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Appraisal Theory

Overview, Assumptions, Varieties, Controversies

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What is appraisal theory? In simplest form, its essence is the claim that emotions are elicited by evaluations (*appraisals*) of events and situations. For example, sadness felt when a romantic relationship ends may be elicited by the appraisals that something desired has been lost, with certainty, and cannot be recovered (Roseman, 1984; see, e.g., Frijda, 1986; Oatley & Johnson-Laird, 1987; Scherer, 1993b; Smith & Lazarus, 1993; Stein & Levine, 1987).

Appraisal theories may be contrasted with other theories of the causes of emotions. For example, it has been claimed that emotions can be elicited, without an intervening process of evaluation, by: (1) events themselves, as in stimulus-response theories (e.g., Watson, 1919); (2) physiological processes, such as patterns of neural activity in the brain (e.g., Cannon, 1927) or peripheral autonomic activity (e.g., James, 1894); (3) facial or other expressions (e.g., Tomkins, 1962) or behaviors such as attack and flight (James, 1890); and (4) motivational processes, as in hunger eliciting an infant's distress (Tomkins, 1962) or the desire to intimidate an opponent leading an individual to get angry (Parkinson, 1997b).

Questions That Appraisal Theory Was Developed to Address

Appraisal theories were proposed to solve particular problems and explain particular phenomena that seemed to cause difficulties for alternative models (such as those just listed). Stated in the form of questions, seven of these problems or phenomena-to-be-explained are as follows.

1. *How can we account for the differentiated nature of emotional response?* Behavioral theories that dominated academic psychology from the 1930s through the 1950s tended to conceptualize emotion as undifferentiated, a dimension of behavior (emotionality) corresponding to its degree of energy or activity, which might reflect an underlying dimension of physiological arousal (e.g., Lindsley, 1951). More re-

cently, unidimensional theories have been supplanted by two-dimensional models, which either add a pleasantness (or "valence") dimension to the arousal dimension (e.g., Russell, 1980), or conceptualize positive affect and negative affect as the two fundamental dimensions of emotional experience (e.g., Watson & Tellegen, 1985).

However, starting in the 1960s, evidence has increasingly supported the conception (see, e.g., Aristotle, 1966; Descartes, 1989; Darwin, 1965) that there are several distinct emotions (such as joy, sadness, fear, and anger), as manifest in different facial expressions observable across cultures (e.g., Ekman, Sorenson, & Friesen, 1969; Izard, 1971; Tomkins & McCarter, 1964) and in characteristic action tendencies such as approach, inaction, avoidance, and attack (see, e.g., Frijda, 1987; Roseman, Wiest, & Swartz, 1994; Shaver, Schwartz, Kirson, & O'Connor, 1987). These findings cannot readily be accounted for by one- or two-dimensional models and raise the question of what produces the different patterns of response.

2. *How can we explain individual and temporal differences in emotional response to the same event?* As indicated by academic studies (e.g., Shaver, Hazan, & Bradshaw, 1988; Smith & Ellsworth, 1987; Smith & Pope, 1992), clinical practice (e.g., Beck, 1976; Horowitz, 1986), and common observation, there can be striking individual differences in emotional reaction to a given event. For example, in response to the end of a romantic relationship, some individuals may feel sadness, others anger, and still others guilt. Relief, hope, and the absence of emotion are among other possible reactions. In addition, an individual's emotional response to a given event may change over time (from guilt to anger, from relief to sadness, etc.). Both individual and temporal variability in reaction to an event are difficult to explain with theories that claim that stimulus events directly cause emotional response.

3. *How can we account for the range of situations that evoke the same emotion?* It is impossible to list all the elicitors of an emotion, because any emotion may be evoked by an infinite number of events, including events that have never been encountered previously. For example, sadness may be elicited by the death of a parent (see Boucher & Brandt, 1981), the birth of a child (see, e.g., Hopkins, Marcus, & Campbell, 1984), divorce (e.g., Richards, Hardy, & Wadsworth, 1997), declining sensory capacity (Kalayam, Alexopoulos, Merrell, & Young, 1991), not being accepted to medical school (Scherer, 1988a), or the crash of one's computer hard drive. It appears that there are no physical features common to all of an emotion's eliciting stimuli, and that novel stimuli (e.g., any of those just listed, when first experienced) can evoke emotions without having first been paired with existing elicitors. These examples pose problems for theories claiming that emotions are unconditioned responses to evolutionarily specified stimulus events or are learned via generalization or association (e.g., Watson & Rayner, 1920). How is it, then, that so many different situations can evoke the same emotion? What might they have in common?

4. *What starts the process of emotional response?* A problem with theories claiming that emotions are initiated by physiological events, expressions, or behaviors is that they fail to explain what starts the emotion process (Roseman, 1984). What produces a particular pattern of neural activity in the brain? evokes the sadness, anger, or fear face? triggers weeping, attack, or flight? In most instances, these are in some sense reactions to events (such as the end of a relationship, or failure on an exam) rather than being generated solely by endogenous processes. So physiological, expressive, and behavioral theories ultimately lead us back to stimulus events and the

aforementioned difficulties of accounting for individual and temporal differences and cross-situational similarities in emotional responses to those events.

5. *How can we explain the appropriateness of emotional responses to the situations in which they occur?* In contrast to early work that viewed emotion as disorganized and disorganizing (e.g., Young, 1961), contemporary analyses maintain that in many cases emotions are likely, at beyond chance levels, to have adaptive value in coping with the situations that elicit them (e.g., Izard, 1977; Lazarus, 1991b). For example, the behavioral passivity of sadness (which involves a diminution in approach behavior) is often an appropriate response to the death of a loved one, whereas angry protests would be a futile waste of energy. In contrast, the protest and attack behavior that is characteristic of anger seems an appropriate response to physical or psychological harm inflicted by another person (insofar as it can alter the harm-doer's behavior or deter its recurrence), whereas passive acceptance might well perpetuate or exacerbate the injury (see, e.g., Milgram, 1974; Staub, 1989). The physiological, expressive, and behavioral theories mentioned earlier, insofar as they focus exclusively on internal processes as eliciting emotions, have little to say about the relative situational appropriateness of emotional responses.

