
Integration of the Cognitive and the Psychodynamic Unconscious

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Cognitive-experiential self-theory integrates the cognitive and the psychodynamic unconscious by assuming the existence of two parallel, interacting modes of information processing: a rational system and an emotionally driven experiential system. Support for the theory is provided by the convergence of a wide variety of theoretical positions on two similar processing modes; by real-life phenomena—such as conflicts between the heart and the head; the appeal of concrete, imagistic, and narrative representations; superstitious thinking; and the ubiquity of religion throughout recorded history—and by laboratory research, including the prediction of new phenomena in heuristic reasoning.

Nearly 100 years ago, Freud introduced a dual theory of information processing that placed deviant behavior squarely in the realm of the natural sciences and, more particularly, in psychology. This was a defining moment in the development of psychology, because, up to then, grossly deviant behavior had been explained by inhabitation of spirits and organic disease. It was now possible to understand the pervasive irrationality of human beings, despite their capacity for rational thinking, as a natural outcome of the properties of the unconscious mind. This realization was as distressing as it was liberating, for, as Freud, with no lack of temerity, pointed out, it was one of three great scientific discoveries that dethroned humankind from its exalted view of itself (Jones, 1955). The first was Copernicus's discovery that our planet is not the center of the universe, the second was Darwin's discovery that humankind is not unique among the creatures of the earth, and the third was his own discovery that we are not even in control of our own minds.

Freud considered his most important work to be his book on the interpretation of dreams (Jones, 1955), because it was there that he proposed the principles by which the unconscious operated, which he referred to as the *primary process*, distinguishing it from a more logical, realistic mode of reasoning that he attributed to a *secondary process*. He identified the principles of the primary process as wish fulfillment, displacement, condensation, symbolic representation, and association. Not only did he believe these principles could account for dreams, but he also believed they could account for psychopathological symptoms and aberrant behavior of all kinds. Moreover, he assumed that they continuously undermined people's

attempts at conscious, rational thinking. The only hope for thinking rationally, he believed, was to make the unconscious conscious, which was the aim of psychoanalysis. He regarded rational, conscious thinking as only the tip of the iceberg. The foundation of all mental activity consisted, he held, of the submerged part, the unconscious that operated by the primary process.

A critical weakness in Freud's conceptualization of the unconscious is that it makes little sense from an evolutionary perspective. It is essentially a maladaptive system, capable, perhaps, of generating dreams and psychotic aberrations but not up to the task, for either human or nonhuman animals, of promoting adaptive behavior in the real world. Operating under the direction of the primary process alone, individuals would starve to death amidst wish-fulfillment hallucinations of unlimited gratification. That they do not, Freud attributed to the secondary process. This ad hoc solution leaves unexplained the questions of how the maladaptive system evolved in the first place and how nonhuman animals are able to adapt to their environments at all without a secondary process (which is intimately tied to language).

This raises the interesting question of how a theory of the unconscious with such a critical flaw could have endured for so long. A not unreasonable suspicion is that it has virtues that are sufficient in the minds of many to compensate for its limitations. Hall and Lindzey (1978) described what psychoanalysis has to offer as follows:

It tries to envisage full-bodied individuals living partly in a world of reality and partly in a world of make-believe, beset by conflicts and inner contradictions, yet capable of rational thought and action, moved by forces of which they have little knowledge and by aspirations that are beyond their reach, by turn confused and clear-headed, frustrated and satisfied, hopeful and despairing, selfish and altruistic; in short, a complex human being. For

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many people, this picture of the individual has an essential validity. (p. 70)

Recently, theorists outside of the psychoanalytic tradition have begun to formulate a new view of the unconscious. This new unconscious, sometimes referred to as the *cognitive unconscious*, is a fundamentally adaptive system that automatically, effortlessly, and intuitively organizes experience and directs behavior. Unlike the thinking of Freud, who assumed that all information (other than that acquired during a preverbal period) would be conscious in the absence of repression, the new concept holds that most information processing occurs automatically and effortlessly outside of awareness because that is its natural mode of operation, a mode that is far more efficient than conscious, deliberative thinking.

If most human information processing occurs out of awareness and is governed by a different set of principles from both those of conscious, rational thinking and the primary-process principles of the Freudian unconscious, surely this must have important implications for theories of personality. At the very least, a major area of unconscious processing that is outside the domain of the Freudian unconscious remains to be accounted for. It also raises questions such as how, if at all, the cognitive unconscious relates to the Freudian unconscious. Is it completely independent of it or does it overlap with it, and in either event, what functions should be assigned to each? An obvious limitation of the cognitive unconscious is that it is a bland, and, as Kihlstrom (1990) described it, "kinder, gentler" unconscious. Can it be reconceptualized in a more dynamic way that could account for the behavior of full-blooded, emotionally driven, and conflicted people? If there is a dynamic, basically adaptive unconscious, what place remains for Freud's conceptualization of the unconscious? In the present article, I examine these issues in the context of a global theory of personality—cognitive-experiential self-theory (CEST)—that emphasizes two interactive modes of information processing, rational and experiential.

In the sections that follow, I first present evidence from everyday life of the existence of an automatic, intuitive mode of information processing that operates by different rules from that of a rational mode. This is followed by a review of a variety of multimodal processing theories that have independently proposed the existence of two similar modes. I next present arguments as to why a division according to experiential and rational modes of processing is more integrative than any of the other divisions that have been proposed. I then present my own theoretical position, which is based on this distinction, followed by a description of programmatic research explicitly designed to test the theory. Finally, I discuss some of the broader implications of the theory.

Evidence in Everyday Life of Two Basic Modes of Processing Information

There is no dearth of evidence in everyday life that people apprehend reality in two fundamentally different ways,

one variously labeled intuitive, automatic, natural, non-verbal, narrative, and experiential, and the other analytical, deliberative, verbal, and rational.

Influence of Emotions on Thinking

The transformation that occurs in people's thinking when they are emotionally aroused provides a dramatic illustration of a very different way of thinking from the way people think when they are unemotional. People, when they are highly emotional, characteristically think in a manner that is categorical, personal, concrete, unreflective, and action oriented, and the stronger the emotion, the more they think that way and the more their thinking appears to them to be self-evidently valid. All of these identify fundamental attributes of the experiential system (see Table 1).

That most people are intuitively aware of two modes of processing corresponding to the experiential and rational system is indicated by the advice they typically give others who are emotionally overwrought, such as, "Get a grip on yourself. You're too emotional to think straight. Once you calm down, you will see things differently."

Influence of Thinking on Emotions

Emotions in everyday life are almost invariably produced by the preconscious interpretation of events. People are angry, sad, or frightened, not as a direct result of what objectively occurs but because of how they interpret what happens. If a person interprets an action directed at him or her as unwarranted and deserving of punishment, the person will most likely feel angry, whereas if the same action is interpreted as a serious threat to life or limb from which escape is desired, the person will more likely feel frightened (e.g., Averill, 1980; Beck, 1976; Ellis, 1973; S. Epstein, 1984; Lazarus, 1982; also see S. Epstein, 1983a, for a study of the characteristic interpretations that precede emotions in everyday life). The automatic, preconscious construals that are the effective instigators of such emotions are made so automatically and rapidly as to preclude the deliberative, sequential, analytical thinking that is characteristic of the rational system. Such automatic, preconscious thinking, therefore, suggests a mode of information processing that operates by different principles from a more deliberative, analytical type of thinking.

