From

Keltner, Oatley, & Jenkins (in press). *Understanding Emotions, 3th Edition*

Appraisal, Knowledge, and Experience

7

CONTENTS

Credit: The Granger Collection, New York

FIGURE 7.0 Diagram from Descartes's book, *Traité de l'homme*, showing how the soul—which can be moved by emotions—can open valves to let vital fluids from the reservoir (labeled F) into the tubes to work the muscles and produce actions. The Granger Collection, New York

> Herein too may be felt the powerlessness of mere Logic . . . to resolve these problems which lie nearer to our hearts.
>
> *(George Boole, 1854,* An Investigation of the Laws of Thought, *p. 416)*

In 1961, a patient with epilepsy—a kind of electrical storm in the brain—had an operation to separate the left side of the cortex from the right, and hence to stop the spread of epileptic disturbances. (No other treatment had been effective.) This procedure is called a **split brain** operation, and in it the corpus callosum, a large bundle of nerve fibers that connects the left and right sides of the cortex, is severed. Despite the two sides being no longer in communication, the patient's IQ, personality, language, and ability to engage in meaningful interactions were not diminished. Twenty years after the first split-brain operation, Roger Sperry was awarded a Nobel Prize for his research with these patients, which showed in a strikingly new way the different functions of the left and right hemispheres.

If a picture or text is presented to the right side of the visual field, the information crosses over to the other side in the optic nerve and is processed by the left hemisphere. When anything is shown in the left visual field it is processed by the right hemisphere. But with a split brain, the two hemispheres do not communicate.

Here is an example from Michael Gazzaniga (1988), who worked with Sperry. He showed a frightening film about fire safety to the left visual field of a woman split-brain patient. Because the images were not accessible to the left hemisphere of her brain, she was not conscious of having seen the film. Gazzaniga then interviewed the patient, as follows.

M.G. (Michael Gazzaniga): What did you see?
V.P. (Patient): I don't really know what I saw. I think just a white flash.
M.G.: Were there people in it?
V.P.: I don't think so. Maybe just some trees, red trees like in the fall.
M.G.: Did it make you feel any emotion?
V.P.: I don't really know why, but I'm kind of scared. I feel jumpy. I think maybe I don't like this room, or maybe it's you. You're getting me nervous.

The patient seems to feel fear, and talks by using her linguistically competent left hemisphere. Fear has been processed by the unsplit subcortical regions, which have then communicated to the language-using right hemisphere, but without any indication of what caused the fear. When asked by Gazzaniga to explain her feelings, the patient draws upon her fear, and her narratizing left hemisphere offers a story about how Gazzaniga is making her feel nervous.

Appraisal and Emotion

What starts up our emotions? When events are evaluated, assigned value in terms of the individual's concerns, the evaluative process is called **appraisal**. The process is implied by Gazzaniga's split-brain patient. To start with, the process is automatic, something like a reflex, and need have nothing to do with language. This is **primary appraisal**. Emotions are then usually directed to particular objects and people and can often be described in words. This is **secondary appraisal**.

Historical Background and Concepts

As we explained in Chapter 1, the concept of evaluation of events in relation to an individual's concerns goes back 2,400 years, to Aristotle. He was followed by philosophers such as Epicurus and Chrysippus, who studied emotions to understand how to live in a good way. These and other philosophers in the

schools of Epicurean and Stoic ethical philosophy, which have had an influence on Western thought, were—if one may put it like this—the first thoroughgoing Western emotion researchers. One of the most interesting analyses to emerge from this work was made by the Stoic, Chrysippus, who distinguished between what he called first movements of emotions, which are automatic, and second movements, which are mental and which involve judgment and decision. Chrysippus thought that one cannot avoid the first movements; they occur in the body and we can't do anything about them. But since second movements involve thought, they are more, as Stoic philosophers said, "up to us." The idea of second movements of bad emotions, such as giving in to angry revenge, or to greedy selfishness, was transformed in a later era to the Christian idea of seven deadly sins, all of which have an emotional quality (Oatley, 2011; Sorabji, 2000). Sin implies temptation, which in turn implies that we have choice. In the second stage of appraisal, there's the possibility of choice.

Magda Arnold and J.A. Gasson (1954; whose analyses we described in Chapter 1) discussed the work of the Stoics. Their paper is often taken as the founding of the modern notion that emotions are based on appraisals. An important figure in the development of the idea was Richard Lazarus, who studied challenges that people faced in their lives and the capacities they had to cope with them (Lazarus, 1991). Challenges produce vigilant attention and heightened activity in the sympathetic branch of the autonomic nervous system. But each kind of challenge promotes a different emotion, depending on how it is appraised. Here is how Lazarus describes these processes:

> This approach to emotion contains two basic themes: First, emotion is a response to evaluative judgments or meaning; second, these judgments are about ongoing relationships with the environment, namely how one is doing in the agenda of living and whether the encounter of the environment is one of harm or benefit.

Agreeing with Aristotle, and with Arnold and Gasson, Lazarus proposed that appraisals involve evaluative judgments of how good or bad an event is for the person. A second theme is that appraisals concern the individual's goals and aspirations, which Frijda (2007) calls "concerns." Emotions, then, could scarcely be more critical for psychology: emotions relate events in the outer world to one's inner self and one's concerns.

Agnes Moors (2007, 2009) has argued that the appraisal approach is critical to the study of emotions as processes that articulate events with people's goals, and that it is superior to any conceptualization that has no relation to goals, or a different relation to goals.

Stein, Trabasso, and Liwag (1994) have extended the idea of goals to plans that are generated from them and the beliefs on which they are based. They propose that aspects of emotion-related appraisal unfold as follows:

1. An event, usually unexpected, is perceived that changes the status of a valued goal.
2. Beliefs are often challenged. This can cause bodily changes and expressions to occur.
3. Plans are formed about what to do about the event to reinstate or modify the goal, and the likely results of the plans are considered.

These stages lead to questions that correspond to them:

1. What happened?
2. What do I think about it?
3. What can I do about it, and what might then happen?

Nancy Stein et al. (1994) give an example of a 5-year-old, Amy. Her kindergarten teacher had just told the class that she had a paint set for each child, and that after painting pictures for Parents' Night the children could take their paint sets home. When the children had been given their paint sets, Stein et al.'s research assistant noticed Amy looking apprehensive. She asked why. Amy said: "I'm jittery. I'm not sure why she wants to give me the paints. So do I have to paint all of the time at home? I really don't want to do this. I didn't think teachers made you paint at home. I don't like painting that much. Why does she want me to paint at home?"

Here we see that Amy has a goal that has been violated (1): she doesn't want to paint. The idea of being given something to do at home violates a belief about what teachers do (2). The conversation continues with Amy's plans (3):

Research assistant: What will you do, Amy?
Amy: I don't want to take the paints home. I want to know why I have to do this.
Research assistant: Well Amy, what are you going to do about this?
Amy: I'll take the paints home, but when I get home, I'll ask my mom why I have to do this.

Two weeks later the research assistant talked casually to Amy, who was still worried about the paints. She said she had used them only once. But she had not told the teacher, fearing that the teacher might be mad at her.

Stein et al. (1994) propose that how a person sees an event—which depends on the person's goals and values—will determine how the event is perceived and what emotions are elicited. This is consistent with Lazarus's treatment of appraisal. The same event can lead to different emotions in different people. Notice that the processes leading to specific emotions are thoughts or thought-like processes of the kind we are calling secondary appraisals.