6. *What accounts for irrational aspects of emotions?* Though emotional responses are often adaptive, they are not always so. Fear can disrupt a soldier's ability to fight effectively in combat situations (Marshall, 1947; but see also Rachman, 1990), and elation can interfere with concentration on a task. Many people seek treatment for unwanted or problematic emotions, such as depression, anxiety, and panic attacks. Mild or moderate emotional responses also sometimes seem unreasonable (Parkinson, 1997a): one may feel guilt (or anger) though one realizes that the self (or the person one is angry at) is really not to blame (see also McGraw, 1987). Even "normal" emotional responses tend to be experienced as passions, involuntary and often seemingly beyond control (Averill, 1980a). We experience ourselves as falling in and out of love and as being overcome by fear, sadness, or joy. The maladaptive, unreasonable, and involuntary aspects of emotions pose problems for motivational theories that claim that emotions serve a person's goals and can be volitionally produced or terminated.

7. *How can developmentally and clinically induced changes in emotion be explained?* Not only may a person's emotional response to a given situation change over minutes, hours, and days, but also responses to a recurrent situation over longer time spans can change and be changed. Often these changes are quite complex and thus cannot be explained through simple processes of habituation to a repeated stimulus situation. For example, emotions that expressive and behavioral data suggest are absent at birth, including anger, fear, love, and shame, come to be experienced when a child is older (at around 4, 8, 12, and 24 months, respectively, by current estimates; see, e.g., Izard and Malatesta, 1987; Mascolo & Fischer, 1995; Sroufe, 1995). The events that elicit these emotions also change over the lifespan. For example, in the case of fear, common relatively age-specific elicitors include a visual cliff, after some amount of locomotor experience, at around 8 months (Campos, Hiatt, Ramsay, Henderson, & Svejda, 1978, cited in Izard & Malatesta, 1987), anticipated separation from a primary caregiver at around 12 months (Sroufe, 1995), monsters and ghosts around age 4–5 (Lentz, 1985), and public speaking in adolescence and adulthood (Bamber, 1974). Psychological interventions by mental health professionals (or by

spiritual counselors, parents, teachers, etc.) can also lead to changes in problematic emotional responses to particular situations. As with short-term variability, long-term changes in emotional response to given stimuli pose problems for theories claiming that emotions are evoked by stimuli per se.

Common Assumptions of Appraisal Theory That Address These Questions

1. *Emotions are differentiated by appraisals.* According to appraisal theories, the different emotions manifest in characteristic facial expressions and action tendencies are produced by differing evaluations of events (see, e.g., Roseman, 1996; C. A. Smith, 1989). More precisely—since the same appraisals (e.g., motive-consistency vs. -inconsistency, causation by another person vs. by the self) in different combinations appear to be involved in the production of multiple emotions (e.g., love, anger, pride, and guilt)—*each distinct emotion is elicited by a distinctive pattern of appraisal* (see, e.g., Arnold, 1960a; Frijda, 1986; Lazarus, 1991b; Ortony, Clore, & Collins, 1988; Roseman, 1984; Scherer, 1984a; Smith & Ellsworth, 1985).

2. *Differences in appraisal can account for individual and temporal differences in emotional response.* According to appraisal theories, it is interpretations of events, rather than events themselves, that cause emotions. Since the same situation can often be interpreted in different ways, there are few if any one-to-one relationships between a situation and an emotional response (Roseman, 1984). Because appraisals intervene between situations and emotions, *different individuals who appraise the same situation in significantly different ways will feel different emotions*; and *a given individual who appraises the same situation in significantly different ways at different times will feel different emotions.*

Thus the occurrence of sadness versus relief in response to the end of a relationship may be explained by different appraisals of the situation. In part, the individual who feels sad has evaluated the end of the relationship as an undesired event—"motive-inconsistent" or "motive-incongruent" in the terminologies of Roseman (1984) and Smith and Lazarus (1990), respectively—whereas the individual who feels relief has interpreted it as motive-consistent (motive-congruent). Analogously, an individual's change from feeling guilt to feeling anger may be explained by a change in appraisal, from blaming the self to blaming the partner for the relationship's demise (see, e.g., Roseman, 1984; Smith & Lazarus, 1990).

Note that many variations in cognition or appraisal are predicted to have no effects upon emotions. Only differences in a small number of theoretically specified appraisals (and any perceptions or interpretations that affect these critical appraisals) are expected to result in different emotions. For example, if an angry wife changes from blaming her husband for the breakup of their marriage to blaming an interloper who "stole him away," she would continue to feel the same emotion—only the target of her anger (the particular other person she was "angry at") would change.

3. *All situations to which the same appraisal pattern is assigned will evoke the same emotion.* According to appraisal theory, it is understandable why the various situational elicitors for a given emotion should have no concrete common features: because it is evaluations of events, rather than events per se, that elicit an emotion.

Physically dissimilar events (such as the death of a parent and the birth of a child) may produce the same emotion (e.g., sadness) if they are appraised in similar ways (e.g., as involving a loss of something valued). An infinite number of situations can elicit the emotion because any situation that is appraised as specified will evoke the same emotion, including situations that have never before been encountered. Thus, the loss of one's first love or first cherished possession is likely to elicit sadness; and if people develop the ability to clone copies of themselves, a man who wants this capability but believes that he has lost it will feel sad.

In sum, appraisal theories maintain that *a common pattern of appraisal is found in all the situations that evoke the same emotion.* Thus, whereas there are few if any one-to-one relationships between situations and emotions, there should be strong and invariant one-to-one relationships between particular appraisal combinations and particular emotions (see also Smith & Lazarus, 1990).[1]

4. *Appraisals precede and elicit emotions.* Appraisal theories (see e.g., Arnold, 1960a) claim that emotions are generated when particular appraisals are made. Since the perceptual system is designed to notice change (e.g., Ornstein, 1991), it will often be the occurrence of an event that triggers a process of appraisal and subsequent emotion (and habituation to existing situations that diminishes emotion over time). But appraisals may also be made of unchanging situations, as when one becomes frustrated when seeing that a desired event has still not materialized or happy when one "counts one's blessings." And remembered or imagined situations can also be appraised, eliciting emotions, as when the memory of an idyllic honeymoon produces joy or the fantasy of praise forthcoming when one's book is published elicits pride.