Two Ways of Knowing

Embedded in common language is evidence that people are intuitively aware of two fundamentally different ways of knowing, one associated with feelings and experience and the other with intellect. For instance, when a young woman cannot decide between two suitors, one who is more trustworthy and the other who is a greater source of pleasure, we say that she has a conflict between the head and the heart. The heart, of course, is a metaphor for emotions. But emotions have no more capacity than the heart for making judgments. As assessments are the product of cognitions, conflicts between the heart and the head are necessarily between two cognitive processes, one

Table 1
Comparison of the Experiential and Rational Systems

Experiential system	Rational system
1. Holistic	1. Analytic
2. Affective: Pleasure–pain oriented (what feels good)	2. Logical: Reason oriented (what is sensible)
3. Associationistic connections	3. Logical connections
4. Behavior mediated by “vibes” from past experiences	4. Behavior mediated by conscious appraisal of events
5. Encodes reality in concrete images, metaphors, and narratives	5. Encodes reality in abstract symbols, words, and numbers
6. More rapid processing: Oriented toward immediate action	6. Slower processing: Oriented toward delayed action
7. Slower to change: Changes with repetitive or intense experience	7. Changes more rapidly: Changes with speed of thought
8. More crudely differentiated: Broad generalization gradient; stereotypical thinking	8. More highly differentiated
9. More crudely integrated: Dissociative, emotional complexes; context-specific processing	9. More highly integrated: Cross-context processing
10. Experienced passively and preconsciously: We are seized by our emotions	10. Experienced actively and consciously: We are in control of our thoughts
11. Self-evidently valid: “Experiencing is believing”	11. Requires justification via logic and evidence

Note. From “Cognitive–Experiential Self-Theory: An Integrative Theory of Personality” by S. Epstein, in R. C. Curtis, *The Relational Self: Theoretical Convergences in Psychoanalysis and Social Psychology*, New York: Guilford Press. Copyright 1991 by Guilford Press. Adapted by permission.

associated with emotions and the other not. From the perspective of CEST, the former corresponds to processing in the mode of the experiential system, which is assumed to be intimately associated with affect, and the latter corresponds to processing in the mode of the rational system, which is assumed to be relatively affect free.

It is also widely recognized that there is a difference between intellectual knowledge and insight. Information obtained from textbooks and lectures is of a different quality from information acquired from experience. Experientially derived knowledge is often more compelling and more likely to influence behavior than is abstract knowledge (e.g., Brewin, 1989; Fazio & Zanna, 1981; Shiffrin & Schneider, 1977). Psychotherapists have long recognized the importance of this distinction. They widely regard information gained through personally meaningful experience as more effective in changing feelings and behavior than impersonal information acquired from textbooks and lectures. The observation that there are two fundamentally different kinds of knowledge, intellectual and insightful, is consistent with the view that there are two kinds of information processing, analytic–rational and intuitive–experiential.

Appeal and Influence of Narratives

Narratives are assumed in CEST to appeal to the experiential system because they are emotionally engaging and represent events in a manner similar to how they are experienced in real life, involving location in place and time, goal directed characters, and sequential unfolding (Bruner, 1986). The result is that narratives are intrinsically appealing in a way that lectures on abstract subjects and technical documents are not. This may explain why including anecdotes increases the persuasiveness of mes-

sages (Kahneman & Tversky, 1973). It is no accident that the Bible, probably the most influential Western book of all time, teaches through parables and stories and not through philosophical discourse (see Vitz, 1990, for a discussion of teaching morality through stories). Relatedly, good literature is valued beyond its entertainment function because it is a vicarious source of significant experience.

Irrational Fears

Irrational fears provide evidence of a nonrational way of processing information. People often maintain their unrealistic distressing beliefs at great personal cost, despite recognizing that they are irrational. Those who are afraid of flying in aircraft know full well that their fear is irrational. Nevertheless, many are willing to drive great distances in order to avoid air travel. Paradoxically, they feel safer in the situation they intellectually know is more dangerous.

An interesting example of an irrational fear was reported in a newscast in the fall of 1991. A commercial airliner had to turn back because people ran screaming into the aisles when a mouse appeared on board, thereby endangering the aircraft. The degree of objective danger produced by their behavior as calculated by their rational system was apparently no match for the threat posed by the mouse as assessed by their experiential system.

Natural Appeal of Pictures

Advertisers have learned through trial and error, focus groups, and intuition, that people’s behavior and attitudes are governed by a cognitive system that is more responsive to pictures than to words. (For experimental evidence of differential reactions to pictures and words, see Paivio,

1986). Cigarette advertising agencies and their clients are willing to bet millions of dollars in advertising costs that the visual appeal of their messages to the experiential system will prevail over the verbal message of the surgeon general that smoking can endanger one's life, an appeal directed at the rational system. One wonders if the ads would be continued if the playing field were leveled by presenting the surgeon general's message in graphic pictorial form.

Superstitious Thinking

The widespread prevalence of superstitious thinking provides compelling evidence that the human mind does not process information by reason alone. In a recent Gallup poll ("Behavior," 1991), 1,236 U.S. adults were interviewed about their superstitions. One in 4 reported that he or she believed in ghosts, one in 6 that she or he had communicated with someone deceased, one in 4 that he or she had telepathically communicated with someone, one in 10 that she or he had been in the presence of a ghost, one in 7 that he or she had seen a UFO, one in 4 that they believed in astrology, and about one half said they believed in extrasensory perception. It is evident from such data that even extreme forms of nonrational thinking are common.

Ubiquity of Religion

Religion provides perhaps the most impressive evidence of all that there are two fundamentally different modes of processing information. There are few societies, if any, throughout recorded history that have not developed some form of religion. For many individuals, rational, analytical thinking fails to provide as satisfactory a way of understanding the world and of directing their behavior in it as does religious teaching. Why is this so? The answer, I believe, is that religion is better suited than analytical thinking for communicating with the experiential system.

Conclusions From Examples of Everyday Thinking and Behavior

It is evident from the examples above that nonrational thinking is highly prevalent and that even when people know their thinking is irrational, they often find it more compelling than their rational reasoning.

Multiple Processing Theories

Awareness of a distinction between an experiential and a rational mode of processing information has a long history, predating psychology as a formal discipline. In the Nicomachean Ethics, Aristotle referred to a difference between experiential and rational knowledge:

While young men become geometers and mathematicians and wise in matters like these, it is thought that a young man of practical wisdom cannot be found. The cause is that such wisdom is concerned not only with universals but with particulars, which become familiar with experience, but a young man has no experience. (cited in McKeon, 1947)

In this section I briefly review a number of theories of multiple processing systems. The review is not intended to be exhaustive but to acquaint the reader with the diversity of approaches that I believe are converging on a common conclusion that has important implications for personality theory.