Primary Appraisals, Good and Bad

Into our lives come events that have large effects. You arrive at your new college dorm and meet your roommate, who instantly fills you with a reassuring sense of comfort and familiarity. In the following year, you have to search for an apartment to rent, but the places trigger gut feelings of unease and discomfort. What appraisal processes give rise to these reactions?

As one answer to this question, Robert Zajonc (1980) has proposed that we process stimuli through several different systems. One system provides an immediate, unconscious evaluation of whether the stimulus is good or bad (LeDoux, 1993; Mischel & Shoda, 1995). This is a primary appraisal, an automatic emotional reaction to events and objects in the environment, which motivates rapid approach or avoidance responses. It corresponds to what Chrysippus (discussed above) called the first movement of an emotion. As you have learned in Chapter 6, the system that makes these appraisals probably involves the amygdala. This first appraisal system appears to give rise to our core feelings of positivity or negativity. Russell (2003) says the heart of any emotion is feeling good or bad, together with feeling enervated or excited. He calls this **core affect**, which we discuss later in the chapter. Other systems—which we are calling secondary appraisals, which Chrysippus called second movements—provide more deliberative, conscious, complex assessments to decide what to think and what to do about it.

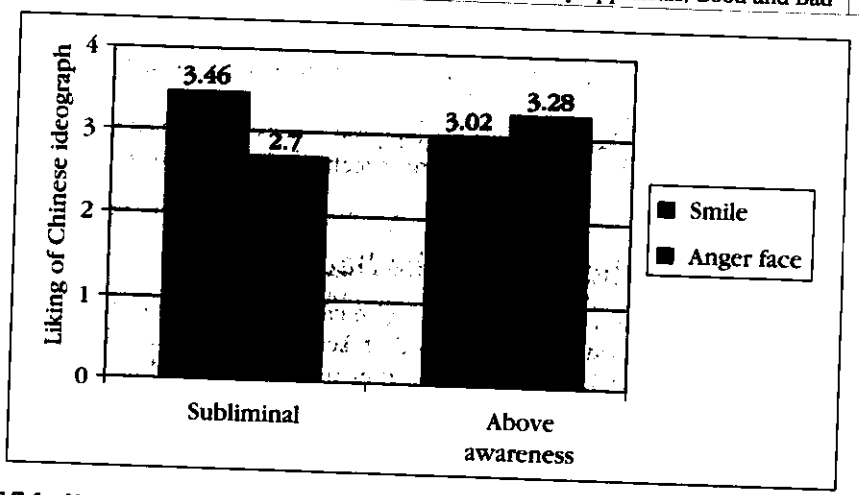

FIGURE 7.1 Unconscious appraisal. People liked Chinese ideographs more after they had first been subliminally presented with a smile, suggesting that the smile had activated positive feeling at an unconscious level. When presented with a smiling face long enough to be consciously aware of it, the smile did not lead participants to evaluate Chinese ideographs more positively (Source: Murphy & Zajonc, 1993).

To study automatic evaluations, Murphy and Zajonc (1993) presented participants with photos of people smiling or displaying facial anger. In a "suboptimal" condition, participants viewed these photos for four milliseconds and then looked at Chinese ideographs and rated how much they liked them. These participants had no idea whether they had seen a happy or angry face. In an "optimal" condition participants viewed the same faces for one second and were clearly aware of which faces they had viewed. Then they, too, looked at Chinese ideographs and rated how much they liked them.

As you can see in Figure 7.1, with suboptimal presentation, smiling faces prompted participants toward greater liking for the Chinese ideographs that followed them, and angry faces prompted less liking for the ideographs that followed them. No such priming effects emerged with the optimally presented faces. When we are consciously aware of emotionally charged stimuli, they are less likely to sway our judgments of other events that have nothing to do with them (Clore, Gasper, & Garvin, 2001; an effect that we discuss further in Chapter 10).

Is there evidence that automatic appraisals generate emotional experience as well as affecting preferences? Dimberg and Öhman (1996) suggest that there is. They first presented participants with photos of smiling faces and angry faces for extremely brief periods. These photos had been masked; that is to say each was immediately followed by other photos that prevented the possibility of consciously perceiving the original faces. Participants were not aware of having seen an angry or happy face, but a happy face prompted participants to smile, and an angry face prompted them to furrow their brow (see also Dimberg, Thunberg, & Elmehed, 2000; Whalen et al., 1998). In other work, Öhman and Soares (1994) presented people who had snake phobias with photos below their awareness and found that these photos of snakes generated a galvanic skin response and negative emotion. In further studies that used the technique of priming by subthreshold stimuli, Moors, De Houwer, and Eelen (2004) also found a phase of primary automatic appraisal about whether an event was good or bad. Their

subthreshold (priming) images were words in semantic categories such as profession or animal, which had been rewarded and therefore had become good, or had been non-rewarded and therefore had become bad.

These studies suggest that there is a primary appraisal process that is fast and automatic and outside conscious awareness. It gives an immediate feeling of good or bad.

Which Is Stronger, the Good or the Bad?

Research on automatic appraisals of good and bad qualities of an event raises an intriguing question: which is stronger, good or bad? Reviews by Cacioppo and Gardner (1999), Baumeister et al. (2001), and Rozin and Royzman (2001) offer a perhaps unsettling answer: negative evaluations are more potent than positive evaluations. The bad is stronger than the good. This bias to be more responsive to danger rather than to satisfaction makes evolutionary sense. Without it, our chances of survival would be diminished; we only die once.

Negative stimuli, such as frightening sounds or disgusting smells, trigger more rapid, stronger physiological responses than positive stimuli, such as pleasing sounds or delicious tastes. In various experiments it has been shown that a loss, such as losing $10, is experienced as more intense than a pleasure, for instance, of gaining $10. Negative trauma, such as the death of a loved one or sexual abuse, can change the individual for a lifetime. It is hard to think of analogous positive life events that alter life in such profound and enduring ways. Or consider ideas about the workings of contamination, the process by which a disgusting object endows another object with its vile essence through simple contact (Rozin & Fallon, 1987). Brief contact with a cockroach will spoil a delicious meal (the negative contaminates the positive). The inverse—trying to make cockroaches delicious by touching them with a favorite food—is improbable at best, and probably impossible (Rozin & Royzman, 2001).

To address whether negative evaluations are more potent than positive evaluations, Ito et al. (1998) presented participants with positively valenced photographs (for example, of pizza or ice cream) and negatively valenced photographs (for example, of a mutilated face or of a dead cat). They recorded participants' electrocortical activity focusing on a region of brain activity associated with evaluative responses. They discovered a clear negativity bias in evaluation: negative slides prompted greater brain activity than positive or neutral slides.

Secondary Appraisals

What happens when we move beyond automatic primary appraisals to secondary appraisals? Modern research on appraisal has tended to be in two families: **discrete approaches**, which emphasize that appraisals give rise to distinct emotions, and **dimensional approaches**, which focus on the components of appraisals that can relate to several emotions.