Emotions are presumed to be elicited by *current* appraisals, and this explains how remembering an event can evoke a different feeling from the original experience. For example, the honeymoon trip that was appraised so positively and thus experienced with joy when it occurred may, when recalled by a person whose marriage has since ended, be appraised in terms of loss and thus elicit sadness.

Most appraisal theories implicitly assume that appraisal, like other sensory, perceptual, and cognitive processes, often proceeds effortlessly; and that it generates emotions automatically (as when one is praised, perceives the self as responsible for this positive outcome, and feels pride). However, like other cognitive processes, appraisal can also be directed effortfully in controlled processing (Clark & Isen, 1982), as when one searches for evidence that one has been responsible for a positive event in order to feel pride. Indeed, controlled processing may be the method of choice for altering one's emotions, as when people try to "look on the bright side" (Vingerhoets & van Heck, 1990) in order to feel hope or search for excuses so as not to feel guilt (Snyder & Higgins, 1988).

Whether emotion is generated in response to perceived, remembered, or imagined events, and by automatic or controlled processing, appraisal theories claim that *appraisals start the emotion process, initiating the physiological, expressive, behavioral, and other changes that comprise the resultant emotional state* (e.g., Lazarus, 1991b; Roseman, 1984; Scherer, 1984a; Smith, 1989).[2]

5. *The appraisal process makes it likely that emotions will be appropriate responses to the situations in which they occur.* Several theorists maintain that *the appraisal system has evolved to process information that predicts when particular emotional responses are likely to provide effective coping* (Ellsworth & Smith, 1988a;

Lazarus & Folkman, 1984; Roseman, 1984; Smith, 1991). Appraisals then guide coping by selecting the emotional responses from an organism's repertoire that are most likely to help attain important needs and goals under those conditions.

For example, as discussed earlier, the typical response profile of sadness involves passivity and failure to pursue reward (Klinger, 1975; Roseman, Wiest, & Swartz, 1994; Seligman, 1975), whereas anger prototypically involves protest or attack responses (e.g., Averill, 1982; Roseman et al., 1994). In several appraisal models (e.g., Roseman, Antoniou, & Jose, 1996; Scherer, 1984a), one appraisal distinguishing sadness from anger is whether the person perceives control potential in the situation to be low versus high. This makes functional sense because if nothing can be done about a motive-inconsistent situation, then the passivity of sadness conserves resources—resources that protest or attack would waste; whereas if something can be done, then protest or attack could deter, reduce, or prevent the recurrence of another person's harmful action while passivity would result in a suboptimal adaptation (see also Perrez & Reicherts, 1992).

Note that to predict which emotional response would be adaptive, the appraisal system relates features of external situations to internal motives and resources. Functionally, control potential must be a *relational* appraisal, comparing the capabilities and resources of an individual with the requirements of a situation, in order to determine whether something can be done to make things better (Bandura, 1986; Lazarus & Smith, 1988; Roseman et al., 1996; Scherer, 1988a). And improvement, like initial positive versus negative evaluation of events, is judged in terms of current motives, goals, and concerns of the individual having the emotion (see, e.g., Frijda, 1986; Lazarus, 1991a; Roseman, 1984; Scherer, 1984a; Smith & Pope, 1992; Weiner, 1985a). For example, if it is appraised as motive-inconsistent, the end of a romantic relationship elicits negative emotions with responses that function to get less of something (e.g., by avoidance, attack, or cessation of approach). But if it is perceived as motive-consistent, the end of a relationship elicits positive emotions with responses that function to get more of something (e.g., by approach, proximity maintenance, or cessation of avoidance; see Tolman, 1923).

In these ways, appraisal provides a highly flexible and therefore especially useful emotion generation mechanism, "decoupling" emotional responses from rigid one-to-one relationships with situational conditions (Scherer, 1984c). Emotional response will vary with variation not only in external circumstances but also in internal needs and coping resources. Thus appraisals adapt emotional responses to the individual and temporal requirements of the situations in which they occur (Lazarus, 1991b; Smith, 1991). Emotions can then be conceptualized as organized and organizing responses that, because they are fine-tuned to particular external and internal conditions by the appraisal process, tend to be adaptive.

6. *Conflicting, involuntary, or inappropriate appraisal may account for irrational aspects of emotions.* Insofar as appraisal is a cognitive process, some authors have criticized appraisal theory as unable to account for unreasonable, involuntary, or maladaptive emotional responses (see, e.g., Parkinson, 1997b). But this criticism is based on a mistaken equation of cognition with its prototypic form (conscious and deliberative reasoning) and an incomplete understanding of what many appraisal theorists have said about the nature of the appraisal process.

With regard to the "unreasonable" quality of some emotional reactions, Magda

Arnold (1960a)—the founding mother of modern appraisal theory—insisted from the outset that appraisal is an "intuitive" assessment of the "here and now" aspects of situations and *not* a deliberative, rational process. Subsequent appraisal theorists (see Lazarus, 1991b; Leventhal & Scherer, 1987; Smith, Griner, Kirby, & Scott, 1996; Smith & Kirby, 2000, this volume; van Reekum & Scherer, 1997) have stated that while appraisal can involve complex, conscious, high-level cognitive processing (as when a pedestrian is told that a lion has escaped from a nearby zoo, infers that he may be in danger, and feels fear), it can also involve simpler nonconscious, lower level cognitive processing. The latter includes relatively primitive processing of sensory properties of stimulus events (as when an uninformed passerby feels fear simply in reaction to the loudness of a nearby roar) and automatic priming or schematic activation of memories (as when a girl who previously witnessed the shooting of her schoolmates by a sniper now has a conditioned fear response when she hears "popping noises"; see Spitzer, Gibbon, Skodol, Williams, & First, 1994, p. 325).