Freud's Views and Neopsychoanalytic Modifications

As I have already noted, the most influential division of the mind has been Freud's (1900/1953) distinction between the primary process and the secondary process. There is no point in repeating the summary of the two systems here, other than to remind the reader that the chief failing of the primary-process system is that, as a basically maladaptive system, it is difficult to imagine how it could have evolved as the foundation of all mental activity.

A number of cognitively oriented psychologists have attempted to modernize Freud's conceptualization of the unconscious by incorporating concepts from cognitive science (e.g., Erdelyi, 1984; Horowitz, 1988; Power & Brewin, 1991). Horowitz, for example, introduced into Freudian psychology a tripartite division consisting of an enactive mode (e.g., expressive reactions), an image mode (e.g., visual, auditory, kinesthetic, and other sensory images), and a lexical mode (e.g., words and numbers).

Bucci (1985, in press), influenced by Paivio (1986, 1991), included in her psychoanalytic theory a division between verbal and nonverbal modes of processing information combined with a "referential process" that produces new structures by connecting the two. She assumed that neither individual mode is superior to the other and that effective adjustment and effective therapy require an integration of the two modes.

Proposals From Experimental-Cognitive Psychologists

Pavlov (cited in Luria, 1961, and in Vygotsky, 1934/1962) proposed a distinction between a first and second signaling system, the former including nonverbal conditioning and the latter verbally mediated processes.

Paivio (1986, 1991) has presented a well-articulated dual coding theory that emphasizes a distinction between verbal and nonverbal processes and "referential interconnections" between the two. The theory is supported by an extensive research program that has demonstrated different effects in perception and memory for verbal and nonverbal stimuli.

Several other experimental-cognitive psychologists have proposed a variety of multicoding theories that have impressive research support and may be relevant to a distinction between experiential and rational processing systems. Anderson (1976, 1982) and Winograd (1975) distinguished between declarative and procedural knowledge; Johnson-Laird (1983) between propositional representations (similar to natural language), mental models (structural analogues of events), and context-specific images; Rosch (1983) between logical and prototypical sys-

tems; and Tulving (1984) between procedural, semantic, and episodic memory. Reber (1993), Lewicki (e.g., 1985), Nissen and her associates (e.g., Nissen, Willingham, & Hartman, 1989), Broadbent and his associates (e.g., Broadbent, FitzGerald, & Broadbent, 1986), and Schachter (1987), among others, have emphasized a distinction between tacit, implicit, and explicit knowledge and memory. The former was described by Reber as based on a relatively primitive learning and memory system that operates automatically, is age and intelligence independent, and has a long evolutionary history. The later is more intentional, effortful, and unstable, with a much shorter evolutionary history.

Proposals From Developmental Psychologists

Piaget (1973) discussed a "cognitive unconscious" that differs from a Freudian psychodynamic unconscious and that has much in common with procedural knowledge. Werner and Kaplan (1963) proposed and conducted research on the development of parallel verbal and non-verbal conceptual systems. Labouvie-Vief (1989, 1990) distinguished between *logos*, a rational, analytical mode of information processing, and *mythos*, an intuitive, holistic mode. Like Bucci (1985, in press), she believed they operate along a range of complexity from simple to highly complex, that the intuitive mode is associated with emotions and moods, and that an integration of the two modes is necessary for well-being and creative accomplishment.

Social-Cognitive Proposals

Tversky and Kahneman (1974, 1983) introduced the concept of heuristics (cognitive shortcuts) to explain the irrational thinking they observed in a series of illuminating experiments. They concluded that there are two common forms of reasoning—a *natural*, intuitive mode and an *extensional*, logical mode. An extensive body of research on heuristic processing has supported this view. Nisbett and Ross (1980), Sherman and Corty (1984), Langer (1978), and Schneider and Shiffrin (1977), among others, have provided evidence of two processing modes—a reflective, rational, conscious mode, and an automatic mode that does not require awareness.

Social psychologists interested in attitude formation (e.g., Brewer, 1988; Chaiken, 1980; Fazio, 1990; Petty & Cacioppo, 1981) and in stereotyping (e.g., Fiske, 1981) have demonstrated important differences between heuristic and more effortful ways of processing information. Fazio and Zanna (1981) provided evidence that attitude formation derived from direct, behavioral experience influences behavior in a different way from attitudes acquired through indirect, nonbehavioral sources.

Kihlstrom (1990) extended Anderson's (1976) theory to personality psychology, and Smith (1984) has done the same for social psychology. D. Gilbert (personal communication, May 7, 1992) referred to a primitive cognitive system that is an outgrowth of the perceptual process and is imagistic, action oriented, and rapid and operates only in an affirmative mode that precedes the engagement of more complex cognitive processes that are capable of ne-

gation. Bargh (1989), Higgins (1989), and Swann and his associates (Swann, 1984; Swann, Hixon, Stein-Seroussi, & Gilbert, 1990), among others, have conducted extensive research programs demonstrating automatic, preconscious processing that operates by different rules from deliberative, conscious processing.

Narrative Versus Analytical Processing

Bruner (1986) has proposed two modes of mental representation, *propositional* and *narrative*. Propositional thought is public, logical, formal, theoretical, general, and abstract. Narrative thought is storylike, concrete, specific, personally convincing, imagistic, interpersonal, and includes characters, settings, intentions, emotions, and actions. A number of others (e.g., Howard, 1991; Mair, 1988; McAdams, 1985; Polkinghorne, 1988; Sarbin, 1986; Schank & Abelson, 1977; Tomkins, 1962, 1963a, 1963b, 1979; Vitz, 1990; Weinberger & McClelland, 1991) have also emphasized narratives or, relatedly, scripts as an important form of mental representation. McClelland and his associates (McClelland, Koestner, & Weinberger, 1989; Weinberger & McClelland, 1991), influenced by narrative responses to specially constructed thematic apperception tests, have proposed two kinds of motivation, implicit and self-attributed. Implicit motives are assumed to be derived from a primitive motivational system that is associated with direct experience and affect, whereas self-attributed motives are considered to be removed from direct experience and to involve more complex cognitive processing.

Experiential Versus Rational Processing

Leventhal (1982, 1984) has proposed a tripartite model that includes a sensory-motor, biological mode, a schematic mode (which includes simple conditioning as well as more complex nonlinguistic processing based on experience), and a conceptual mode (includes abstract, analytical operations). Buck (1985, 1991) has proposed a similar model that includes a biological, special-purpose system, an experiential learning system, and a linguistic, logical system. Brewin (1989) proposed three similar systems: (a) prewired dispositions, (b) subconscious, automatic, rapid, difficult-to-modify, and relatively inflexible cognitive processing that is responsive to direct affect-laden experience, and (c) more deliberative, intentional cognitive processing that is under conscious control and makes heavier attentional demands.

Cognitive-experiential self-theory, as already noted (see Table 1), distinguishes an experiential system that is intimately associated with affect (but not to the exclusion of all nonaffective cognitions), that encodes experience in the form of concrete exemplars and narratives, and that operates according to a set of inferential rules that differ from those of a relatively affect-free, abstract, analytical, rational system (e.g., S. Epstein, 1983b, 1990, 1991c). The two systems are assumed to operate in parallel and to interact with each other. CEST is described in greater detail later.