Discrete Approaches

In his theory of discrete emotions, Lazarus discussed the two stages of the appraisal process (1991). In his version of the primary appraisal stage, which we show in Figure 7.2, the individual appraises the event in terms of its relevance to goals. Early in the process, the

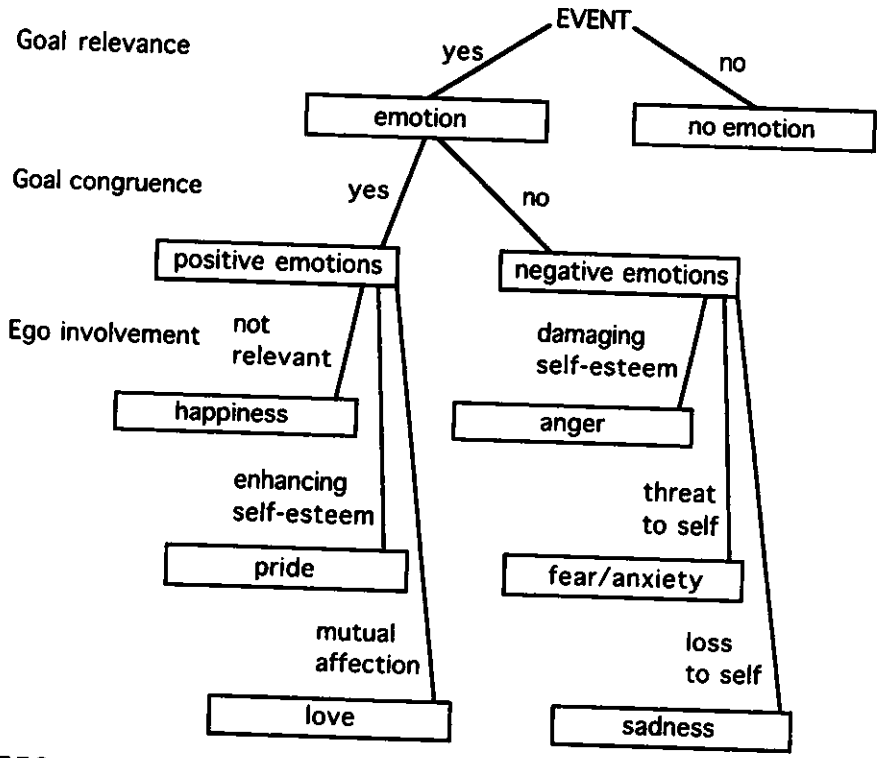

FIGURE 7.2 Decision tree of appraisals based on three features (goal relevance, goal congruence, and ego involvement), plus the emotions that can occur with these appraisals (Lazarus, 1991). Further differentiation among emotions occurs in secondary appraisals.

individual evaluates whether an event is relevant to personal goals. If it is, an emotion is elicited; if not, no emotion ensues. If an event is relevant, it is appraised as to whether it is congruent or incongruent with goals. Goal-congruent events elicit positive emotions, and goal-incongruent events produce negative emotions. These stages make up primary appraisal. Then the individual appraises the event in relation to more specific goals, or issues for the ego. This is secondary appraisal. Events can concern moral values, for example, to be kind, or to avoid doing to others what one would not want done to oneself. Events might bear upon issues of the self and identity, for example, whether one is excelling in areas that are central to self-definition, such as one's academic work, or performance in the arts or sport, or work for charities. Events can pertain to important ideals, for example, that societies should be fair and just. In light of emotions that occur to other people about whom we care, the goals and well-being of these people are also our concerns, and such events thus give rise to emotions in us also.

An approach to discrete emotions that is related to Lazarus's is that of Oatley and Johnson-Laird (1987, 2011). They postulate appraisals with two components, as we have been discussing. A primary appraisal of an event occurs in relation to goals. It is automatic and unconscious. It occurs not in terms of good and bad, but in terms of basic emotions (such as

Table 7.1 Emotions and core relational themes

Anger	A demeaning offense against me or mine
Anxiety	Facing an uncertain, existential threat
Fright	Facing an immediate, concrete, and overwhelming physical danger
Guilt	Having transgressed a moral imperative
Shame	Having failed to live up to an ego-ideal
Sadness	Having experienced an irrevocable loss
Envy	Wanting what someone else has
Jealousy	Resenting a third party for loss or threat to another's affection
Disgust	Taking in or being too close to an indigestible object or idea
Happiness	Making reasonable progress toward the realization of a goal
Pride	Enhancement of one's ego-identity by taking credit for self or in-group
Relief	Distressing goal-incongruent condition that has changed for the better
Hope	Fearing the worst but yearning for better
Love	Desiring or participating in affection, usually but not necessarily reciprocated
Compassion	Being moved by another's suffering and wanting to help

Source: Adapted from Lazarus (1991).

happiness, sadness, anger, fear, and disgust), each of which sets the brain into a mode adapted to deal with a recurring situation (respectively: progress toward a goal, loss, frustration by another, threat, and toxicity). Recall that Gazzaniga's patient, discussed at the beginning of the chapter, did not say she experienced something good or bad: she said she felt "kind of scared." Each mode is a set of states of **readiness** (Frijda, 1986, 2007) with a distinct phenomenological tone, but no necessary verbal meaning. The effect is a bit like having several sound devices in your house, say a doorbell, a telephone bell, a smoke detector, and a burglar alarm. If one goes off, you are alerted to something potentially important and your readiness changes accordingly, but initially you do not know exactly what the event was. You need to investigate. Similarly, an emotion can start, but its verbal meaning is supplied by a secondary process that occurs in awareness, in which you make a mental model of the event, what caused it, and how to act in relation to it.

In the second stage of appraisal the individual considers a causal attribution for the event, how to respond to the event, and future consequences of action. At this level Lazarus calls the process the **core relational theme** of the emotion: its essential meaning. In Table 7.1 we present Lazarus's analysis of several emotions.

You can think of emotions in relation to these core relational themes as summaries of the different classes of events that elicit them. In evolutionary terms, these themes map onto the problems and opportunities to which people respond with emotions—the slights (anger), dangers (fear), moral transgressions (guilt), losses (sadness), and sufferings of others (compassion), for example, that have been critical to human survival, reproduction, and cooperative group living. You can also think about these core relational themes as the language of our emotional experience: they capture the themes and issues that organize our emotional experience.

Dimensional Approaches

Can you think of aspects of emotional experience that are not well explained in terms of discrete emotions? Are there aspects of your emotional life that don't seem readily to follow from this approach? Phoebe Ellsworth (e.g., 1991) has suggested that we need to think about emotion-related appraisal in a way that's different from that of discrete emotions: the dimensional approach.

Approaches to emotions as discrete highlight differences between emotions in terms of their eliciting appraisals. Yet many emotions are similar in fundamental ways. Anger and fear, for example, at their core feel similar: they feel unpleasant and arousing. The same could be said about gratitude and love, which both feel quite pleasant and are marked by a feeling of devotion for others. An appraisal theory, Ellsworth contends, needs to account for the interesting similarities across emotions, as well as their differences.

A second gap in approaches to emotions as discrete, according to Ellsworth, is their inability to account for transitions between emotions. Very often in our emotional experience we move from one emotion to another; we shift from anger to guilt quite rapidly, or from sadness to hope, or (hopefully not often) from love to anger.

In light of such issues, Phoebe Ellsworth and Craig Smith (1985, 1988) developed a theory of appraisal that can account for interesting similarities among the emotions, as well as the many differences (for comparable accounts see Frijda, 1986; Ortony, Clore, & Collins, 1988; Roseman, 1984; Scherer, 1988; Weiner, 1986). Smith and Ellsworth reviewed numerous studies of the semantic content of emotions, and derived eight different dimensions of meaning that capture the appraisal processes that lead to various emotions. These dimensions are presented in Table 7.2. Think of these dimensions as units of meaning ascribed to events in your life: how positive or negative the event is, who is responsible for it, whether it is fair, how much energy is required, to what extent the stimulus requires intense attention, how certain things seem, and so on.