That appraisal can occur at both conscious and unconscious levels suggests that evaluations from the different levels can sometimes be in conflict, as when a visitor to the zoo hears the loud roar of a lion and feels fear although she "knows" that "there is nothing to be afraid of" because the lion is securely locked inside a cage. Such *conflicts between automatic, unconscious appraisals and more consciously deliberated ones can result in emotions that seem unreasonable or irrational* to the individuals experiencing them, to outside observers, or both.

The experienced involuntary nature of emotions may also be explained in part by the nature of appraisal processes. According to Arnold (1960a), appraisal is a type of perception, which suggests clear limits on our ability to control the process. That is, we may be no more able to appraise the world as we wish than to perceive it as we wish (e.g., perceive a short person as tall).

Roseman (1979, 1984) also refers to appraisal as a process of perception—"perception of the fate of motives"; and as discussed earlier, most appraisal theories agree that events are evaluated in relation to a person's goals, needs, or concerns. Motivational input into the appraisal process provides another way appraisal may be involuntary and thus appear irrational. That is, though motives may be manipulated to some extent by attentional mechanisms (see, e.g., Rodriguez, Mischel, & Shoda, 1989), many motivations, whether biogenic (e.g., hunger) or psychogenic (e.g., need for affiliation), are not produced volitionally and may be difficult to control or ignore.

For example, given sufficiently strong motivational states, it may be difficult or impossible to evaluate motive-relevant stimuli (customary food, companionship, or praise) as other than desirable in some respects. As a result, one is likely to feel theory-predicted emotions (e.g., positive emotions on attainment and negative emotions on loss) even if other concerns (e.g., for one's physical or psychological health or for moral action) also elicit conflicting emotions (e.g., guilt, regret) and make the former feelings seem irrational.

In short, *inability to control the motivational and perceptual bases of the appraisal process may explain inability to control the emotions* that result from that process.

Inaccurate or inappropriate appraisals can explain many other instances of emotions that are irrational in the sense of being maladaptive reactions to the situations in which they occur. For example, hyperaggressive children often demonstrate an at-

tribution bias in which they interpret ambiguous and benign behaviors of others as hostile provocations and react with inappropriate anger and aggression (e.g., Crick & Dodge, 1994; Graham & Hudley, 1992). And miscalibrated beliefs about one's abilities can result in appraising soluble problems as insurmountable, with this hopelessness causing or exacerbating depression, and reducing the likelihood that one will take effective action (e.g., Bandura, 1986).

Inappropriate or conflicting goals can also lead to considerable distress—as when a solid C student unrealistically clings to his dream of attending medical school, or when opposing desires for autonomy and intimacy appear to leave a person in a no-win situation, eliciting anxiety or depression (see Emmons & King, 1988).

The idea that *the source of emotion-related psychopathology may often reside in maladaptive motives, beliefs, and/or cognitive styles* is quite prominent in the clinical literature (e.g., Beck, 1976; Ellis, 1962). Indeed, by specifying the evaluations hypothesized to be directly responsible for problematic emotions, appraisal theory can offer potentially important clues to clients, therapists, and clinical researchers as they seek to identify the root causes of recurrent maladaptive emotion patterns (see Roseman & Kaiser, this volume; Smith, 1993).

7. *Changes in appraisal may account for developmentally and clinically induced changes in emotion.* According to appraisal theories, *if theoretically specified appraisals of a situation change over the course of development or are changed by psychotherapeutic interventions, emotional responses to those situations should also change.* For example, according to Roseman's (1984) appraisal model, in contrast to the emotion of distress, fear is elicited by appraisals that include uncertainty as well as motive-inconsistency (i.e., by the perception that an undesirable event *might possibly* occur). If so, fear would not emerge until a child develops the cognitive capacity to represent probabilistic contingency relations, for example, to recognize that a visual cliff signals the possibility of falling (see Bertenthal & Campos, 1990).

Common patterns of experience over the course of development would produce typical changes in the events that elicit an emotion, insofar as they alter appraisal of the triggering events. Thus, fear would be elicited at 12 months by anticipated separation from a primary caregiver because the 12-month-old child has learned to appraise this as signaling the possibility of forthcoming motive-inconsistency. Adults who have learned that being away from a primary caregiver does not signal danger will no longer feel fear in response to these anticipated separations. Instead, adults are more concerned with possible negative evaluations of their abilities (concerns beyond the ken of 12-month-old children) and may therefore feel fear in situations where such evaluations might occur, such as speaking in front of an audience.

Similarly, distinctive events experienced by individuals (as well as observational learning and instruction), insofar as they affect appraisal, can lead to the development of idiosyncratic emotional reactions. Thus an infantry soldier may have acquired a fear response to the sound of low-flying planes because combat experiences have taught him to appraise this as a danger signal. Individuals who have experienced many uncontrollable events in early development may respond to later stressors with abnormal levels of anxiety because they have learned to appraise such events as unpredictable and uncontrollable (Barlow, 1988; Mineka, Gunnar, & Champoux, 1986).

Psychotherapy may ameliorate emotional pathology if problematic emotion-generating appraisals (or behaviors that elicit such appraisals) are altered (e.g., Beck, 1976; Ellis, 1962; Meichenbaum, 1985). For example, depression may be diminished by interventions designed to alter the perceptions that negative events are pervasive, uncontrollable, and stable (appraisals of motive-inconsistency, low control potential, and certainty that are causes of sadness in the model of Roseman et al., 1996). Phobias may be successfully treated by behavioral techniques such as systematic desensitization (Wolpe, 1982) because progressive exposure to increasingly feared stimuli while remaining relaxed alters the appraisal that contact is likely to result in aversive consequences (motive-inconsistency). The use of appraisal theories in guiding treatment of emotional pathologies is discussed in more detail in Roseman and Kaiser (this volume).