Conclusions About Multimodal Processing Systems

The convergence of the views discussed above on two processing systems, one automatic and intuitive and the other abstract and analytical, is particularly impressive when it is considered that some were derived inductively and others deductively and that all are supported by extensive research programs with data as diverse as controlled laboratory research and the free associations of patients in psychotherapy.

To be sure, there are also important differences. Discussion of Freud's theory, which is by far the most divergent from the others, is deferred until later. Among the other theories, the differences are often minor compared with their similarities, and are largely ones of emphasis, size and complexity of units, and inclusiveness (e.g., two or three systems). Although some theories propose two and others three modes of processing, there is no fundamental incompatibility here, for the two-mode systems are concerned only with cognitive systems, whereas the three-mode systems consider, in addition, a biological, hard-wired system.

There is widespread agreement among the various theories on the existence of a conscious, deliberative, analytical system that could reasonably be labeled a rational system. It is less clear whether the other system should be labeled a nonverbal system, an imagistic system, an experiential system, a narrative system, a prototypical system, a procedural system, or an episodic-memory system, or should be designated by some other term. The resolution of this issue does not necessarily require a determination of which system is the most valid. They can all be valid, yet some may be more appropriate than others for certain purposes.

For the major issue addressed in this article—namely, which construct might most reasonably supplement or replace the unconscious as conceived by Freud in a global theory of personality—I believe the concept of an experiential system is the most attractive candidate for four reasons. First, it is the most integrative of the various approaches, being able to assimilate many of the other positions. For example, the division in some theories according to verbal and nonverbal modes of information processing is consistent with the assumption in CEST that the experiential system is primarily nonverbal and the rational system is primarily verbal. Yet, in CEST, the experiential system is not limited to nonverbal processing of information, as emotion-arousing verbal stimuli also evoke experiential processing. To cite another way in which the concept of experiential processing is integrative, it encompasses a wide range of representations, varying from discrete images to complex narratives that include many images. Experiential processing is compatible with rudimentary levels of cognitive processing, as in classical conditioning, with midlevels of complexity, as in heuristic processing, and with highly complex forms of processing, as in intuitive wisdom and creativity. The experiential-rational dichotomy is also compatible with an affective

and nonaffective division, but extends beyond it. Affect is assumed to play an important role in the acquisition of information in the experiential system, but as behavior (including mental behavior) is practiced, it becomes increasingly proceduralized and affect free (Anderson, 1976, 1982; Smith, 1984). In sum, it is assumed that no matter how else mental processes are organized, they are also organized according to a supraordinate division of rational and experiential processing.

The second reason for emphasizing an experiential system is that it can account more effectively than can any of the other positions for the phenomena cited earlier as evidence in everyday life of the pervasive influence of a nonrational mode of information processing. For example, the theories that propose a distinction between verbal and nonverbal processing would have difficulty in accounting for the fact that religion and superstition include verbal as well as nonverbal, nonrational elements. Also, in conflicts between the head and the heart, both verbal and nonverbal processing occur on both sides of the conflict. Furthermore, those systems that emphasize a particular level of complexity of representation, whether it is an episodic image or a more complex, sequentially organized narrative, are useful for elucidating some, but not other, aspects of the phenomena discussed above. For example, principles of narrative processing can elucidate myths and Thematic Apperception Test (TAT) responses, but they are not helpful with respect to understanding the representation of single events.

The third reason why I believe the experiential-nonexperiential divide is the most fundamental of all is that it is eminently reasonable from an evolutionary perspective. Higher order organisms evolved in a manner that replaced instinct with a cognitive system that could efficiently organize experience and direct behavior on the basis of learning from past experience. This system operates in a very different manner from a system developed much later that solves abstract problems by the use of symbols and logical inference. It is inconceivable that, with the advent of language and the capacity for analytical thought, the hard-won gains of millions of years of evolution were summarily abandoned. It can more reasonably be assumed that the same principles based on direct learning from experience that apply to nonhuman animal cognitions apply as well to human cognitions, wherein they influence and are in turn influenced by a newly acquired verbal-analytical rational system. Relatedly, it is reasonable to assume that the experiential system, because of its importance to the survival of higher order organisms, incorporates subsystems, such as procedural and episodic processing, that have been proposed by others.

The fourth reason why the construct of an experiential system is more useful for a global theory of personality than alternative constructs is that it is better suited for psychodynamic formulations.

I now consider the relation of Freud's views on two modes of information processing to a division by an experiential and a rational system. As I have already noted, Freud's concept of a secondary process corresponds to

the rational conceptual system, so there is no problem on that score. His description of an unconscious system that operates by the principles of the primary process, however, is vastly different from the experiential system. There are two strategies that can be taken to resolve the difference. The more extreme one is to substitute the experiential system for the Freudian unconscious. This would require a case to be made for the experiential system being able to account for the bizarre kinds of representations exhibited in dreams and psychotic states. Such a case might be made on the assumption that the responses are the manifestations of a degenerated state of the experiential system under conditions of partial cortical incapacitation. This would not necessarily make the information derived from such a state less informative about a person's unconscious wishes and fears than if they were determined in the manner proposed by Freud, but would simply equate the primary process with an altered state of the experiential system. The other approach is to divide the domain of unconscious processing into that which is best explained by the principles of the experiential system and that which is best explained by the principles of the primary process. I return to this issue later, in a discussion of the implications of CEST.

Cognitive-Experiential Self-Theory

Cognitive-experiential self-theory was introduced two decades ago (S. Epstein, 1973) as a global theory of personality. Since then, it has undergone considerable development and has been investigated in an extensive research program.

Basic Principles

According to CEST, people automatically construct an implicit model of the world, or "theory of reality," that has two major divisions—a world theory and a self-theory—and connecting propositions. (Nonhuman animals also construct a model of the world, but it does not include a self-theory.) A theory of reality is not developed for its own sake, but in order to make life as livable, meaning as emotionally satisfying, as possible. Thus, a fundamental assumption in CEST is that the experiential system is emotionally driven.

It is assumed that there are two major systems by which people adapt to the world: rational and experiential. People have constructs about the self and the world in both systems. Those in the rational system are referred to as *beliefs* and those in the experiential system as *implicit beliefs* or, alternatively, as *schemata*. The schemata, which are the building blocks of the implicit theory of reality in the experiential system, consist primarily of generalizations derived from emotionally significant past experience. It is important to recognize that these schemata are assumed to be organized into an overall adaptive system and are not simply isolated, detached constructs. They thus affect and are affected by other constructs in the system. Evidence attesting to an overall organized experiential system is provided by the coherent, complexly integrated behavior of animals lacking a rational

system and by the susceptibility of the experiential system in both human and nonhuman animals to total collapse (disorganization) following unassimilable emotionally significant experiences. Such reactions are observed in experimental neurosis in animals (Pavlov, 1941) and in acute schizophrenic disorganization in humans (S. Epstein, 1979; Perry, 1976). Reactions to threats of such disorganization are observed in paranoid schizophrenia (S. Epstein, 1987) and in posttraumatic stress disorder (S. Epstein, 1991a; Horowitz, 1976; Janoff-Bulman, 1992; McCann & Pearlman, 1990). Disorganization of a system necessarily implies, of course, a prior state of organization.