To document the patterns of appraisal associated with the different emotions, Smith and Ellsworth had 16 participants imagine experiencing 15 different emotions. The participants then rated the original emotional experience on the eight dimensions presented in Table 7.2. Each was defined by a pattern of appraisal. For example, interest was associated with appraisals of elevated pleasantness, the desire to attend, the sense that situational factors are producing events, the perceived need to expend effort, moderate certainty about future outcomes, together with little sense of perceived obstacle or illegitimacy of events. Hope was associated with appraisals of

Table 7.2 Dimensions of appraisal

1.	Attention: Degree to which you focus on and think about the event
2.	Certainty: Degree to which you are certain about what is going to happen
3.	Control/coping: Extent to which you have control over outcomes in the environment
4.	Pleasantness: Degree to which the event is positive or negative
5.	Perceived obstacle: Extent to which the pursuit of your goals is blocked
6.	Responsibility: Extent to which others, you, and situational factors are responsible for events
7.	Legitimacy: Extent to which the event is fair and deserved or unfair and undeserved
8.	Anticipated effort: Extent to which you must expend energy to respond to the event

Source: Adapted from Smith & Ellsworth (1985).

elevated attention and effort and situational agency, moderate pleasantness, and little certainty or sense of perceived obstacle or illegitimacy. Happiness was the emotion that was pleasant, associated with low effort, high certainty, and high attention.

A second important result found by Smith and Ellsworth was that certain dimensions stood out in their ability to differentiate among related emotions. They found that a combination of control and responsibility were at issue. Important was *agency*, a critical dimension identified by Roseman (1984), which, for instance, differentiates three negative emotions: anger, sadness, and guilt. When we blame others we become angry; when we attribute negative events to circumstances we become sad; when we attribute negative events to ourselves we become guilty. Agency also differentiates certain positive emotions. The same positive event attributed to the self is a source of pride, but when attributed to others it's a source of gratitude.

This importance of causality in emotion-related appraisal is likewise seen in the work of Weiner and Graham (1989). They found that some distinct emotions depend on **attributions**, the explanations of the causes of events that people give. They describe how children between the ages of 5 and 11 were given vignettes and asked to decide what emotion would occur. One was this:

> This is a story about a boy named Chris. Chris's teacher gave a spelling test and he got all the words right. Chris received an "A" on the test. (Weiner & Graham, 1989, p. 407)

If the children were told that Chris had studied all the words the night before (implying that the cause of his success was his own action), they tended to say that he would feel pride; but if the cause was that the teacher gave an easy test (a cause external to Chris), then the children, especially the older ones, thought Chris would not feel pride. Comparable results were found with guilt: if an event that caused damage could have been controlled, the children thought the person causing it would feel guilt, but if it was an accident, the older children thought the person would not feel guilt.

The finding that causal attributions differentiate among emotions has an important implication: a particular negative event may happen to you (perhaps you don't do as well on an exam as you had hoped), but which emotion you experience will depend on how you appraise the causes. Attribute the event to yourself and you're likely to feel guilt. Attribute it to others and you'll feel anger. Attribute it to circumstantial factors and you'll be more likely to experience sadness.

Extending Appraisal Research

Think about Smith and Ellsworth's study. In it, people remembered an emotional experience and then reported their appraisal. Several critiques have been leveled against this kind of retrospective, self-report study, for instance, by Parkinson, Fischer, and Manstead (2004). They pointed out that perhaps Smith and Ellsworth were really studying what people think about the causes of their emotions, rather than actual causes.

A study that is important because it showed experimentally that appraisals actually cause emotions was by Ira Roseman and Andreas Evdokas (2004). They assigned people to groups and told them to expect that they would experience either a pleasant or an unpleasant taste, and that either they would be in the taste group or they would be randomly assigned to this group or a neutral group. They found, for instance, as predicted by Roseman's (1984, 2001) theory, that when participants appraised the situation as one in which they would definitely avoid an unpleasant event,

relief was caused, and when they appraised it as one in which they would probably experience a pleasant event, hope was caused.

Kuppens, van Mechelen, Smits, de Boeck, and Ceulemans (2007) found that appraisals can have different meanings for different people: although for some people anger is caused by frustration, for others it is usually caused by a sense of deliberate unfairness. For yet others it is caused by a threat to one's selfhood. Such meaningful appraisals can become habitual styles and hence aspects of personality (Power & Hill, 2010), and we discuss this further in Chapter 11.

Another approach is to identify appraisals as they occur, and ascertain whether emotion-specific appraisals relate to other measures of emotional response. For example, one might code appraisal-related themes, such as uncertainty or loss, or dimensions, such as responsibility or effort, in individuals' spontaneous speech, and ask whether those appraisals relate to measures of experience, or expression, or physiology. In one such study, Bonanno and Keltner (2004) coded the narratives of people who, six months previously, had experienced the death of their romantic partner. These narratives were complex, moving accounts of participants' lives with their partner, how they had met and fallen and love, how they raised families, and ultimately how their partner had died. The narratives included numerous references to loss, an appraisal theme related to sadness, and injustice, an appraisal theme at the heart of the experience of anger. These researchers coded spontaneous references to these two appraisal themes and related them to other measures of emotion gathered during the interview. They found that appraisals of loss correlated with facial expressions and self-reports of sadness but not anger, and that appraisals of injustice correlated with facial expressions and self-reports of anger but not sadness.

Cultural Variation in Appraisal

Rick Shweder and his colleagues (1997) conducted interviews to explore people's ideas about the kinds of events that they found morally repugnant, sources of anger and disgust. In Hindu India, they found that people are angered by kinds of events that would tend not to elicit much emotion in European cultures. These include the following: when a child cuts his hair after the death of his father, when a woman eats with her husband's elder brother, when a husband cooks for his wife or massages her legs, and when upper-caste individuals come into physical contact with lower-caste individuals.

Although the triggers for some kinds of emotions have been found to vary widely across different cultures (see Mesquita & Frijda, 1992), there are also substantial similarities. For instance, Roseman et al. (1995) compared appraisals of people living in America and people living in India. They found that in both countries appraisal of powerlessness prompted sadness and fear rather than anger, whereas an appraisal that someone else caused a negative event prompted anger rather than sadness or fear.

How, then, do cultures differ in the events that elicit emotion? Think back to our discussion of individualist, independent cultures and collectivist, interdependent cultures in Chapter 3, where you learned about culture-related differences in appraising emotions in terms of their capacity to engage or disengage with others. The important point is that culture shapes how we appraise emotion-eliciting events. Solitary and social experiences might have different meanings in individualist and collectivist cultures. Or consider being alone. Middle-class Europeans or Americans may appraise this in positive terms and experience contentedness. By contrast, Inuit people as studied by Briggs (1970) or the people of Ifaluk as studied by Lutz (1988) appraise being alone in terms of isolation, which elicits feelings of sadness (Mesquita & Ellsworth, 2001; Mesquita & Markus, 2004).

Being dependent upon others also appears to generate different appraisals and emotions across cultures. For example, among the Awlad'Ali, a nomadic tribe in Egypt, being in the presence of powerful others is the source of shame, or *hasham*, because such situations are reminders of one's dependence on others (Abu-Lughod, 1986). In contrast, it is reported that Japanese people sometimes experience a cozy and pleasurable emotion known as *amae* (Lebra, 1983). This is a comforting sense of dependence a less powerful person feels in relation to a more powerful person, which allows the less powerful person to be passive or helpless, in the manner of a small child, in the satisfying knowledge of being accepted.

