, 2006, p. 696). The cultivation of mindfulness in the lecture context could therefore promote improved cognitive balance and reflection—the improved ability to notice novelty and to draw accurate distinctions, and, further, improved learning (Langer, 1997) and creativity (Langer, 2005) vis-à-vis one’s life.

Mindfulness as a Way of Life

The intention behind mental cultivation in Buddhist thought crystallizes as a profound aspiration toward the release from suffering (enlightenment) and compassion for all beings. Mindfulness practice, lying at the heart of meditative techniques, is thus at its very roots ethically informed. It amounts to philosophical practice striving towards freedom from suffering in a way that benefits not only the practitioner but also those who come into contact with them.

Similar to Buddhist mental training, ancient philosophy was a way of life. Much like meditative techniques, philosophy was “merely a preparatory exercise for wisdom,” to borrow the words of Pierre Hadot (2002, p. 4). In fact, ancient Western philosophers employed mind-training techniques, often referred to as meditations, to cultivate present-orientation and discernment. Ancient philosophers recognized the value of quiet self-exploration as a means of gaining insight into the nature of the mind and into the human condition. Not unlike mindfulness meditation, such contemplative practice was likely to have promoted the process of “reperceiving” of mental contents and, ultimately, of the observing self.

The discovery of “self as a context” prompts the question: a context for what? For ancient philosophers, as for Buddhist contemplatives, the answer lies in the conviction that goodness and virtue should be approached through mental cultivation. As Hadot sees it, “the love of good” consequently becomes inseparable from “the inner transformation of the person” (Hadot, 2002, p. 59). When creating a context for associative introspection and uplift of the self, mindfulness-inducing lecturing aims at this very end of “inner transformation,” a pursuit implicitly resonating through most, if not all, mindfulness literature. This is the third and highest intentional level of mindfulness-inducing philosophical lecturing, mentioned above.

Shapiro and Carlson (2009) capture the Socratic ideal, when they state that “mindfulness offers a universally applicable system of ethics based on inquiry and the ability to discern the wholesome from the unwholesome”² (p. 6). Mindfulness, thus, becomes a constant moral inquiry that joins the quest for a better life endorsed by ancient philosophers. As part of that legacy, mindfulness-inducing lecturing aims at creating a rich environment for uplifting and edifying personal inquiry that translates to moral action, hence echoing the famous words by Socrates, “The unexamined life is not worth living” (*Apology*, 38a).

Ethically Informed Mindfulness in the Practice of Applied Positive Philosophy

We have described a novel kind of mindfulness-based intervention that does not rely on meditation techniques. The intervention exemplifies what could be called the practice of *applied positive philosophy*. It seems clear that mental states favorable to life-enhancing self-exploration may be achieved in a variety of formal and informal settings. Examples of such settings range from personal coaching, therapy, and self-help programs to everyday discussions with a compassionate friend as well as to various meditation and spiritual practices. University institutions, with their strong commitment to rational discourse and objectivism, have often been reluctant to explore the realm of personal meaning and the good life. In this paper, we have suggested that Eastern and Western notions of mindfulness can be reconciled in what we have called mindfulness-inducing lecturing to the benefit of such a project within the confines of the university institution.

Although emphasizing the importance of the present-moment experience, mindfulness-inducing lecturing, in its intention towards the betterment of life, strongly orients the participant towards “what-is-not-yet-to-be-seen”; that is, the world of potentialities, or prospects. Gilbert, Seligman, and others (Gilbert, 2006; Seligman et al., 2013) have emphasized *prospection*, “the internal representation of possible futures” (Seligman, Railton, Baumeister, & Sripada, 2013), as a core feature of human functioning. Seligman et al. quoted the effectiveness of “future-looking therapies” in tackling maladaptive behaviors (Seligman et al., 2013, p. 134). We think mindfulness-inducing lecturing may similarly promote an individual’s ability to envisage alternative futures, to realistically assess these alternatives, and, what is more, to act upon the resulting insight.

As a matter of fact, the possibilities in life are more plentiful and the space of alternative futures more abundant than an individual is likely to realize. From this point of view, attuning to the future with richer colors and more open-ended limits builds on the actual nature of things. To the extent that the clarity of reflection calls out to realism, mindfulness-inducing lecturing thus promotes *clearer prospection*. Indeed, we see this increase in clarity of envisaged futures as a major outgrowth of any mindfulness intervention, as long as the focus of the practice extends beyond what is imminently present in the here and now. Therefore, all practices to cultivate this life-enhancing ability should be explored and appreciated.