Attributes of the Experiential System

Table 1 provides a summary of the comparative features of the experiential and rational systems. The experiential system is assumed to have a very long evolutionary history and to operate in nonhuman as well as in human animals. Because of their more highly developed brains, it is assumed to operate in far more complex ways in humans. At its lower levels of operation, it is a crude system that automatically, rapidly, effortlessly, and efficiently processes information. At its higher reaches, and particularly in interaction with the rational system, it is a source of intuitive wisdom and creativity. Although it represents events primarily concretely and imagistically, it is capable of generalization and abstraction through the use of prototypes, metaphors, scripts, and narratives.

The rational system, in contrast, is a deliberative, effortful, abstract system that operates primarily in the medium of language and has a very brief evolutionary history. It is capable of very high levels of abstraction and long-term delay of gratification. However, it is a very inefficient system for responding to everyday events, and its long term adaptability remains to be tested. (It may yet lead to the destruction of all life on our planet.)

Psychodynamics

All behavior is assumed, in CEST, to be the product of the joint operation of two systems. Their relative dominance is determined by various parameters, including individual differences in style of thinking and situational variables, such as the degree to which a situation is identified as one that requires formal analysis. Emotional arousal and relevant experience are considered to shift the balance of influence in the direction of the experiential system.

Most theories of personality posit a single fundamental need. For Freud (1920/1959) it was the pleasure principle (i.e., the need to maximize pleasure and minimize pain); for Rogers (1959), Lecky (1961), and other phenomenologists, it was the need to maintain a relatively stable, coherent conceptual system; for Bowlby (1988), Fairbairn (1954), and other object-relations theorists, it was the need for relatedness; and for Adler (1954), Allport (1961), and Kohut (1971), it was the need to overcome feelings of inferiority and enhance self-esteem. According to CEST, these motives are equally important, and behavior is determined by their joint influence.

Like psychoanalysis, CEST is a psychodynamic theory that posits two levels of information processing, each functioning according to its own principles. Also, like psychoanalysis, CEST assumes that the unaware level continuously influences processing at the conscious level. This is well illustrated in priming studies (e.g., Bargh, 1989; S. Epstein, Lipson, Holstein, & Huh, 1992; Higgins, 1989), in which priming the automatic level of information processing influences people's conscious thinking without their awareness. Like psychoanalysis, there is an emphasis in CEST on the interaction of needs, both within and across levels of processing. However, unlike psychoanalysis, which emphasizes the pleasure principle, CEST considers three other needs equally important.

There are several interesting consequences that follow from assuming the interaction of four basic needs. One, as already noted, is that behavior is viewed as a compromise among the four needs. A second, not unrelated consequence, is that the needs serve as checks and balances against each other. When one need is fulfilled at the expense of the others, the need to fulfill the others increases, which normally moderates the influence of the first need, keeping it within adaptive limits. An important source of maladaptive behavior is when a particular need becomes so compelling that fulfillment of the other needs is sacrificed. A third, related principle is that good adjustment is fostered by fulfillment of the four basic needs in a synergistic, harmonious manner, and poor adjustment by attempting to fulfill the needs in a competitive, conflictual manner.

The four needs provide a useful framework for understanding some otherwise anomalous findings. For example, it has recently been concluded by some psychologists that the widespread view that realistic thinking is an important criterion of adjustment is incorrect, because research has demonstrated that well-adjusted individuals characteristically maintain positive illusions (see review in Taylor & Brown, 1988). According to CEST, this paradox is readily resolved once it is recognized that self-evaluation is influenced by both the need to maintain a realistic, coherent conceptual system and the need for self-enhancement. The interaction of these two needs fosters a modest degree of self-enhancement. Thus, the observation that well-adjusted people have moderate positive illusions does not indicate that reality awareness is an inadequate criterion of adjustment, but only that it is not the sole criterion.

By postulating basic needs other than the pleasure principle, CEST is able to account for a phenomenon that has been extremely troublesome for psychoanalysis. In the most widely accepted version of his theory, Freud assumed that the pleasure principle is the most fundamental need. However, he later was compelled to revise his theory when he learned about the dreams of traumatized soldiers. Rather than representing wish fulfillment solutions, their dreams recapitulated the trauma in all its terrifying intensity. These dreams as well as observations of driven repetitious behavior (self-destructive and otherwise) in everyday life led Freud (1920/1959) to in-

troduce the concepts of the repetition compulsion and the death instinct, which he believed were no less fundamental than the pleasure principle. His speculations in his new theory were so extreme that most of his adherents preferred his old theory.

Explanations of the traumatic neurosis and the repetition compulsion follow simply and directly from basic assumptions in CEST. The nature of a trauma is that a person experiences something of such great significance to his or her perceived well-being that it cannot be ignored, and is so discrepant with fundamental schemata in his or her conceptual system that it cannot be assimilated. The compulsive repetitions in memory are abortive attempts at assimilation (for elaboration of this view, see S. Epstein, 1991a; for similar views influenced by CEST, see Janoff-Bulman, 1992, and McCann & Pearlman, 1990. Also see Horowitz, 1976).

The experiential system is assumed to be intimately associated with the experience of affect, including vibes, which refer to subtle feelings of which people are often unaware. When a person responds to an emotionally significant event, the sequence of reactions is assumed to be as follows: The experiential system automatically searches its memory banks for related events, including their emotional accompaniments. The recalled feelings influence the course of further processing and reactions, which in subhuman animals are actions and in humans are conscious and unconscious thoughts as well as actions. If the activated feelings are pleasant, they motivate actions and thoughts anticipated to reproduce the feelings. If the feelings are unpleasant, they motivate actions and thoughts anticipated to avoid the feelings.

As in psychoanalysis, CEST assumes there is a ubiquitous influence of automatic thinking outside of awareness on conscious thinking and behavior. In most situations, the automatic processing of the experiential system is dominant over the rational system because it is less effortful and more efficient, and, accordingly, is the default option. Moreover, because it is generally associated with affect, it is apt to be experienced as more compelling than is dispassionate logical thinking. Finally, because the influence is usually outside of awareness, the rational system fails to control it because the person does not know there is anything to control. The advantage of insight, in such situations, is that it permits control, at least within limits. Thus, CEST does not diminish the importance of the unconscious in human behavior, relative to psychoanalysis, but emphasizes a different source of unconscious influence.

Repression and Dissociation

According to psychoanalysis, repression occurs when a person has tacit thoughts or impulses that are too guilt arousing to be consciously accepted. The result is that relevant material is forcefully kept in a state of inaccessibility by the presumed expenditure of psychic energy. The repressed material then strives for expression, thereby generating conflict with the forces of repression and resultant tension and displacement, which is manifested in

the form of symptoms, dreams, and slips of the tongue. The task of psychoanalysis is to eliminate the more troublesome repressions. By making the unconscious conscious, the person is able to bring his or her intelligence to bear on solving problems in living. Thus, psychoanalysis places great faith in rational thinking.