A Third Phase of Appraisal: Verbal Sharing

Thus far we have spoken of appraisal as something that is inside the individual's head. Yet much of how we make sense of the world is in our conversations with others. In this sense, we might think of a third phase of appraisal that arises when we share and discuss our emotions with others. Using diary methods, Bernard Rimé and his colleagues have found that people have a strong tendency to confide their emotional experiences to others, which Rimé et al. (1991) call **social sharing**. In six studies they found that between 88 and 96% of emotions that could be remembered had been verbally shared with others. The rates were similar across the age range, for males and females, and for the interdependent Surinamese population living in the Netherlands as well as the highly individualistic Dutch. Sharing occurred even for emotions such as guilt and shame. When we share our emotions with others, we necessarily rely upon our knowledge of emotions, and we use specific words, concepts, categories, and narratives to convey our experiences to others.

As our experience of emotions is translated into verbal forms, as with other effects of language, we are enabled to extend the meanings and uses of our primary experiences. In this act something extraordinary occurs, which is available only to humans. Emotions and thoughts can themselves become objects of emotion and thought. We can turn them over in our minds, reflect on them, and share them with others. Rimé and his colleagues found that sharing does not decrease the intensity of emotions that are shared. Rimé (2009) argues that in sharing emotions verbally, relationships are extended, social support is enabled, and experience is compared with the experiences and intuitions of other members of our community.

Earlier in the chapter we described two phases of emotion: a brief initial phase that is largely involuntary and then an extended second phase that can be reflective. Sharing emotions is a third phase, a tertiary appraisal carried out with other people. It is just as much part of an emotion episode as primary and secondary appraisals, but now verbalized and coordinated with family members and friends.

The question of what emotions are really about, and how situations are appraised at the deepest level, may need to be coaxed out in verbal terms. James Pennebaker et al. (1988) had 50 students write either about emotionally significant issues or about superficial topics for 20 minutes on four consecutive days. Those who wrote about the deeper emotional issues showed improvements in immune function in the form of higher lymphocyte responses to an antigen challenge and fewer medical consultations at the University Health Center. Although participants who wrote about emotionally important issues found the actual writing more distressing than did control participants, three months later they were significantly happier than the controls and, looking back, they viewed the experience of confronting the emotional issues about which they wrote as a positive experience. These effects have been replicated many

times, both in Pennebaker's laboratory and by other research groups. Pennebaker has found therapeutic effects of confronting traumatic experiences by writing or by talking. He understands the process in terms of alleviating a debilitation caused by suppressing traumatic experiences. He has concluded that the debilitation is relieved by confiding, turning the emotions over in consciousness, and by coming to understand the emotions and their implications (Pennebaker, 2012; Pennebaker & Chung, 2011; Pennebaker & Seagal, 1999).

Novels and films: *Vertigo*

Detective stories (mysteries) are based on the idea of an appraisal and then a radical reappraisal. Usually a crime has been committed and most people appraise it as appalling. Then a detective appears and reappraises the events to show that beneath the surface of things there is a very different world: at least one character will have appraised events differently and committed the crime. Before we've finished the story, our appraisals will have changed, too.

In the 1958 film, *Vertigo*, the director, Alfred Hitchcock, prepared not just one change of appraisal for the characters and for audience members, but several.

In the surface layer the film's protagonist, Scottie (played by James Stewart), was a San Francisco police detective. Chasing a suspect across rooftops, he was left hanging from a roof. A colleague who tried to save him fell to his death. Scottie takes early retirement, suffering from guilt, vertigo, and a phobia for heights. An old college friend gives him something on which he can employ his detective skills. It's to follow his wife, Madeleine (played by Kim Novak), who seems to have become mentally possessed by a dead person. Scottie starts to follow Madeleine and he sees her sitting for hours in an art gallery, gazing at a portrait of this dead person, her great-grandmother, Carlotta.

Now comes the second layer: a reappraisal by Scottie. His principal concern becomes no longer his friend's commission. It's the cool, blonde, sophisticated Madeleine. He falls in love with her. When she makes a suicide jump into San Francisco Bay, he rescues her and takes her to his apartment. When this film was made, sex could not be depicted on the screen. But we see Madeleine in Scottie's bed, waking up and asking how she got there while every bit of her clothing is hanging up to dry.

Now there is another layer: Scottie comes to be not just in love but obsessed, so he forgets his commission. Madeleine tells him of a dream of Carlotta at a place with a tower, south of San Francisco. Scottie drives her there because he thinks a visit might free her from her states of possession. When they arrive they declare their love for each other. But she breaks from him and runs up the steps of the tower. As Scottie follows her, he is overcome by his phobia for heights. A scream is heard. Through a window, we see her body hurtle downward. Then there is a shot of the dead Madeleine face-down on a rooftop.

Next comes yet another appraisal: Scottie in a state of depression and redoubled guilt wanders the city and sees a woman who reminds him of Madeleine: a brash redhead, Judy (also played by Kim Novak). They start going out. He coerces her to have her hair dyed blonde. He takes her to a dress shop and buys her a gray suit of the kind the dead Madeleine used to wear. Then, in one of the film's memorable scenes, Judy walks toward him through a luminous mist. She is Madeleine—as Scottie remembers her. Now he can love her.

But the film is not finished. We won't give the ending away but, in the next appraisal, we in the audience realize that Judy was indeed Madeleine and was hired by Scottie's college friend to impersonate his wife. As Goffman (1959) has said: "It is always possible to manipulate the impression the observer uses as a substitute for reality because a sign for the presence of a thing, not being that thing, can be employed in the absence of it" (p. 251).

An accomplishment of this film is its central question: "How far does that all-consuming emotion of sexual love depend on an appraisal based on projection, and how far does it derive from perceiving who the person actually is?

Emotion Words

An important component of reflection and sharing our emotions is our vocabulary of emotion words: the **emotion lexicon**. In English there are thousands of words to describe emotional experiences.

Some people have a condition called **alexithymia** (Taylor, Bagby, & Parker, 1997), which means having few emotion words; it's a difficulty in being able to identify or express emotions verbally. It is associated with a paucity of fantasies and a cognitive style oriented to outside events rather than to the inner world. Many studies have investigated associations between alexithymia and psychosomatic disorders, as if a lack of words for emotions channels emotional experience to be expressed in a bodily way that can affect immune function. Bird et al. (2010) found that responses of the insula region of the brain, which has been found to mediate empathy, were decreased in people who were alexithymic. Other researchers (Grynberg et al., 2010) have found that the association of alexithymia with decreased empathy may be due to anxiety.

Studies of emotion words reveal several different properties of the language of emotions. One of these is that applying a verbal label to an emotional experience helps identify its **intentional object**: what the emotion is specifically about (Ben Ze'ev & Oatley, 1996). (The philosophical term *intention* means "aboutness": thinking, knowing, and usually feeling are intentional in this sense because they are about something.) Emotion words direct us to the focus of the experience (Ben Ze'ev, 2000). For example, in the midst of a lively exchange at a party you might suddenly realize: "I'm feeling jealous." Recognizing a word for this experience is likely to sharpen the focus of your experience and guide you to attend to specific events: perhaps your partner is smiling flirtatiously at your best friend. The experience, the word, and the concept may evoke past experiences of a similar theme, perhaps with this current partner. Emotion words, then, appear to shape diffuse states into more specific emotional experiences. A study by Anderson et al. (2011) showed verbal emotional information can affect perception. When a piece of negative verbal emotional gossip was paired with a face, this face was recognized more easily in confusing circumstances than were faces that had been paired with neutral or positive gossip.

The emotion lexicon has structure. It is organized into categories at different levels, and implications of our categorizations are carried in our verbal discussions of emotions. In one important study, Shaver et al. (1987) gave participants 135 emotion terms written on cards and asked them to sort those words into as many or few categories as they thought appropriate. Based on this sorting, Shaver et al. captured English speakers' organization of emotion knowledge. What this task revealed, according to Shaver et al., is that there are three levels to our emotion knowledge.