Based on our experience in Auditorium A, it seems that at least some forms of mindfulness may even be contagious. In fact, one of the exciting aspects of experiencing mindfulness in the context of a life-philosophical lecture, is the interactive component: sensing the people around you as being in a similar state of positive concentration may add meaning to the experience and increase compassion as people share those moments of significance together. It is hard *not* to attune to other participants in an engaging life-philosophical lecture in which themes of our common humanity are discussed with zest, respect, discretion, and uplift. You sense the concentration of others, join into the emotional energy of the situation and the company of others, and realize that you are amidst people just like you on the fundamental level of common

humanity. We suggest that this heartfelt attunement may reinforce the participants' ability to sense "the better angels of our nature," as Abraham Lincoln famously put it in his inaugural address, and the inner goodness in people around oneself, and hence build resources to find positive meaning in life.

Positive philosophical practice provides a secular context for mindfulness-inspired ethical inquiry. Through refined conceptuality that communicates with both rational and emotional dimensions of human endowment, applied positive philosophy may provide a student with increased conceptual richness and sensitivity to life's subtleties. Yet, the most important contribution of applied positive philosophy to mindfulness practice stems from the roots of both Eastern and Western philosophy: the human aspiration towards a better life, freedom from suffering, and the realization of the human potential. We suggest that the intention of a better life should be explicitly added to the notion of mindfulness. We believe that mindfulness so defined would reside closer to its Buddhist philosophical roots and would resonate beautifully with what is perhaps most valuable in the Western philosophical tradition: the cultivation of thought to create flourishing and meaningful life.

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Notes

1. In fact, all too many teaching settings seem to operate at this level, requiring concentrated attention but little reflection. See *The Power of Mindful Learning* by Langer (1997) for an in-depth discussion of related themes.
2. The term *wholesome* is to signify those aspects of the mind that lead to the well-being of self and others, while the term *unwholesome* signifies those that lead to the suffering of self and others (Shapiro & Carlson, 2009, p. 6). In Socratic terms, the discernment of the *wholesome* would correspond to the attainment of *knowledge* (conducive to just actions).

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The Role of Mindfulness in Peace Education in the Context of Conflict

Gavriel Salomon

What is it about peace education that requires mindfulness? Why would mindfulness have to be an integral part of peace education? Would we not want individuals to express more positive attitudes quite automatically and without much cognitive control towards or trust in an adversary? For after all, mindfully thinking of the adversary could easily end up in greater divisiveness. As stated by a participant in an Israeli-Palestinian dialogue workshop, “Until yesterday I hated them, but now that I gave more thought to the conflict, I understand why.”

Moreover, peace education takes place not only in deliberately designed programs that explicitly wish to promote knowledge of the adversary, change affects, attitudes, beliefs, and behaviors as manifested in particular curricula, seminars, workshops, camps, and dialogue meetings, but also (often unintentionally, incidentally) in work places where joint interethnic or interreligious activities designed to accomplish particular tasks take place. These joint activities have little to do with the traditional goals of peace education. Examples of such are interracial soccer clubs where Blacks and Whites train and play together (e.g., Brown, Brown, Jackson, Sellers, & Manuel, 2003), multi-ethnic businesses where Muslims and Hindus work together (Varshney, 2002), and joint medical teams of Blacks and Whites in hospital wards (e.g., Betancourt & Reid, 2007). How does mindfulness concerning the conflict, the ethnic tension, the “other,” figure in these instances? If positive changes of attitude and perception take place, are they not attained incidentally, quite mindlessly?

Intractable Conflicts

One could say that ethno-political conflicts stand on two interrelated legs: the political, “objective” conflict of interests over resources, dominance, military conquest, borders, language, governance, and their likes. The other, the “subjective” psychological leg, consists of fear, mistrust, hatred, ill-attributions of intent, frustration, and anger.