Varieties of Appraisal Theory

Thus far in this chapter we have emphasized the common issues that nearly all appraisal theories try to address and the common claims and assumptions most appraisal models make. But appraisal theory is not a monolithic entity, and there are a number of interesting differences among the models developed and investigated by various appraisal theorists. In some cases, the differences are complementary, reflecting different emphases in what the investigators are attempting to explain. In other cases, the differences are true points of disagreement. Here we will highlight four of the more prominent differences among current appraisal models.

Structural versus Process-oriented Models

Among appraisal models now being developed and tested, a key distinction is whether a given model primarily addresses the structure or the process of appraisal. Most of the models advanced to date (e.g., Frijda, 1986; Roseman, 1984, 1996; Scherer, 1984a; Smith & Ellsworth, 1985; Smith & Lazarus, 1990) have been primarily concerned with the structure, or contents, of appraisal. These models attempt to specify the evaluations that initiate specific emotional reactions. Examination of these models (see, e.g., Scherer, 1988a; Roseman, Spindel, & Jose, 1990) indicates that although there is significant overlap (e.g., most models include some assessment of motive-consistency and of control or coping potential as key appraisals), there are also differences: in which appraisals are included (e.g., agency vs. accountability); how particular appraisals are operationalized (e.g., as unipolar vs. bipolar dimensions); which emotions are encompassed by a model (e.g., are states such as hope or challenge included?); and which particular combinations of appraisals are proposed to elicit a particular emotional response. Much of the research conducted heretofore in this tradition has been primarily directed toward demonstrating that appraisals differentiate emotional experiences as claimed by appraisal theory and demonstrating support for one or another specific appraisal model (e.g., Roseman, 1991; Scherer, 1993b; Smith & Lazarus, 1993). There have also been some attempts to directly compare, in the same study, the relative strength of two or more appraisal models (e.g., Mauro, Sato, & Tucker, 1992; Roseman et al., 1990).

Most structural models have been relatively silent with regard to the specific operations involved in making the appraisals. Despite acknowledging that appraisals

can be made automatically and outside of conscious awareness, few structural theories attempt to articulate the processes by which such evaluations might occur.

Recently, however, building on a seminal proposal by Leventhal and Scherer (1987), there have been several attempts to develop process models, encompassing multiple modes of appraisal and specifying the cognitive principles and operations underlying these appraisal modes (e.g., Lazarus, 1991b; Robinson, 1998; Smith et al., 1996; Smith & Kirby, 2000). For example, in attempting to differentiate between conscious, volitional appraisal and automatic, potentially unconscious appraisals, Smith and colleagues (1996; Smith & Kirby, 2000) have tried to formally describe automatic appraisal utilizing such traditional cognitive processes and constructs as priming and spreading activation. These authors use their model to offer explanations for phenomena that have traditionally caused problems for appraisal theories, such as (1) repression, where, despite what observers see as strong evidence to the contrary, an individual seemingly honestly denies both making the relevant appraisals and being in a particular emotional state (e.g., Weinberger, 1990), and (2) misattribution of arousal, where an individual misidentifies the object, and sometimes the nature, of his or her emotional reaction (e.g., Schachter & Singer, 1962). For a current description of this model, see Smith and Kirby (this volume).

Obviously a full understanding of appraisal will require the continued complementary development, refinement, and testing of both structural and procedural appraisal models, and it is quite possible that structural variables from some theories can be fruitfully integrated with process hypotheses from other theories to form comprehensive structure-and-process models.

Fixed versus Flexible Appraisal Order

Drawing on his structural appraisal model, Scherer (1984a) notes that some of his appraisal constructs are more cognitively complex than others and appear to require information from the simpler appraisals to be fully evaluated. For example, a prior novelty evaluation (detecting something to appraise) may be required before other appraisals are undertaken; and appraisals such as goal/need conduciveness may depend in part on the outcome of intrinsic pleasantness evaluations. Thus Scherer (1984a) proposes that appraisals are almost always made in a fixed sequence, with novelty and intrinsic pleasantness (the simplest appraisals, based almost wholly on characteristics of the stimulus situation) coming first and second in the sequence, followed in order by the more complex appraisals of goal/need conduciveness, coping potential, and norm/self compatibility, in that order.[3]

At the other extreme, Lazarus and Smith (1988; Lazarus, 1991b; Smith & Lazarus, 1990) reject the notion of a fixed sequence. Though they acknowledge that the outcomes of some appraisal evaluations may be partially dependent on the outcomes of others, they do not believe that such dependencies mandate a strict sequencing. Lazarus and Smith assume that the appraisal process occurs continuously and that, at any given time, one appraisal evaluation that is dependent on another can draw on an outcome for that latter evaluation that was produced in a previous round of appraisal. Moreover, they observe that if a good deal of appraisal occurs via automatic processes—activating memories of past experiences (see earlier discussion), then the fully articulated appraisal patterns associated with those experiences may be activated

virtually instantaneously. Even for more deliberate, effortful, reasoning-based appraisal, Lazarus and Smith argue that, rather than looping through a fixed sequence, efficient processors would more flexibly focus on evaluating those appraisal components whose outcomes are either ambiguous or unknown at a particular time.

In an intermediate position, Ellsworth (1991) has suggested that novelty and intrinsic pleasantness often must come first in the appraisal process because they call attention to a stimulus and thus initiate appraisal. Once appraisal has begun, however, Ellsworth allows that the various appraisal dimensions can be evaluated more flexibly, with priority given to those appraisal dimensions about which there is greatest ambiguity. Careful study of the cognitive processes underlying appraisal has the potential to sort through these different possibilities and resolve this controversy.

The Continuous versus Categorical Nature of Appraisal and Emotion

Current appraisal models differ with regard to whether distinctions among appraisal alternatives are conceptualized as continuous or categorical, which is related to and may depend on whether a model views emotions themselves as dimensional or discrete states.