At the superordinate level, there is a distinction between positive and negative emotions. This seems to fit well with how people appraise the goodness and badness of events immediately and automatically.

At the next level, known as the basic level of knowledge, are six emotion concepts: love, joy, surprise, anger, sadness, and fear. One might expect these terms to be those that people most frequently use to describe their emotional experience. It is interesting to note as well that many of the terms correspond to the emotions that appear to have universal facial expressions. This same list of emotions replicates (with slight variations) in analyses of other languages (Romney, Moore, & Rusch, 1997).

Below each of the basic emotion terms are many more specific states. This is known as the subordinate level of emotion knowledge. These are likely to be states that share properties of the basic emotion concept above them, and that are in important ways similar to one another. For example, below the basic emotion concept *love* is: love, compassion, lust, and longing. Below the

concept *happiness* is: amusement, enthusiasm, pleasure, pride, hope, enthrallment, and relief. Below *sadness* is: agony, depression, disappointment, guilt, embarrassment, and pity.

Emotion words vary dramatically across cultures. Anna Wierzbicka (1999), a linguist who is fluent in many languages, has been critical of attempts to infer universal categories of emotion from intuitions by members of English-speaking cultures. She proposes, instead, universal concepts of emotions based on the following kind of (somewhat abbreviated) analysis that focuses on universal semantic elements. *Happiness*: (a) X was happy because X thought something, (b) X thought: "Some good things happened to me," (c) X thought: "I wanted things like this to happen," (d) X thought: "I don't want anything else now."

To explore how cultures vary in their language of emotion, Russell (1991) read hundreds of ethnographies written by anthropologists who had lived in different cultures and were familiar with the language and life of that culture. After observing that almost all languages have terms for anger, fear, happiness, sadness, and disgust, Russell paints a fascinating picture of how cultures vary in the language of emotion.

Cultures vary in the *number of words* that represent emotion. Researchers have identified 2,000 specific emotion-related words in English, 750 in Taiwanese, 58 in Ifaluk in Polynesia, and 8 in the Chewong of Malaysia.

Cultures vary in which states they represent with emotion terms. In the Gifjingali language of the Aborigines of Australia, fear and shame are captured by the same word, *gurakadj*. The distinction between shame and embarrassment is not made by the Japanese, Tahitians, Indonesians, or Newars of Nepal. There are states represented by a single word in other languages that are not represented by single English terms. For example, in Czech one finds *litost*, which means the sudden realization of life's tragic circumstances. In German there is the word *schadenfreude*, pleasure in the failure or suffering of another person. In a related way, some cultures represent kinds of experience with numerous words and concepts. For example, in Tahiti there are 46 separate terms that refer to anger. When this kind of effect occurs, people may be more likely to experience many shadings of meaning for certain kinds of emotion.

Many emotion words have metaphorical content. A **metaphor** is a concept that points to something other than itself. We might say, "This party is a blast." The image, the blast of a bomb, can characterize complex features of a party. Or we might say "Justice is blind" to characterize a hoped-for property of the abstract process of justice: to indicate it should be applied similarly to everyone, independently of who they are.

In their study of metaphor, George Lakoff, Mark Johnson, and Zoltán Kövesces have argued that there are five metaphors that speakers of English use frequently to describe emotional experience (Kövesces, 2003; Lakoff & Johnson, 1980). First, emotions can be *natural forces*. We speak of being swept away by our emotions as if they were waves. Second, emotions can be *opponents*. We struggle with our desire, grief, or frustration. Third, emotions can be *diseases*. We say that we are sick with love or envy. Fourth, we can think of emotions as fluids in containers. We simmer with rage or burst with joy. Fifth, we can think of emotions as animals. People who kiss a lot in public are "lovey-dovey."

Concepts of Emotion as Prototypes

How do we categorize emotions? Are there necessary and sufficient features of the concept of emotion, or of specific emotions? For some concepts we can give a correct definition with necessary and sufficient features—so a *grandmother* is "the mother of a person who is a

parent." For most concepts exact definition is difficult or impossible because the natural world is not so neatly divided into categories, and for many objects we just do not know enough. So, when you say "tree," you mean that kind of thing called "tree" of which we all know typical examples but about which, if need be, those scientists in the Botany Department could tell us more.

Thus language and thought have the wonderful property of allowing us to talk and be understood even when we do not know very much. To do this we rely on thinking with **prototypes** that the hearer can summon into mind (Putnam, 1975). A prototype can be thought of as an example of an object in a category that shows off typical features of the category, so a prototypical bird is a robin. It flies, is of medium size, sings, builds nests, and so on. When invoking prototypes to explain things, we can also specify modifications. Although our prototype for *tree* might include the concept *large*, we can modify it and say, of a bonsai: "It's a tiny tree that has been grown in a pot and pruned to keep it small."

In several studies Fehr and Russell (1984) argued that people think about emotions in terms of prototypes. More specifically, people's everyday prototype of an emotion is something like a **script**, which refers to a characteristic outline of a sequence of events. Russell (1991b) has contrasted this kind of approach with approaches such as that of Johnson-Laird and Oatley (1989), who have offered a semantic analysis of the English lexicon in terms of primary emotions and their derivatives. Russell suggested that although in science we need to understand defining characteristics of emotions, perhaps in a manner such as that of semantic analysis, in ordinary life we think with prototypical examples of emotions with no sharp boundaries dividing off good from less good examples.

In one of the first studies systematically to explore prototypical scripts for different emotions, Shaver et al. (1987) had participants write about causes, thoughts, feelings, actions, and physical signs of different emotions. They coded these narratives and identified features of the emotion prototypes (namely, features that occurred in at least 20% of either the person's descriptions or the emotion's descriptions). The prototype for sadness is shown in Table 7.3.

By this narrative methodology, participants offer scripts, or as De Sousa (1987) calls them, **paradigm scenarios**, of different emotions (see also De Sousa, 2004). The idea has been useful for researchers in differentiating various emotions. Researchers using these narrative methods have sought to identify the distinct prototypes of the self-conscious emotions, including embarrassment, shame, and guilt (Keltner & Buswell, 1996; Miller & Tangney, 1994; Parrott & Smith, 1991). Embarrassment most typically follows violations of conventions that increase social exposure (e.g., after pratfalls or a loss of body control). Shame tends to follow the failure to live up to expectations, either one's own or those of significant others, that define the "core self,"

Table 7.3 Prototype of sadness

Causes:	Death, loss, not getting what one wants
Feelings:	Helpless, tired, run-down, slow
Expressions:	Drooping posture, saying sad things, crying, tears
Thoughts:	Blaming, criticizing self, reflection on past actions
Actions:	Negative talk to others, withdrawing from what was lost

Source: Adapted from Shaver et al. (1987).

"ego ideal," or character. Guilt appears to follow transgressions of moral rules that govern behavior toward others. The common antecedents of guilt, therefore, include lying, cheating, stealing, infidelity, and neglecting personal duties (Tangney, 1992; Tangney et al., 1996).

There are several interesting implications of taking a prototype perspective to emotion knowledge. First, it assumes there are no sharp boundaries between emotion categories. For example, there is going to be overlap in people's representations of sadness and anger, for example, or fear and guilt. Second, a prototype approach helps account for the varieties of experiences that are represented by one category of emotion. For example, there are numerous varieties of anger: some involving blame, others that are accidental; some directed at others, others directed at the self; some experiences of high intensity (like rage), others more modest (like irritation). A prototype perspective suggests that within each emotion category there are better examples of an emotion that possess the prototypical features of an emotion, such as those that we presented for sadness. Then there will be many variations of that emotion that have fewer of those features, or other features as well.