I address here the psychological aspect, as it is the subject of peace education. A number of psychological attributes distinguish intractable ethno-political conflicts from other kinds of conflict: They are protracted, they are perceived as zero sum games, they are often violent, they are total in the many ways they affect daily life of a society, and they are central to its life; most everything is affected by the ongoing conflict (Rouhanna & Bar-Tal, 1998)—from school curricula to the platforms of political parties and from the repertoire of theaters to coffee-house discussions. Also typical of such conflicts is the delegitimization of the adversary and its dehumanization (e.g., Staub, 2011): The adversary is robbed of its legitimate history and aspirations, cannot be trusted, is to be blamed for most everything (“we are the victims, they are the evil perpetrators”), and is of lesser human value than “we.”

In analyzing the Rwandan conflict, Utterwulghe (1999) argued that such conflicts can begin with concrete, “objective” disputes over borders or resources, but then the psychological aspects—anger, hatred, envy, mistrust, delegitimization—take over and come to prolong the conflict, sustain it, and even escalate it. Barash (1994) argued that nations, and particularly governments, have a need for enemies; satisfying this need serves to sustain the support of the people, and mobilize the nation to rally around the flag. Arousing fear of the allegedly threatening enemy is a common strategy in this respect; it serves the same political and psychological need (Bar-Tal, 2001).

Quite possibly, this is where mindlessness sets in. People follow catchy slogans, do not consider the implications that emanate from them, and do not contemplate other possibilities; they just accept the “received truth” (Bar-Tal, Halpern, & de Rivera, 2007). In many ways, during conflict, not considering alternatives means accepting a socially agreed-upon stereotypic, holistic view of the adversary and accepting without questioning common prejudices (see also Langer, 1989). Following without much thought, the received “truth” about the adversary and the conflict is mentally easy, as it does not demand much mental effort; mental effort is often avoided (Salomon, 1984). Thinking is dualistic: “we” against “them,” we, the good guys, versus them, the bad guys, we the victims, they—the perpetrators, and so on. As Collins (2005) points out, dualistic thinking of this kind, particularly when couched in consensually held collective thinking, locks thinking into a bunker-like mode of thinking. Establishing a consensually held view of the adversary, of the conflict, and of the threat, easily creates mindless “group think” that becomes self-validating (Weick, 1979). This is very much what “rallying around the flag” during conflict means.

The mindless following of the consensually held view of the adversary, the mindless acceptance of the ethos of the conflict (Bar-Tal & Salomon, 2006), entails a composite of psychological elements in which one element (e.g., negative attitudes) emanates from another (e.g., prevailing prejudices) which, in turn, affects the stereotypic way individuals of the other group are perceived. It can be described as a dynamic process “Cause One Thing Leads to Another” (COTLETA) that maintains a coherent, systemic view of the conflict, of self, and of the adversary. Such coherence serves well people’s needs for greater certainty in the face of the uncertainties created by the ongoing conflict (Bar-Tal & Salomon, 2006). COTLETA, such as when one repairs an old car (“it’s only the carburettor”), mindlessly leads to yet another and another, without considering the accumulating cost; so does the growing coherent composite of beliefs, prejudices, attitudes, behaviors, and feelings develop mindlessly.

Peace Education

There are many variants of peace education as a function of the kind of sociopolitical context in which they function. These can range from a tranquil context, such as Sweden, where peace education is designed to counter school-based bullying (e.g., Hakvoort, 2010), to the context of extremely violent outbursts between the adversaries (e.g., Rwanda; Utterwulghe, 1999). Peace-education programs often translate into classroom teachings of democracy, human rights, and conflict resolution, into encounter dialogues between adversaries where either friendships are cultivated or the conflict between identities is hotly debated (Maoz, 2010), or into joint activities such as binational soccer clubs (Zuabi, 2007), binational orchestras, or theater groups.

Underlying the different approaches to peace education is the common hope of cultivating greater legitimization of the other side's way of seeing the conflict, its history, belief system, and identity (Salomon, 2002). More specifically, the overall goals of peace education, although often cast in different practical ways, are: (1) to accept the (often evil) role that one's own side plays in the conflict (and with it the changed perception of one's identity: We are not as just and fair as we thought); (2) to come to feel empathy towards the other side (that is, humanizing it; Bar-On, 2010); and (3) to change attitudes towards, and reduce stereotypes and prejudices of, the adversary (e.g., Christie & Wagner, 2010).