In Roseman's (1996) model, appraisal information can vary continuously (e.g., along a dimension of motive-consistency)[4] but categorical boundaries determine which emotion will occur. For example, the boundary between motive-consistency and motive-inconsistency is not just a point on a continuum but the dividing line that determines whether a positive emotion versus a negative emotion will be experienced. In this view, the system that triggers discrete emotion facial expressions and action tendencies is set to make categorical appraisal distinctions, as in speech perception when categorical distinctions are imposed on continuously varying stimuli (Eimas, Miller, & Jusczyk, 1987). In addition to motive-consistency, the particular emotion elicited depends on such evaluations as whether an event is uncertain versus certain, and caused by the self versus other persons versus impersonal circumstances, and whether one has low versus high potential to control its motive-relevant aspects (similar categorical distinctions can be found in the theories of de Rivera, 1977, Frijda, 1986, Ortony et al., 1988, Smith & Lazarus, 1990, and Weiner, 1985a). According to this model, particular combinations of categorical appraisal outcomes produce discrete emotions. For example, according to Roseman et al. (1996), anger is caused by appraising an event as a motive-inconsistent goal blockage caused by someone else and perceiving that one has potential to do something about the situation. If the event were seen instead as motive-consistent (holding other appraisals constant), affection rather than anger would be produced; if caused by the self, guilt would be felt; and so on.

In Scherer's (1984a) model, most appraisal variables are conceptualized as dimensions along which appraisal outcomes vary continuously.[5] In addition, these dimensions define a continuous, multidimensional emotional-experience "space," and each point within this space (which corresponds to a particular pattern of outcomes along the appraisal dimensions) represents a distinct emotional experience. Thus, in this model, as there are an infinite number of points in the multidimensional appraisal space, there are an infinite number of different emotions one could potentially experience. For example, Scherer (1988a) distinguishes "irritation/cold anger" from

"rage/hot anger," differentiated in part by low versus high perceived suddenness and medium versus low predictability. According to Scherer (1984a), the major categorical labels we use to describe our emotional experiences reflect a somewhat crude attempt to highlight and describe the major or most important ways these emotional experiences vary.

One possible integration of these perspectives might be that categorical models are needed to account for the discrete emotion categories (such as happiness, sadness, fear, and anger) that researchers have identified cross-culturally (in facial expression and perhaps in action tendencies and linguistic labels), while continuous models are needed to account for all the varieties and shades of feeling that can be experienced.

Molecular versus Molar Approaches

A fourth distinction among theories is whether appraisals are conceptualized at a molecular level or a molar level (or both). This distinction was introduced by Smith and Lazarus (1990), who describe the molecular level in terms of appraisal *components*, which correspond to the individual appraisal dimensions in other theories; and the molar level in terms of *core relational themes*, which are gestalts of relational meaning each comprised of a set of appraisal components configured to state the central harm or benefit that gives rise to an emotion (Smith & Lazarus, 1993).

For example, Smith and Lazarus (1993) describe the important appraisal components of sadness as motivational relevance, motivational incongruence, low (problem-focused) coping potential, and low future expectancy; and the core relational theme for sadness as irrevocable loss. According to Smith and Lazarus (1993), the molar core relational theme level may add something to the molecular appraisal components "much in the way a sentence captures a complex idea that goes beyond the meanings of its individual words" (p. 237). Thus, including a molar level of analysis may provide additional specification that is needed to explain how appraisals interact or how appraisal information is combined, integrated, or assimilated to a pattern in order to generate emotions. It should also be noted that this combined perspective can integrate continuous dimensional conceptualizations, as represented by appraisal components (e.g., those mentioned at the beginning of this paragraph), with a more discrete categorical one, as represented by the core relational themes and their associated emotions (e.g., irrevocable loss and sadness; other-blame and anger).

Current Issues and Controversies Related to Appraisal Theories

In this section we discuss some questions and criticisms that have been directed at appraisal models. Our general approach will be to look for important issues raised and valid points contained in these questions and criticisms and discuss how they may enhance our understanding of the emotional phenomena that appraisal theories address.

Do appraisals really cause emotions, or are they components or consequences of emotional responses? Appraisal theories claim that appraisals *cause* emotions. For example, Smith and Lazarus (1993) propose that blaming another person for a motive-incongruent event elicits anger (see also Ortony et al., 1998, Roseman et al., 1996, Scherer, 1993b). But could it not also be true that other-blame is *part of* the experience of anger? or that people who get angry are then likely to blame others for negative events—that other-blame is *caused by* anger (Parkinson, 1997b).

In our view, the answers to these questions are yes, yes, and yes. Appraisals may be causes of emotions, components of emotions, and consequences of emotions. The perception that another person is to blame for a motive-incongruent event produces anger, and the same perception is typically (though perhaps not necessarily) a part of the phenomenology of anger, and it is also often (though not always) an effect of anger (see, e.g., Keltner, Ellsworth, & Edwards, 1993). For example, an employee's perception that she has received an unfair negative evaluation from a supervisor is likely to elicit anger; other-blame is likely to be a salient aspect of the anger experience, fading from attentional awareness as anger diminishes; and when feeling anger, the employee is likely to think of other injustices for which the supervisor is responsible.

Evidence that appraisals *cause* emotions comes from studies that manipulate appraisals and measure emotional responses. For example, Weiner, Graham, and Chandler (1982, experiment 2) manipulated information in hypothetical scenarios about the locus, stability, and controllability of the causes of events such as committing a crime and failing an exam. They found predicted effects on how much anger or pity subjects said that they would feel in those situations. Roseman (1991) manipulated five dimensions of appraisal information in narratives about events affecting story characters. The emotions that subjects said that they would feel corresponded significantly to predictions of an appraisal model encompassing 13 emotions, especially for appraisals of motivational state, situational state, and probability (support for predictions regarding agency and legitimacy appraisals was weaker). Smith and Lazarus (1993) manipulated appraisals of other- versus self-accountability, emotion-focused versus problem-focused coping potential, and future expectancy in scenarios that subjects imagined experiencing. Ratings of the anger, guilt, and fear/anxiety that subjects experienced while imagining these scenarios corresponded significantly to predictions of their appraisal model (support for predictions regarding sadness was weaker).