Categorical Properties of Emotion Knowledge

In other ways it appears that we do think about emotion in terms of **categories** with distinct boundaries between one another. A demonstration of this was provided by Nancy Etcoff and John Magee (1992). They argued that if there were basic emotions, then facial expressions would be recognized in categories. All happy faces would be sorted into one category, angry ones into another, and so forth. Perception of these expressions should be comparable to certain phenomena in the perception of speech. What distinguishes a spoken *b* from *p* in words like *bit* and *pit* is the time between the mouth opening and the onset of sound made by the larynx, called *voicing-onset time*. People are bad at making discriminations of voicing-onset time on either side of the *b–p* boundary, but they are excellent at discriminations across this boundary where time differences of a few milliseconds enable people to discriminate between *b* and *p*.

Etcoff and Magee created several series of faces ranging between pairs of states: happy to neutral, happy to sad, angry to disgusted, and so forth. To do this they traced faces from expressions of six basic emotions and a neutral face in photographs taken by Ekman and Friesen (1975) and used the caricature-generating computer program of Brennan (1985). For each pair of states they created 11-point scales with exactly equal increments of transition. You can see the series of 11 faces from happiness to sadness in Figure 7.3. They found that for these series there were abrupt shifts in discriminability between the faces, indicating a boundary between, for instance, happy and sad, angry and disgusted, and so forth. On either side of the boundary, people were not good at telling the difference between, for instance, the second and fourth faces in such series, but across the boundary, for instance between the fourth and sixth faces in the series, they were good. This experiment implies that functional categories of basic emotions affect discriminability of facial expressions.

A debate is in progress. On one side are those such as Ekman (1992), Panksepp (1992), Roseman (2011), and Oatley & Johnson-Laird (2011), who argue that there is a continuing usefulness in thinking of emotions in distinct categories. Researchers on the other side include Russell (2003), Barrett, Lindquist, Bliss-Moreau, Duncan, Gendron, Mize et al. (2007), and

FIGURE 7.3 Series of faces in equal increments from happy to sad (from Etcoff & Magee, 1992).

Clore and Ortony (2008), who argue that emotions are not natural kinds, in the way that mammals and birds are naturally occurring kinds, because there is too much variation even in emotions that have the same name. It may be best to think of people on the different sides of this debate as focusing on different aspects of emotion. On the one side are those who focus on the functionality of emotions. On the other side are those who find more value in seeing emotions in terms of dimensions and cultural constructions.

Emotional Experience

How do we study the appraisals people make? One method has been in **diary studies**, in which people report on their everyday emotional experiences soon after they happen. Joanna Field (1934) kept a diary to see what it was in her life that made her happy. Here are some of her thoughts after falling in love, thinking about the man she would marry. "June 8th. I want us to travel together, exploring, seeing how other people live . . . sleeping at country inns, sailing boats, tramping dusty roads together . . . " (p. 48). Her thoughts take the form of plans of activities in a shared life of new experiences with the loved one.

In anxiety the thoughts are quite different. Here she is again:

> Oughtn't we to ask those people to tea? That's best, say, "Do you ever have time for a cup of tea? Will you come in any day?" Say we are free all the week, let them choose, will the maid answer the door? will she be too busy?

In this anxious little train of thought, Field wonders how to approach some people who are wealthier than she, rehearsing different forms of invitation and worrying about how she would feel if she called and a maid told her that the person she wanted to see was too busy.

Reflection and cultivation: Emotion diaries

Emotion diaries are ways of recording your emotions so that, by writing about what starts them, what thoughts you have during them, and what effects they have, you can reflect on them and understand them better.

The first psychologist to publish on emotion diaries was Georgina Gates (1926), who asked 51 women students to record instances of anger for a week; she found that anger in daily life was usually caused by being thwarted. Also in 1926, Marion Blackett, who had recently finished her psychology degree at the University of London, found herself wondering whether happiness was important. She had started to work as an industrial psychologist, and she had the idea of keeping a diary of incidents that made her happy, and to relate them to her goals in life. The project took far longer than she expected, and she turned it into a book under the pen-name of Joanna Field (1934/1952). It produced the surprising discovery that much of her life was driven not by consciously recognized goals but by barely conscious anxieties. The project prompted a change of career. She became the distinguished psychoanalyst, Marion Milner. Her identification of anxieties on the edge of consciousness did not become widely known at the

time; it was rediscovered decades later and became a cornerstone of cognitive-behavioral therapy.

One way to keep an emotion diary of your own is to look out for emotions that are distinct enough to recognize. Oatley and Duncan (1992) used this method, and told participants that indications of having an emotion were a bodily sensation such as the heart beating faster, or thoughts coming to mind that were hard to stop, or an urge to act emotionally. Among the questions we asked on a page made out like a questionnaire, were: What was the name of the emotion (or mood), how long did it last, what happened to start it, who was there, what thoughts came to mind during it, what urges were experienced, and what effects did it have? You can add to or delete from this list as you like.

Another way of keeping an emotion diary is to write down how you are feeling at certain moments in time. This method is called *experience sampling*, and it was invented by Csikszentmihalyi and Larson (1984), who asked adolescents to record how they were feeling when signaled at random moments. You can do this by keeping a timer in your pocket or purse, dialing up some random time on it, maybe about 45 minutes ahead, and then recording how you feel when the timer goes off—what are you doing and how are you feeling at that moment?—then repeating the process as often as you like. You can write down as much or as little as you like in your diary entries.

Diary methods are often useful if there are aspects of your emotional life that you don't quite understand. They are a common technique in certain kinds of therapies to help people gain insight during difficult times (see Chapter 14). The work of James Pennebaker reviewed earlier speaks to the benefits of such reflection. Were you to keep an emotion diary you might learn interesting things. Do you, for instance, sometimes experience a wave of anxiety or despair for no obvious reason? Do you have some emotion more strongly than you think you should? Record when such incidents happen, what you are doing when they start, what just happened, and who else was there. Write what thoughts occur to you. Later, you can reflect on these thoughts: Are they still convincing? You might make some interesting discoveries about yourself.

Other people who have made diary studies of emotions are Oatley and Duncan (1994), who asked employed people to keep diaries of events that caused emotions, such as happiness, fear, anger, and so on. Oatley and Duncan (1992) reported a 20-year-old woman, Abigail, who was keeping such a diary and was then interviewed. She said the cause of an incident of anger with her boyfriend was a disagreement about preferences for different kinds of music. The argument lasted two-and-a-half hours, but intrusive thoughts continued for three days and kept her from sleeping for three nights. She said: "I just couldn't get through to him." Her thoughts included: "Is this going too far? If it goes too far, it [the relationship with the boyfriend] would end." Memories came to mind: the argument "reminded her of an ex-boyfriend" and made her "wonder if it [the relationship] was worth it" (p. 275).

Measuring Emotional Experience

A further question about emotional experience is how to measure it. Green, Goldman, and Salovey (1993) surveyed the different approaches to the assessment of positive and negative moods. One method is to construct **adjective checklists**, using items from lists of the following kind:

Positive	Negative
cheerful	blue
contented	depressed
happy	downhearted
pleased	gloomy
satisfied	sad
warmhearted	unhappy

Sets of adjectives that are synonyms of emotions and moods (as above) are offered to participants in a scrambled order. Participants are asked to check any adjective that applies to them. Points are given separately for positive and negative adjectives.