How effective are such programs? Much depends on who and what are evaluated, and when. First, there is the issue of durability of positive effects. By and large, one needs to admit that with the exception of truly long-range programs, many of the desired effects are short-lived (Salomon, 2006). Very often, sociopolitical forces, the media, the general ethos of the conflict, politicians, and ongoing events have the upper hand and erode programs' effects (Bar-Tal & Salomon, 2006). Second, different groups of participants approach the programs differently, process the activities differently, and react to the programs differently. For example, minorities desire "to have a voice," while majorities seek moral justification (Shnabel & Nadler, 2008); whereas the ruling majority learns to give somewhat greater legitimization to the adversary, the oppressed minority comes to strengthen its adherence to its own collective narrative (Husseini, 2009); and while centrally held beliefs and attitudes (convictions, according to Abelson, 1988) are not much affected, more weakly held and peripheral ones are. However, that which can be changed by a peace-education program in the face of an ongoing conflict can as easily be changed back by external forces (Salomon, 2006); hence the short life of attained effects.

The Role of Mindfulness in Peace Education

Following Power and Dalgleish (2008), I take the liberty of boldly assuming that our reptilian brain can easily take over, as in times of rage, fear, or hatred, and thus needs metacognitive, conscious, mindful control (de Rivera, 2010). We do not leave the car and rush over to hit the driver who cut our path on the highway, although this is what our more basic inclination would lead us to.

De Rivera (2010) pointed out a number of natural tensions between polarities that concern peace education. One of these is between social forces that value conflict and competition, and those who prefer harmony and cooperation. Ethno-political conflicts (like many other kinds of conflict) favor the former. It can be argued that the more belligerent pole of this continuum tends to be the more natural, the easier, or at least the more amenable to early childhood socialization than the more conciliatory one (Staub, 1989; Staub & Bar-Tal, 2003). This is likely to be the case particularly in societies that cultivate competitiveness or continuously experience threats by an adversary. Mindfulness needs to take over lest the reptilian brain reigns. And to overcome that reptilian brain, we assume that in certain situations where more mindless behavior is more easily (and often automatically) activated, mindfulness is a volitional matter, a motivated and metacognitively guided way of acting.

Peace education, as described above, tries to cultivate one's ability and willingness to "see the other side" of the conflict, to entertain the other's point of view (not necessarily agreeing with it), to "step into the shoes" of the other, thus becoming able and willing to empathize with it and see its humanity. Such abilities are not naturally given to most individuals or easy to apply in situations of raw emotions and fear. To serve the ends of peace education, one needs to overcome hard feelings toward the adversary, desire for revenge, prejudice, and the perception of the adversary in stereotypic terms. This is where deliberate mindfulness needs to step in. It needs to be deliberate, as all those consensually held cognitions and emotions that characterize intractable conflict need to be overcome, and they cannot be overcome unless one does it intentionally (e.g., Searl, 1983).

Langer (1997) described mindfulness as having three characteristics: the continuous creation of new categories, openness to new information, and an implicit awareness of a number of perspectives. All three characteristics apply to peace education: One needs to decategorize and recategorize the adversary as a member of the same group (e.g., Mania, et al., 2010); one needs to become knowledgeable of the way the other side sees the conflict; and one needs to become aware of alternatives leading to peace. However, when it comes to peace education in the context of intractable conflict, this trio will not suffice. One would need to add one more characteristic of mindfulness that is of particular relevance to peace education: conscious, metacognitive control of habitual hateful inclinations, impulses, and even bad feelings. Control negates automatic action (Shiffrin & Schneider, 1977) and in this sense negates mindlessness, and as I argued earlier, people's behavior with respect to the conflict is often quite automatic, thus mindless.

Peace education requires activated mindfulness to attain its goals, but what, in practice, does this mean? You can arouse mindfulness by, say, presenting contradictions, paradoxes, doubts, or conflicts during a peace-education program (e.g., Berlyne, 1960; Ritchhart & Perkins, 2002); you can initiate dialogues between the adversaries; or you can train participants in the building blocks of mindfulness. To illustrate this, I need to divert and discuss some underlying mechanisms of mindfulness and their deliberate cultivation.