According to CEST, material is dissociated when it cannot be assimilated. There are two kinds of dissociation: that between the experiential and rational systems, which corresponds to repression, and dissociation within the experiential system itself. If dissociated material is activated to the extent that a dissociation cannot be maintained, the unassimilable material can threaten the stability of the entire experiential system. The striving for expression of the dissociated material is not because it has an energy of its own that seeks expression, as proposed by Freud, but because there is a fundamental motive to assimilate representations of emotionally significant experiences into a unified, coherent conceptual system. Material that can neither be ignored nor assimilated keeps reemerging in abortive attempts at assimilation. This process continues until (if ever) assimilation is accomplished. The process is essentially adaptive, as it promotes assimilation and therefore the construction of a coherent model of the world that is consistent with experience.

The main sources of maladjustment from the perspective of CEST are disharmony (including dissociation) within the experiential system and a failure in need fulfillment, not a discrepancy between conscious and unconscious thinking. From this perspective, insight is not fundamental, although it can be useful for identifying the problems in the experiential system that have to be solved. The task of therapy is to change the maladaptive schemata in the experiential system and to promote synergistic (rather than conflictual) need fulfillment. To the extent that insight helps in this endeavor it is therapeutic. If it is not, it may simply succeed in making a neurotic without insight into one with insight.

It is beyond the scope of this article to describe CEST in greater detail. More complete information is available elsewhere (for reviews of the overall theory, see S. Epstein 1973, 1980, 1991c, 1993c; for in-depth discussions of particular aspects of the theory, see S. Epstein, 1976, 1983b, 1984, 1985, 1987, 1990, 1991a, 1991b, 1993a, 1993b; S. Epstein & Erskine, 1983; S. Epstein & Katz, 1992; S. Epstein et al., 1992; S. Epstein & Meier, 1989.)

Research Support

As already noted, most of the multimodal processing theories that have been cited are supported by extensive research findings that are consistent with principles proposed by CEST. It is beyond the scope of the present article to review this vast literature. Instead, the focus is on examples of research explicitly designed to test hypotheses derived from CEST.

Research on Heuristic Processing

Heuristic processing refers to the use of cognitive shortcuts for arriving at decisions. In a highly influential series of

studies on decisional processes, Tversky and Kahneman and their associates demonstrated that people typically think in nonrational, heuristic ways that are efficient but error prone in certain kinds of situations (reported in Kahneman, Slovic, & Tversky, 1982). Most impressive is the degree to which the principles of heuristic processing, inductively derived by Tversky, Kahneman, Nisbett, and other social-cognitive psychologists, are consistent with the principles of operation of the experiential system as deductively proposed by CEST (e.g., S. Epstein, 1983b; S. Epstein et al., 1992). My associates and I were so impressed with this confluence that we embarked on an extensive research program to more thoroughly test the validity of the principles of the experiential system by using experimental paradigms that are modifications of those used by Tversky, Kahneman, and their associates. Examples of this research follow.

Arbitrary-outcome-oriented processing.

Imagine a situation in which two individuals arrive at an airport 30 minutes after the scheduled departure of their flights. One learns that her flight left on time. The other learns that, due to a delay, her flight just left. Who is more upset? Tversky and Kahneman (1983) and their associates have found that in this and in a variety of similar vignettes they introduced—despite the fact that from a logical perspective the differences in the two versions should not matter—people reported they and others would be more upset in one of the versions.

When we had people respond to similar vignettes from two perspectives, how people actually behave (which was assumed to be primarily under the jurisdiction of the experiential system) and how a rational person would behave, the phenomenon was replicated in the first condition and all but disappeared in the second (S. Epstein et al., 1992). We also demonstrated that responding in the mode of the experiential system occurs to a greater extent in response to highly emotion-arousing stimuli than in response to less emotional stimuli. Moreover, once responding in the mode of the experiential system was activated, it influenced responding in the rational mode (i.e., people believed their nonrational, experientially determined judgments were rational).

The results of this study are consistent with the following assumptions in CEST: There are two interactive processing systems, experiential and rational; the experiential system is intimately associated with the experience of affect. The experiential system is an associationistic system. Processing in the mode of the experiential system and its influence on rational thinking can lead people to judge events that are only arbitrarily related as causally related.

The ratio-bias phenomenon. Because the experiential system is a concrete system, it is less able to comprehend abstract than concrete representations. I therefore hypothesized that it would be more responsive to absolute numbers than to ratios in probability figures, whereas processing in the rational mode would exhibit the reverse pattern. To test this hypothesis, Kirkpatrick and Epstein (1992) gave participants an opportunity to

win money by drawing a red jelly bean from one of two bowls, a "small bowl" that contained 1 in 10 red jelly beans and a "large bowl" that contained 10 in 100 red jelly beans. On every trial in which they wished to ensure their choice of bowls, they had to pay a dime; otherwise the selection of bowls was determined randomly. Most participants expressed a preference for the large bowl, and, of these, a considerable proportion paid dimes for the privilege of doing so. Several spontaneously commented that they felt foolish paying for a choice between equal probabilities, but, although they knew better, they felt they had a better chance of drawing a red bean when there were more of them. When, in another study in the same series, the problem was presented in the form of a vignette without an opportunity to win money, the vast majority said they had no preference and would not pay one cent for the privilege of picking from one bowl rather than from the other. However, when asked to guess how most people would respond, they said that most people would prefer to draw from the large bowl. It was concluded that people have a need to present themselves as rational, and therefore, in order to demonstrate what we have labeled the "ratio-bias phenomenon," it is necessary to either bypass the rational system by using indirect techniques (such as by having subjects estimate the behavior of others) or to strongly engage the experiential system by providing significant rewards.

The ratio-bias phenomenon has since been replicated in a more extreme version, in which unequal probabilities are offered in the small (10 jelly beans) and large (100 jelly beans) bowls. In two experiments (Denes-Raj & Epstein, 1994), most subjects made nonoptimal choices, preferring a 9% chance of winning in the large bowl to a 10% chance of winning in the small bowl. A substantial minority (20%–30%) even chose to draw from the large bowl when it offered only a 5% chance of winning, in preference to the small bowl, which always offered a 10% chance of winning. On interviewing the participants who made nonoptimal choices, many reported a conflict between what they objectively knew were the better odds and the bowl that offered more winners. Among those who made optimal choices, some said that they could not imagine why anyone would make nonoptimal choices. In contrast, others said they had to override the temptation to draw from the large bowl.

The jelly-bean experiments in their various versions provide support for the following hypotheses: There are two fundamentally different modes of processing information, rational and experiential, which can conflict with each other. The experiential system can override the rational system even when subjects know the appropriate rational response. The experiential system is more responsive to concrete than to abstract representations.

Sequential processing. In other recently completed studies, my associates and I obtained additional evidence of two basic modes of processing that operate according to the principles of the experiential and rational systems. In one of the studies (reported in S. Epstein, 1993c), participants responded to vignettes that described

arbitrary unfortunate outcomes by listing the first three thoughts that came to mind. The first thought was usually consistent with the principles of the experiential system, whereas the third was more often consistent with the principles of the rational system, thereby supporting the assumption in CEST that the experiential system is a rapid, automatic system and the rational system is a more reflective, deliberative system. As an example, when participants put themselves in the place of a protagonist who had an accident when backing out his automobile from a space in which his friend had requested him to park, many reported that their first thought was that the accident was their friend's fault, and their emotion was one of anger: "It's his fault. Except for him, I wouldn't have had the accident." By their third thought, their thinking was more rational: They accepted the responsibility as their own, and they reported a corresponding change in their emotion from anger to guilt. This study also provides evidence that the experiential system is an associationistic system, as evidenced by the content of the first thought.