A second method is to offer statements like: "I am feeling sad and dispirited." Then ask people to indicate agreement on a scale—a common five-point scale is "strongly agree, agree, not sure, disagree, strongly disagree." Alternatively you can make up a scale indicating the extent to which each statement "Describes me."

A third method is to use a scale like the following:

Circle a number on the scale below to indicate how sad you feel:

Not at all 0–1–2–3–4–5–6–7–8–9–10 The most intense I have felt in my life

The ends of this kind of scale are marked with verbal expressions called *anchor points*, with which the participant can compare his or her current experience.

There are several established self-report scales that measure tendencies toward global positive and negative moods (Watson, Clark, & Tellegen, 1988), distinct positive emotions like awe and compassion (Shiota, Keltner, & John, 2006), the tendency to express specific emotions like anger (Spielberger, 1996), shame and guilt (Tangney, 1990), embarrassment (Miller, 1995), and fear (Spielberger, 1983), as well as emotions in relation to others such as gratitude (McCullough, Tsang, & Emmons, 2004) and empathy (Davis, 1983).

In a useful development of the diary method called experience sampling (see box), which minimizes forgetting, participants are beeped on a handheld device at random times during the day, and at that instant they provide information about their current feelings (Barrett & Barrett, 2001; Bolger, Davis, & Refaeli, 2003).

Specific Emotions and Core Affect

Appraisals give rise to emotional responses—facial expressions, vocalizations, movements of the body, and patterns of autonomic and central nervous system activation. We have experiences of anger, desire, or awe, for example, in all of their complexities. The nature of emotional experience—how it arises—in many ways remains mysterious to science. But we can ask two questions.

First, what are the fundamental elements of emotional experience? Reizensein (1992a) has pointed out that attempts to answer this question have taken two forms. In one form, the experience of certain basic emotions that include happiness, sadness, anger, and fear is taken as being irreducible. This, for instance, is the position of Oatley and Johnson-Laird (1987), and one that found support in diary studies of emotion (Oatley & Duncan, 1984) and observations that a

small number of emotions or moods can occur in a **free-floating** form without any relation to external events, for instance, the emotional auras of certain kinds of epileptic seizure (MacLean, 1993) or the experience that Gazzaniga's (1988) split-brain patient had of being scared. The basic emotions cannot be reduced to lower-level components, although they can be labeled superordinately as pleasant or unpleasant. A related idea, based on the different states of readiness that emotions set up, is that of **ur-emotions**, states that are, as it were, primitive emotions that have some but not all the qualities of full emotions (Frijda & Parrott, 2011).

In the second form, Reizensein says that the experience of emotions might derive from elements that are not themselves emotions. So, for instance, Russell (2003) has proposed good versus bad (valence) and enervation versus energization (arousal) as the two underlying dimensions of emotional experience, which together make up core affect (which we discussed earlier in the chapter; see also Barrett & Bliss-Moreau, 2009). Good versus bad is something people can readily report. Enervation versus energization is a bit more problematic, but here Barrett et al. (2004) have found, by combining experience sampling with continuous autonomic measurement, that people can often report on this dimension, though some are more aware of it than others. Core affect, the reasoning goes, reflects the most fundamental and continuing assessments of how one is doing in the world. When experienced in more global terms, it is felt as more diffuse moods ("I feel unenthusiastic" or "I feel energetic").

If distinct basic emotions are primitives of experience (as argued by Oatley & Johnson-Laird, 1987), an emotion or mood is a basic state and a complex emotion derives from it by adding secondary appraisals about the emotion's cause, its object, and plans in relation to it. In the alternative scheme due to Russell (2003), primary appraisal is of core affect (good versus bad plus energization) and secondary appraisal is based on cognitive attributions of the core affect. In either case we have a primary stage, and in either case the secondary appraisal supplies meaning to the experience. The second stage is constructed: some of it is idiosyncratic, some is influenced by family upbringing, and some is influenced by culture.

A further question pertains to how other emotion-related responses enter emotional experience. Many researchers who pursue the idea of basic emotions follow *bottom-up* assumptions, and say that the experience of emotion tracks somatovisceral changes in the musculature of the body and peripheral physiological systems (e.g., Matsumoto, 1987). According to this view, somatovisceral changes serve as input into the online assessment of the individual's adaptation to the environment. This approach presupposes processes that are sensitive to interoceptive changes and to bodily movements such as facial muscle contraction. Over 20 studies indicate that experiences of specific emotions (e.g., anger, disgust, embarrassment, love, desire) covary with emotion-specific facial muscle movements (Hess et al., 1995; Keltner & Bonanno, 1997; for review, see Matsumoto et al., 2008). But although some studies find associations between bodily responses and emotional experience (e.g., Eisenberg et al., 1989; Shearn et al., 1990), others do not (Cacioppo et al., 2000). Mauss and Robinson (2009) review the three kinds of measures of emotion: (a) behavioral (including expressions), (b) physiological, and (c) self-reported conscious-experiential. They conclude that the underlying system of each is somewhat separate and that one of them cannot always be taken as standing for another.

The approach associated with core affect is more *top-down*. It holds that the experience of emotion is a conceptual act. Primary appraisals of goodness or badness and of energization trigger core affect, and this then becomes invested with attributions that arise from the situation, which can then be grounded in language (e.g., Barrett, 2006; Russell, 2003).

It is likely that both bottom-up and top-down processes offer important insights into understanding emotions. Phenomena of emotion range far in the brain and mind. Appraisals, intentions, and readiness occur in relation to events and to people in the social world. Emotional components of expression, physiology, and experience are not always aligned. Emotions are complex and are affected by context.

SUMMARY

Appraisals are evaluations of events in relation to an individual's goals or concerns. We started this chapter by thinking about how primary automatic appraisals occur unconsciously, when objects or events are evaluated in terms of the appropriateness of an event to a goal. Secondary appraisals then occur when we identify what caused an emotion and when we think what we might do about it. We showed how secondary appraisal varies across different cultures, and how there are arguments for both discrete and dimensional approaches. The important social process of tertiary appraisal starts when we turn our emotions into verbal forms and share them with others. Putting emotions into words helps focus emotional experience and enables us to explore implications, for instance, in metaphorical ways and in relation to others. Some aspects of emotions are best seen as prototypes or scripts, but at the same time there seem to be boundaries in people's representations of emotions. We introduced some of the approaches to measuring emotions: any emotion may have aspects of conscious experience that we can report and reflect on, behavioral expression, and physiological changes. These do not always cohere. They are best seen as different aspects of widely distributed processes.

TO THINK ABOUT AND DISCUSS

1. Think about a happy emotion that you are interested in, perhaps love or enjoyment of what you are doing, and reflect on what generally causes it for you. What concerns are at issue? Do the same for a negative emotion such as anger or sadness.
2. What functions for you has the expression of emotions in verbal forms?
3. There are three systems of emotion: behavioral (as in facial expressions and gestures), physiological (e.g., heart rate and skin conductance), and experiential (what you are conscious of). Why do you think these systems are not always closely coordinated?

FURTHER READING

For a cognitive account of emotions and their nature:

Nico Frijda (2007). *The laws of emotion*. Mahwah, NJ: Erlbaum.

An excellent review of appraisal is:

Agnes Moors (2009). Theories of emotion causation: A review. *Cognition and Emotion*, **23**, 625–662.

For a discussion of emotion in relation to language and metaphor:

Zoltán Kövesces (2003). *Metaphor and emotion*. Cambridge, MA: Cambridge University Press.

For a dimensional account of emotions:

James Russell (2003). Core affect and the psychological construction of emotion. *Psychological Review*, **110**, 145–172.