Some 45 years ago, long before I learned of Langer's research on mindfulness and mindlessness, I dug into two related constructs—predecision information seeking (Driscoll & Lanzetta, 1965) and subjective response uncertainty (Berlyne, 1960). A few years later, it became clear to me that Berlyne's construct of subjective uncertainty

and its correlates of information seeking, the generation of alternative hypotheses and categories, and much attendance to detail are closely related to Langer's construct of mindfulness (Salomon & Globerson, 1987). Research into the determinants of information seeking showed that it was a matter of experienced uncertainty. Individuals who entertain greater uncertainty and thus seek more information before making a decision tend to pay greater attention to details and come up with more alternative ideas and possibilities (Sieber & Lanzetta, 1966). The alternatives contemplated can be different solutions, procedures, alternative explanatory hypotheses, or factual observations.

The two correlates of response uncertainty (or mindfulness)—attention to detail and the generation of alternatives—suggest that they are not just correlates but underlying determinants of uncertainty and mindfulness. A series of studies was designed to test this possibility. In the main study (Salomon & Sieber-Suppes, 1972), college students were trained either to a high criterion of attending to many details in a short film (cue attendance condition) or to generate many hypotheses about the story of the (randomly spliced) film (hypothesis-generation condition). Findings clearly showed that (1) both conditions were mutually facilitating: Cue attendance training led to the generation of more hypotheses in a new situation, and hypothesis generation led to greater attendance to details, and (2) both conditions led to the generation of more predecision questions and to more information seeking in a new situation. Trained participants entertained greater response uncertainty when faced with a new problem a week after training, approaching a new problem more mindfully.

This, in fact, is what peace education would want to attain: individuals learning to be more mindful when it comes to dealing with the conflict—discussing it, thinking about it, reading about it, and actually facing the adversary. Peace education would want to see individuals learning and actually applying finer distinctions (vs. stereotypical perceptions), becoming able to see the other side's point of view, generating alternatives to violent armed competition, and above all acquiring a mindful disposition (Ritchhart & Perkins, 2002) that includes the motivation to control, and thus overcome, negative feelings, anger, hatred, and fear. As the studies described here suggest, training the underlying components of mindfulness is possible, leading to what appears to be a generalizable change.

Two Challenges

However, the desired changes in mindfulness as applied to peace education face at least two major challenges: (1) Bridging the gap between the dispositions for mindfulness and its actual application in conflict situations in the face of strong competing motivations; and (2) maintaining the desired changes in the face of counter forces that tend to erode the changes.

The gap between a mindful disposition and its application

It is commonly assumed in education that if you teach something to youngsters, say how to be tolerant, mindful, or patient, they will quite likely apply the disposition

when the situation calls for it. In social psychology this implicit assumption is not often accepted. Principles, beliefs, and dispositions that people hold, even firmly, are not necessarily applied in actuality when experiencing competing motivations. While the principles may be noble (sanctity of human life), under the pressure of “it is important for science” some individuals will go as far as killing another human being (Milgram, 1974). People may be disposed to helping another person and yet can quite easily succumb to “the bystander effect” and avoid helping a person calling for help (Darley & Latane, 1968). Would then the disposition to be more mindful be actually applied in the face of aroused anger with the adversary, fear of it, or its hatred? Would learning to make distinctions (Langer, Bashner, & Chanowitz, 1985) become generalized and sufficiently “rooted” to be applied in a variety of situations concerning the conflict and the adversary despite motivations that negate this application? After all, “everybody knows” how dangerous, vicious, and unjust the adversary is, so relating to it more mindfully may be counterintuitive and somewhat socially subversive.

One possibility is to strengthen the disposition to be mindful with respect to the conflict and the adversary such that it becomes a strongly and centrally held disposition of the kind discussed by Abelson (1988) and Petty & Krosnick (1995). Much like attitudes, a disposition such as mindfulness can be stronger or weaker, more central in one’s arsenal of dispositions or more peripheral. However, it follows from Langer’s (1997) work, that strongly held dispositions can be mindlessly applied even when the application is inappropriate. Practice and thus increased certitude that comes with it “make imperfect”: One comes to consider hardly any alternative ways of seeing the conflict; fine details, complexities, and nuances are overlooked. On the other hand, also considering too many alternatives and complexities may make one unable to make up one’s mind about the conflict and take a stand on it. As once pointed out by Flavell (1979), we would not want individuals to become paralyzed by endless metacognitive contemplations.