Global, associationistic judgments. In a study that provides evidence of the nonrational associationistic thinking that is characteristic of the experiential system, subjects responded to a vignette (adapted from Miller & Gunasegaram, 1990) that described a situation in which three protagonists are told by a rich benefactor that if each throws a coin that comes up heads, he will give each of them \$100. The first two throw a heads, and Smith, the third, throws a tails. The rich benefactor gives them another chance, only to have the situation repeat itself. Subjects rated the emotions of the three protagonists and judged whether the first two would invite Smith to join them on a gambling vacation in Las Vegas. Most said that Smith would feel guilty, that the others would be angry, and that they definitely would not invite him to join them at Las Vegas because "he is a loser." The subjects reported that they knew such behavior was irrational, but they said that is the way they believed most people, including themselves, behave in real life. Knowledge about probability had no effect on the results. Those who believed in the gambler's fallacy (as determined by endorsement of the statement that following three heads it is likely that the next outcome will be a tails) reacted the same as the others. To be logically consistent they should have invited Smith, as it was about time he started winning.

The study was run in two conditions, one in which participants were told the prize was \$100, and the other in which they were told it was \$1. The \$1 condition produced similar results, but to a significantly reduced degree.

The results of these studies support the hypotheses that there are two independent systems for processing information, experiential and rational, and that experiential relative to rational processing is increased when emotional consequences are increased. The results further indicate that the experiential system is not constrained by considerations of internal consistency in the same way that the rational system is. They also suggest that eval-

uating people as good or bad on the basis of arbitrary outcomes is a high-priority heuristic.

Conjunction problems. Linda is described as a 31-year-old woman who is single, outspoken, and very bright. In college she was a philosophy major who participated in antinuclear demonstrations and was concerned with issues of social justice. How would you rank the likelihoods of the following possibilities: Linda is a feminist; Linda is a bank teller; and Linda is both? If you respond like most people (Tversky & Kahneman, 1983), you will rank Linda as being both a feminist and a bank teller ahead of Linda being just a bank teller. This is a conjunction error (CE) because, according to the conjunction rule, the occurrence of two events cannot be more likely than the occurrence of either one of them.

Social-cognitive psychologists have interpreted the results obtained with the Linda problem as an example of people's pervasive irrationality, and some have expressed their concern that the same kind of error could have dire consequences in real-life situations involving financial matters (Gavanski & Roskos-Ewoldsen, 1989) and medical diagnosis (Tversky & Kahneman, 1983). The interpretation of the phenomenon from the perspective of CEST is much more reassuring. According to CEST, the experiential system is generally adaptive in concrete, natural situations, and therefore people are unlikely to make CEs in situations that arise in everyday living.

The explanation provided by CEST for the high rate of CEs to problems like the Linda problem follows in a straightforward manner from the attributes of the experiential system. Because the experiential system is a natural, concrete system that interprets events in terms of past experience, it fosters appropriate responses to concrete, natural problems and inappropriate responses in situations that require unnatural or abstract responses. *Natural* is defined, in this context, as the customary way in which a particular kind of situation tends to be interpreted, which can be determined independently from the occurrence of conjunction errors. In a concrete situation, such as the Linda problem, in which information is provided on personality characteristics and behavior, the natural interpretation is that this is a problem that requires matching behaviors to personality, and the unnatural interpretation is that it is a statistical problem. In concrete situations for which probabilistic responses are natural, such as judging the likelihood of winning two lotteries compared with winning one, virtually everyone, including those without explicit knowledge of the conjunction rule, avoids CEs, thereby demonstrating their intuitive (experiential) understanding of the rule.

In sum, our research on conjunction problems (S. Epstein, Denes-Raj, & Pacini, in press) has provided evidence, consistent with assumptions in CEST, that the experiential system is a concrete, natural system that is generally adaptive and is in some situations smarter than the rational system (e.g., intuitive knowledge of the conjunction rule in the absence of explicit knowledge) but that it can easily be misled by presenting it with situations that require unnatural interpretations.

Individual Differences in Heuristic Processing

It is assumed in CEST that there are important individual differences in the relative degree and effectiveness with which individuals use the two modes of information processing. There are three approaches my colleagues and I have taken to investigate these assumptions: constructing a scale of heuristic responding across a broad sample of vignettes (S. Epstein, Pacini, Denes-Raj, & Heier, 1994); constructing a self-report questionnaire, the Rational Versus Experiential Inventory (RVEI) for assessing intuitive (experiential) relative to analytical (rational) thinking style (S. Epstein et al., 1994); and constructing a self-report questionnaire, the Constructive Thinking Inventory (CTI) for assessing "constructive thinking," defined as the ability to solve problems in living at a minimum cost in stress, which is considered to be largely (but not exclusively) under the jurisdiction of the experiential system (S. Epstein & Meier, 1989). The fact that we were able to succeed in all three of these endeavors by demonstrating reliable, broad individual difference variables that corresponded to our theoretical constructs and by demonstrating, in addition, that the measures are related to each other as well as to other variables in coherent ways supports our hypothesis about individual differences in experiential relative to rational styles of information processing.

In summary, our research on nonrational thinking provides evidence of two independent modes of information processing. As can be seen in Table 1, many of the findings are consistent with the principles of operation of the experiential system. Of particular interest, a number of the investigations revealed a conflict between the two systems, with subjects often finding processing in the mode of the experiential system more compelling than processing in the mode of the rational system.

Implications

According to CEST, the experiential system processes information over a wide range of complexity. In its lower and moderate reaches, its operation is manifested in conditioning and in the rapid and crude processing identified as heuristics. It is important to recognize that even at simple levels, the experiential system under many circumstances is more effective in solving problems than the rational system (e.g., S. Epstein et al., in press; Lewicki, Hill, & Czyzewska, 1992). It has also been demonstrated that people often have intuitive knowledge that they can effectively apply without being aware of the principles that are involved (e.g., S. Epstein et al., in press; Nisbett & Ross, 1980). Moreover, rational analysis can interfere with the efficient functioning of the experiential system, resulting in poorer judgments than when people rely on their unanalyzed, intuitive impressions (Wilson & Schooler, 1991).

The experiential system also has the capacity to operate at a higher level of complexity (e.g., Fisk & Schneider, 1983; Lewicki et al., 1992) and to contribute to intuitive wisdom (e.g., Bucci, 1985). This is an important

area for research about which relatively little is currently known, very likely because there has been an absence of theory for encouraging such research. It is hoped that recent developments in theory (e.g., Bucci, 1985, in press; Curtis & Zaslow, 1991; S. Epstein 1991c, 1993c; Labouvie-Vief, 1989, 1990; Singer & Singer, 1990) and research techniques (Lewicki et al., 1992) will remedy this situation.