In a study of reactions to actually experienced events, Roseman and Evdokas (1999) manipulated subjects' appraisals of motivational state and probability in a laboratory situation and measured the emotions the subjects felt. Effects predicted by their appraisal model were found on subjects' experience of joy and relief. Hypotheses about the appraisal determinants of hope were not consistently supported. In a quasi-experimental paradigm, Smith and Kirby (1999) manipulated appraisals of coping potential during a math problem-solving task by varying problem difficulty. The manipulated appraisals mapped onto self-reported feelings of challenge/determination versus resignation as predicted by their model.

In sum, although it may be true that appraisals can be components of emotional experiences and can be caused by emotions, evidence from several different experimental paradigms in which appraisals are manipulated indicates that appraisals also cause emotions.

Are appraisals necessary causes of emotions, or can emotions be produced entirely by nonappraisal factors? In a stimulating and provocative paper, Izard (1993) discusses evidence indicating that emotions may be produced in several different ways: (1) by neural processes (e.g., endogenously via hormones and neurotransmitters and exogenously via pharmacological agents); (2) by sensorimotor processes

(e.g., via enactment of expressive and instrumental behavior); (3) by motivational processes (such as hunger, thirst, and pain); and (4) by cognitive processes (e.g., via attribution and appraisal).

Although it is possible that some of the noncognitive mechanisms Izard mentions may involve appraisal mediation (e.g., appraisal of current states in relation to set points in motivational processes; associative activation of emotion-eliciting appraisals by sensorimotor processes), we find Izard's arguments plausible, particularly with regard to physiological elicitation of emotions.[6] For example, it would appear that emotions can be physiologically generated and altered independently of typical appraisal processes, as when endogenous depression is caused by neurotransmitter dysfunction and alleviated by antidepressant drugs. If so, appraisals are not necessary causes of emotions.

We do not believe, however, that this is a damning criticism of appraisal theory analyses. Here again the various alternative theoretical approaches appear to be plausible, compatible, and true—there are multiple causes for the same effect. In some instances, perhaps especially in some cases of emotional pathology, emotions may be produced by nonappraisal mechanisms. But in the majority of cases, emotions are not arbitrary responses that are unrelated to the situations in which they occur; rather, most emotions are reactions to events, and reactions that are dependent on the way the situation is perceived and evaluated by a particular person.

There would also appear to be instances of mixed causation. For example, a hormonally induced irritable mood may not result in constant anger, or anger in the absence of some triggering event. Rather, irritable mood may represent an increased tendency to react with anger (rather than no emotion or some other emotion) or a tendency to react with a greater intensity of anger, in response to some triggering event (such as failure to attain a goal). But in such instances of mixed causation, a triggering event must be perceived (there would be no anger if the goal-related outcome were unnoticed) and interpreted (e.g., as failure to achieve the goal); and the interpretations that are likely to generate the emotion are expected to fit the prototypic pattern of emotion-specific appraisals (e.g., for anger, motive-inconsistency interpreted as caused by another person).

Are appraisals sufficient causes of emotions? As discussed, Smith and Lazarus (1993) have found that blaming another person for a motive-incongruent event produces anger (see also Ortony et al., 1988, Roseman et al., 1996; Scherer, 1993b). But is it not possible to blame another person for some harm yet not feel anger (Parkinson, 1997a)? or to perceive a danger yet feel no fear? If so, do such cases indicate that something more than appraisal is needed to generate emotion?

One possible response is that these examples may overlook a fundamental feature of most appraisal theories. As mentioned earlier, most theories claim that emotions are produced by *patterns* of appraisal. In this view, isolated pieces of the pattern will be insufficient to produce the specified emotion.

For example, if one blames another person for a negative event that is not really motive-incongruent or that would be motive-incongruent for most people but is not for the individual experiencing the event, no anger will be felt. Thus, suppose a teacher blames school board administrators for not making needed repairs over the summer, forcing cancellation of a week of classes in September. If the teacher doesn't

really mind the cancellation of some classes, she would feel no anger in response to this "negative" event.

It is also possible that the teacher might have complex appraisals of motive-congruence/incongruence. On the one hand she may see lost teaching days as problematic. On the other hand, additional considerations, such as how these events might galvanize the community to devote more resources to the chronically underfunded school system, might make her overall appraisal one of neutrality or even motive-congruence.

Perhaps what can be learned from these examples is that cognition by itself is insufficient for eliciting emotion. This point underlies Lazarus and Smith's (1988) distinction between knowledge and appraisal. One might know the school board is responsible for the cancellation of classes, but unless one appraises this event as personally motive-incongruent one will not experience a negative emotion. The same assumption is found in all appraisal theories claiming that emotions are generated by evaluation of events as they are relevant to a person's motives, goals, or concerns (see, e.g., Frijda, 1986; Roseman, 1979; Ortony et al., 1988; Scherer, 1993b; Smith & Ellsworth, 1985; Weiner, 1985a).[7] That is, most appraisal theorists would seem to agree with William James (1890) that cold cognition (which we here conceptualize as cognition unrelated to motivation) does not generate emotion.

Even if another person is blamed for something that is in fact perceived as motive-incongruent, according to some models there are other appraisals that must simultaneously be present for anger (rather than some other emotion) to result. For example, according to Roseman (1996), if the teacher focuses on the incompetence of the school board officials rather than on the negative outcome they have produced, this intrinsic (rather than instrumental) problem type appraisal (i.e., the perception that a person or object has some internal negative quality apart from any goals that the person or object may be blocking) would produce contempt (rather than anger), an emotion with a different facial expression (Ekman & Friesen, 1986; Izard & Haynes, 1988), experiential quality (Roseman, 1994a), and action tendencies (Frijda, Kuipers, & ter Schure, 1989; Roseman, 1994a).

But what of perceiving danger without feeling fear? Suppose a student facing an upcoming oral exam perceives the possibility that she might fail, an outcome she is motivated to avoid. Suppose she takes an anxiety-reducing drug and feels no emotion. Does this show that appraisal is not sufficient to produce emotional response?

We don't think so. Insofar as emotion is distinct from appraisal and has a distinct physiological substrate, it is likely that some physiological interventions will affect emotions independent of appraisal or will prevent appraisal from influencing emotion. But this does not mean that appraisal is an insufficient cause. An analogy might be found in the study of reflexes. A rapidly approaching object is sufficient to trigger the eyeblink reflex. This relationship is not disproved by administration of a drug that blocks the action of the nerves or muscles responsible for blinking.