But mindfulness need not become a mindlessly and indiscriminately applied behavior. If, according to Perkins, Jay and Tishman (1993), a disposition such as mindfulness entails the inclination to apply it and the sensitivity to see when its application is appropriate, then this inclination, that is, motivation, needs to be strengthened. The motivation to behave more mindfully when facing issues of the conflict and the adversary, not just the ability to be mindful, is thus a crucial component that, when cultivated, may well bridge the gap under discussion. But strengthening the motivation is not just an individual’s matter. To be motivated to be more mindful when it comes to the conflict, something that often goes against the social norm, requires social support of significant others who share this inclination. Hence, peace education needs to be a social process.

The challenge of sustaining the effects of PE

As research on the effects of peace education have shown, it is one thing to have program participants manifest reduced stereotypes and prejudices right after the completion of a program (the “morning-after effect”); it is quite another thing to have such positive effects endure in the face of external pressures and competing

motivations. How can mindfulness be cultivated and actually be activated with respect to the conflict long after the completion of a peace-education program?

Most evaluations of peace-education outcomes and impact are carried out immediately after a program's completion. Results are often satisfactory. But when changes of attitudes, stereotypes, prejudices, emotions, and such are evaluated again a while later, the findings are far less encouraging: Measures of these repeatedly show a return to initial, preprogram levels. Would the cultivation of mindfulness facilitate the maintenance of attained effects (Salomon, 2006)?

There are here at least two related questions. One question pertains to the endurance of the cultivated disposition to be more mindful in the context of the intractable conflict: To what extent will the cultivated disposition for mindfulness endure the effects of time? To what extent can the lure of the competing tendency to act more automatically, more mindlessly, more in line with the dominant consensually received norm, erode the disposition for mindfulness? The second question pertains to the role of mindfulness in sustaining the effects of peace education: Do those who are or have become more mindful maintain the changed attitudes, reduced stereotypes, or readiness for contact more than less mindful ones?

As for the endurance of cultivated mindfulness, we need to emphasize that our target is the cultivation of mindfulness as an enduring trait rather than only a state of occasionally aroused alertness (Ritchhart & Perkins, 2002). Using good pedagogy of ambiguity, demand to think of alternatives, paying attention to nuance and detail, one can activate mindful ways of handling the conflict and the adversary during a peace-education program. But will this become a trait-like disposition? On the other hand, one's discovery that the other side's collective narrative of the conflict, its aspirations, and perspective make much sense; that one's own account of the conflict is not the only one possible and not the only one that makes sense may leave sufficiently strong residues that no return to the initial mindlessness about the conflict is likely to take place. Once one discovers that the other side has a human face, that it shares many of one's own traits, likes, and dislikes, that it has at least some just claims, or that not all individuals there are the same, it might be quite difficult to return to the initial mindless state. Research needs to address such questions and possibilities.

Summary

It is not self-evident that mindfulness needs to play any significant role in peace education. Peace education in the context of intractable conflicts aims to cultivate the ability and willingness to acknowledge the adversary's legitimate perspective, cultivate one's own "contribution" to the conflict, experience empathy, and change one's way of perceiving the adversary. But when one comes to consider such goals of peace education, particularly in the context of intractable conflict, it becomes apparent that peace education cannot be effective if one does not learn to handle the adversary psychologically in mindful ways. The easier and more automatic way of living in a conflictual ethno-political environment conflict is to handle it mindlessly: Consider the common tendency to quite mindlessly follow the prevailing, consensually held belligerent perception of the adversary. In light of this, one needs to be motivated to apply mindful

processes deliberately to the conflict and the adversary. Mindfulness with respect to the conflict and the adversary needs to become cultivated as part of peace education. Relative to the consensually held negative views of the adversary, the more mindful approach that peace education cultivates makes it a somewhat political and social subversive activity.

But this raises two questions: Will the cultivated disposition of mindfulness actually be applied in new, conflict-related situations, in the face of competing motivations and social pressures to “stay in line” with the prevailing ethos of the conflict? The second question is how to sustain the cultivated disposition for mindfulness and through it—the changes brought about by peace education in light of the latter’s tendency to quickly become eroded. Much research is needed here.

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