Another important implication follows from the intimate association of the experiential system with emotions. As a result, the content and organization of the schemata in the experiential system are associated with physical as well as with mental well-being. Such a relation has been well demonstrated in a series of studies on emotional and minor physical disorders (e.g., S. Epstein 1987, 1990, 1991a, 1992a, 1992c, 1993a; S. Epstein & Katz, 1992; S. Epstein & Meier, 1989; Katz & Epstein, 1991). That the processing in the experiential system has the potential for influencing the course of more serious diseases is suggested by unusual cures that have been attributed to faith healing, shamanism, and placebo effects. An important challenge for future research is to learn how to harness the power of the experiential system for alleviating illness and promoting well-being. Integration within and between systems will very likely be found to be important in this respect. A remarkable case history (A. Epstein, 1989) revealed the potential of such an approach in the treatment of a case of cancer from which the likelihood of remission was negligible. Following the use of fantasy procedures designed to communicate with the experiential system, there was a rapid reorganization of personality followed by complete recovery from the disease.

Assuming that something like an experiential system exists—as the present review of diverse theories, laboratory research, and real-life phenomena strongly suggests—it follows that the very wide domain of unconscious mental content and processes previously assumed in psychoanalytic theory to be governed exclusively by the primary process must be shared with an automatic, more adaptive unconscious. It is reasonable to assume that the fragmented, bizarre mental reactions exhibited in dreams, in drug-induced states, and in psychotic reactions may best be explained by something like Freud's primary-process system, whereas the more organized, adaptive subconscious cognitions that automatically organize experience and direct behavior in everyday life can better be explained by an experiential-intuitive system. Such a redistribution of domains of influence would radically change our understanding of unconscious processes and therefore of human behavior. The change in our understanding would be even greater if, alternatively, it were concluded that the primary process corresponds to a degraded state of the experiential mode of operation. In either event, assuming that the experiential-intuitive system continuously biases rational processing (S. Epstein et al., 1992; Kirkpatrick & Epstein, 1992), the introduction of an experiential-intuitive system, rather than diminishing the influence of the unconscious, extends it.

As already noted, CEST, through its assumption of an experiential system, can account for important behavioral phenomena, such as the ubiquity of superstitions and religion and the nature of appeals in politics and in advertising, about which other global personality theories have had little to say. The experiential system also has important implications for various disciplines in psychology, particularly personality, social, developmental, and clinical psychology. It is beyond the scope of this article to consider these in detail. However, a few major implications can be briefly discussed.

For personality psychology, the introduction of an experiential system that operates according to principles of processing information that differ from those of a primary process and a rational system can produce a theory with powerful integrative capacity. By introducing an adaptive, dynamic unconscious that automatically organizes experience and directs behavior, CEST is able to fill the very large void in psychoanalytic theory between rational thinking, on the one hand, and the primary process on the other. As a result (and in combination with other aspects of the theory), CEST is able to integrate significant aspects of a wide variety of personality theories, including psychoanalytic theories, learning theories, Kelly's (1955) theory of constructive alternativism, Rogers's (1959) and others' phenomenological theories, and modern cognitive theories, within a single framework (for elaboration of this position, see S. Epstein, 1980, 1983b, 1985, 1991c, 1993b, 1993c).

The CTI and the RVEI inventories should be useful in studies of individual differences in personality. The CTI has already produced many interesting findings in a variety of studies investigating the role of nonintellective factors in different kinds of achievement, including the achievement of mental and physical well-being. Although there are many personality measures that provide important descriptive information on personality attributes, including several measures of the "big-five" traits, there is a relative dearth of measures of processing variables, such as the CTI and the RVEI.

For social psychology, CEST provides a theoretical perspective for interpreting findings on heuristic and automatic processing. There are a number of domain-specific theories in social psychology, including dual-processing theories of impression formation and stereotyping (e.g., Brewer, 1988; Chaiken, 1980; Fazio, 1990; Fiske, 1981; Petty & Cacioppo, 1986) and theories of judgment under uncertainty (see review in Fiske & Taylor, 1991 and studies in Kahneman et al., 1982), both of which refer to heuristics, but have not been related to each other. CEST may provide a basis for moving this field toward a greater integration.

The measurement of individual differences in rational versus experiential processing by the RVEI inventory can provide a useful moderator variable for investigating receptivity to different kinds of messages. Messages that are appealing to people who process information primarily in the experiential mode may be relatively ineffective for people who process information

primarily in the rational mode, and vice versa. Although a related measure, the Need for Cognition scale, has produced interesting results (e.g., Cacioppo & Petty, 1982; Cacioppo, Petty, & Morris, 1983), it comprises but one component of the broader, more differentiated construct measured by the RVEI.

The principles of operation of the experiential system have implications for the nature of prejudice. As the experiential system operates in a manner that is categorical, holistic, concrete, associationistic, and action oriented, it can be expected that people will tend to automatically seek personalized targets for their frustrations. Moreover, as people, according to CEST, organize reality largely in terms of their implicit theories of self, and as they have a vested interest in enhancing their conceptions of self, they will have a tendency to attribute what they view as bad or distressing to those outside of their identification group. Thus, it can be deduced from the nature of the experiential system that prejudice comes all too naturally to people. It follows that people do not have to be taught to be prejudiced; they have to be taught to not be prejudiced.

With respect to developmental psychology, CEST draws attention to the importance of studying the separate development of the experiential and rational systems, rather than assuming that they progress sequentially, with the latter displacing the former (S. Epstein & Erskine, 1983; Werner & Kaplan, 1963).

As for clinical psychology, CEST has important implications for diagnosis and therapy (S. Epstein, 1983b, 1984, 1985, 1987, 1991a, 1991c, 1992a, 1993a, 1993c; S. Epstein & Brodsky, 1993). According to CEST, the objective of therapy is to produce changes in the experiential system. There are three basic procedures for accomplishing this: (a) using the rational system to influence the experiential system (e.g., disputing irrational thoughts, as in cognitive therapy), (b) learning directly from emotionally significant experiences (e.g., through "working through" in real life, and through constructive relationships with significant others, including therapists), and (c) communicating with the experiential system in its own medium, namely fantasy. This latter approach is particularly promising because not only can the rational system use directed fantasy to influence the experiential system but it can learn from the intuitive wisdom of the experiential system through knowledge of how that system operates. These three fundamental approaches provide a unifying framework for integrating various approaches to therapy, including insight approaches, cognitive-behavioral approaches, and experiential approaches, such as Gestalt therapy and psychosynthesis (S. Epstein, 1993c; S. Epstein & Brodsky, 1993).

Finally, and most important, the assumption that we think in two fundamentally different modes has implications for human survival. Einstein said that unless we learn to think differently, we are doomed to self-extinction. He was, of course, referring to the atom bomb. Today, there are other equally significant threats, including pollution of the environment, global warming, depletion

of the ozone layer, overpopulation, the failure of our social institutions, and widespread ethnic strife. Considering that we have made this mess for ourselves, if we ever had to learn to think differently, it is now. As a first step, it is important that we learn how we do think. How we do think, I believe, is with two minds, experiential and rational. Our hope lies in learning to understand both of our minds and how to use them in a harmonious manner. Failing to understand the operation of the experiential mind and its influence on the rational mind, try as we may to be rational, our rationality will be undermined by our inherently experiential nature. Cultivating them both, we may be able to achieve greater wisdom than would seem likely from our past history.

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