Are appraisal–emotion relationships universal, or do they vary from culture to culture? Virtually all contemporary appraisal theorists assume that the appraisal–emotion relationships proposed in their models are universal. Several theorists have discussed this issue (e.g., Ellsworth, 1994a; Mesquita & Frijda, 1992; Roseman, Dhawan, Rettek, Naidu, & Thapa, 1995; Scherer, 1997a; Smith & Lazarus, 1990; and

see Mesquita & Ellsworth, this volume), and some have begun to gather data to address it (e.g., Mauro, Sato, & Tucker, 1992; Roseman et al., 1995; Scherer, 1997a). In general, the assumption is that emotion is the product of a biologically based adaptational system shared by all members of our species and that therefore the appraisal-based antecedents of emotion should be universal as well. Smith and Lazarus (1990) assert as a "biological principle" the idea that if any individual appraises his or her circumstances in a particular way, then he or she will experience the emotion (universally) associated with that appraisal pattern, regardless of individual, cultural, or other factors.

Available data largely support this view at the cultural level (e.g., Mauro et al., 1992; Roseman et al., 1995; Scherer, 1997a). Although some relatively minor cultural differences in appraisal–emotion relations have been documented, the main finding of these studies is the great similarity in appraisals associated with (a relatively broad range of) particular emotions across cultures in the United States, much of Western Europe, and parts of Africa, Asia, and South Asia. At present it remains unclear whether the relatively few cultural differences that have been found reflect true cultural variability in the links between appraisals and emotions or methodological problems (such as difficulties associated with attempting to fully equate the relevant constructs and measures across a variety of cultures and languages).

It is important to note, however, that universality in appraisal–emotion relations in no way precludes the possibility of significant differences in emotional experience across cultures. Indeed, appraisal theory provides a potentially valuable tool for coming to understand such differences. Because cultures can vary widely in belief systems, as well as in the meanings that individuals ascribe to various events, it is to be expected that people from different cultures will systematically appraise seemingly similar events quite differently and thus will systematically experience different emotions in response to those events. For example, Roseman et al. (1995) found that college students in India reported feeling less sadness and anger than college students in America did, in response to sadness-, fear-, and anger-eliciting events. They also reported appraising these events as less motive-inconsistent than did their American counterparts (an appraisal difference consonant with the "detachment" orientation found in Indian culture versus the outcome or performance orientation that is characteristic of American culture). Structural equation analyses found that the cultural difference in appraisal could completely account for the reported cultural difference in emotion. Thus, just as when accounting for individual differences, identification of general appraisal–emotion relationships can facilitate understanding of systematic cultural differences in emotional experience.

Conclusion

In this chapter we have attempted to provide a broad overview of appraisal theory. We have described the observations and theoretical questions that appraisal theory was developed to address and discussed what appraisal theory has to offer to account for these phenomena—for example, how appraisal theory can be used to explain (1) emotion differentiation; (2) temporal, individual, and cultural differences in emotional response; (3) the appropriateness of many emotional reactions to the situations

in which they occur; and (4) the causation and remediation of emotional pathology. We have also considered how competing appraisal models differ from one another and described some of the more controversial issues that appraisal theory must continue to confront and address, such as the relative importance of appraisal versus other factors in eliciting emotions.

In this review, we have intentionally limited our focus to a consideration of issues directly bearing on the nature of appraisal and the need to include appraisal variables and processes in accounts of the causation of emotion. It should be noted, however, that for virtually all appraisal theorists, appraisal is not simply the elicitor of emotion, whose job is done once an emotional response has been initiated. Instead, appraisal theorists typically maintain that appraisal plays a central role in shaping and organizing the emotional reaction. According to most views, the physiological activities, subjective feelings, expressions, behaviors, and motivational urges that comprise an emotional response are all organized around, and are in service of, the adaptational exigencies predicted by the eliciting appraisals (e.g., Lazarus, 1991b; Roseman, 1984, 1996; Scherer, 1984a; Smith & Lazarus, 1990). More detailed consideration of these issues, and a host of others not addressed here, is provided in the chapters that follow.

Notes

1. These claims pertain to emotions that are psychogenically elicited. As we will discussed later, in some cases emotions may be produced or altered by nonpsychological means (e.g., via drugs or electrical stimulation of the brain). In such instances, the normal correspondence between antecedent appraisal pattern and consequent emotion may not exist (unless the nonpsychological intervention works by altering appraisals, which in turn affect emotions, as may be the case with medications used to treat thought disorders such as schizophrenia and their emotional sequelae).

2. Research by LeDoux (e.g., 1986) and others suggests that at a physiological level, key appraisal processes may take place in the limbic system (e.g., in the amygdala). However, this identification of neural antecedents of emotional response does not contravene appraisal theory, because (1) acknowledging that appraisal, like all cognitive processes, has a physiological substrate does not vitiate the appraisal–emotion causal sequence and (2) it is information abstracted from stimuli, which may be encoded in but is not limited to their physical properties, that generates emotion (as when the perceived insulting meaning of an overheard utterance elicits anger).

3. Scherer (this volume) maintains that the sequence of appraisals may be repeated rapidly and continuously.

4. Indeed, such continuous variation may be perceived and can affect emotion intensity (e.g., greater motive-consistency leading to greater intensity of a positive emotion).

5. Exceptions may be agency (self/other/nature), motive (intentional/negligence) and concern relevance (body/order/relationships/self), which would appear to be categorical distinctions (see Scherer, 1988a).

6. This view is not, however, shared by all appraisal theorists (see, e.g., Lazarus, 1991b).

7. Some of these theories were criticized by Lazarus and Smith (1988) as saying that mere knowledge can cause emotion. But insofar as an appraisal of the motive-consistency or concern-relevance of an event is a necessary part of the appraisal pattern needed to generate an emotion, these theories do not claim that knowledge independent of evaluation can produce emotion.