Chapter 23

Emotion and Adaptation

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Subjectively, there are few psychological phenomena that compare with emotion. Emotions punctuate almost all the significant events in our lives: We feel proud when we receive a promotion; we become angry when we learn that our homes have been burglarized, we are joyful at the births of our children; and we experience profound grief at the death of someone we love. Furthermore, the emotions we experience seem to strongly influence how we act in response to these events: The joy and pride encourage renewed commitment to advance and protect career and family; the anger motivates us to seek justice and retribution; and the sadness pushes us to seek aid and comfort while coming to terms with our loss.

The centrality of emotion in human existence is no secret in the arts. Good drama is directed toward evoking emotion in the audience (Scheff, 1979), and thus serves as a study of the affective power of various social circumstances. In a complementary fashion, authors use emotional reactions as important clues to their characters' true motivations and personalities, revealing a pervasive assumption that emotions and personality are inextricably intertwined. Many of the trait words people use to describe others' personalities (e.g., "hostile," "timid," "spiteful," "cheerful," "aggressive," "cautious," etc.) refer directly to the persons' tendencies to respond to diverse situations with characteristic emotions (see Plutchik, 1980).

Given the central position that we cede to emotions in our personal lives and the prominence of emotion in literary studies of the human condition, one might expect emotion to serve as a central, organizing construct in scientific psychology, and especially in a psychology of personality. If to this we add the widespread—and no doubt justified—belief among professionals and laypersons that emotions have a major impact on our subjective well-being, our physical health, our social functioning, and our problem-solving performance, then understanding the emotions ought to be a major agenda for the social and biological sciences. Historically, however, the study of emotion in psychology has been severely neglected. Emotion has been considered an irrelevant epiphenomenon (e.g., Skinner, 1953), or has been used as a convenient chapter heading

for a loosely organized collection of material not easily covered elsewhere (see Bolles, 1974; Lazarus, 1966; Tomkins, 1962).

This neglect, however, is currently showing healthy signs of dissipating. Psychologists from all subfields profess interest in emotional processes, and research on emotion-related topics is burgeoning. A number of volumes (e.g., Izard, Kagan, & Zajonc, 1984; Plutchik & Kellerman, 1980; Scherer & Ekman, 1984; Shaver, 1984), and even new journals (e.g., *Cognition and Emotion*), devoted to the study of emotion have recently appeared. The same can be found in sociology, anthropology, and the neurosciences.

What we think has happened is this: First, there was a loosening of the restrictive epistemology of behaviorism, which allowed investigators once again to examine thoughts about one's plight as factors in adaptation and emotion. Second, the cognitive revolution allowed researchers to center attention on emotion in common-sense or folk psychology terms, to recognize the dependence of our emotional lives on motivation, and to focus attention on the individual differences in what is important to the person. Although heartened by these developments, we maintain an uneasy sense that, with a few exceptions (e.g., Thoits, 1984), much of this work still fails to appreciate emotion's rightful place as a central and organizing construct within psychology. Instead, there is a tendency to treat it as yet another interesting, isolated subtopic.

We begin by addressing the question of what an emotion is. Next, we describe our own recent work directed at illuminating what we see as one of the important issues in emotion theory—the role of cognitive appraisal. We embed this work in a general model of emotion, which identifies the key variables and processes within a systems framework emphasizing person—environment relationships and cognitive mediation. In presenting our model, we illustrate how emotion theory makes firm contact with a variety of topics currently being pursued across diverse psychological disciplines, especially personality and social psychology.

DEFINITIONAL ISSUES: THE NATURE OF EMOTION

Unfortunately, although there is considerable agreement that certain psychophysiological states (e.g., anger, fear, and sadness) should be regarded as emotions, and that certain others (e.g., hunger and thirst) should not, there are many other states (e.g., startle, interest, guilt) about which there is little consensus (cf. Ekman, 1984; Ekman, Friesen, & Simons, 1985; Izard, 1977; Ortony, 1987; Plutchik, 1980; Tomkins, 1980). The lack of consensus occurs because there is no absolute agreement on the criteria that should be used to distinguish emotion from nonemotion. The "defining" criteria have been based on specific behaviors believed to be produced by the emotions (e.g., Watson, 1919), linguistic properties of the English words used to denote various states (e.g., Ortony, 1987; Ortony, Clore, & Foss, 1987), and distinctive patterns of physiological activity, such as characteristic facial expressions (e.g., Ekman, 1984; Izard, 1977; Tomkins, 1980). An examination of previous definitional attempts might lead to this conclusion: "Everyone knows what an emotion is, until asked to give a definition. Then, it seems, no one knows" (Fehr & Russell, 1984, p. 464).

In any definition we need to distinguish between what can be said about emotion in general, and what can be said about specific emotions such as anger, fear, guilt, shame, pride, love, and so forth. The most common solution, historically, has been to base the definition on descriptive characteristics of the general reaction, which, Hillman (1960) has suggested, provides substantial agreement in the abstract. Hillman quotes the following from Drever's (1952, pp. 80–81) *Dictionary of Psychology*:

> *Emotion:* differently described and explained by different psychologists, but all agree that it is a complex state of the organism, involving bodily changes of a widespread character—in breathing, pulse, gland secretion, etc.—and, on the mental side, a state of excitement or perturbation, marked by strong feeling, and usually an impulse toward a definitive form of behavior. If the emotion is intense there is some disturbance of the intellectual functions, a measure of dissociation, and a tendency towards action. . . .

Although this definition expresses some consensus at the descriptive level, it does not go far toward settling disputes over distinctions between emotion and nonemotion, or the specific reaction states that should be considered true emotions. Is surprise an emotion? Excitement? Relief? Love? How should we treat the so-called "aesthetic" emotions? Nor does it reveal much about the properties of specific emotions,

or help us specify the processes and variables involved in the generation of emotion.

In seeking to distinguish emotion from nonemotion, the seemingly irreconcilable differences among various definitions suggest to us, as they have to others (e.g., Fehr & Russell, 1984; Shaver, Schwartz, Kirson, & O'Connor, 1987), that emotion may not be readily amenable to classical definition. Instead, it may be better to think of a set of prototype definitions that explicitly acknowledges that "emotion" may be an inherently fuzzy set, and perhaps to replace traditionally strict necessary and sufficient conditions with defining features that tend to be shared by most emotions and absent from most nonemotions (Fehr & Russell, 1984; Leeper, 1965; Rosch, 1978; Shaver et al., 1987). The very notion of a "fuzzy" set indicates the possible existence of *borderline* phenomena that have some characteristics prototypical of an emotion and other characteristics prototypical of a nonemotion, making the full category of "emotion" very difficult to define and many borderline states difficult to classify with assurance.

Wisdom suggests that in this chapter we should not try to resolve the question of which states are borderline states or genuine emotions, since the arguments are complicated and would require much space, and we are not totally confident about our own solutions. Instead, we compare emotions to related psychophysiological phenomena in order to identify the most important distinguishing characteristics of emotion. We draw upon these characteristics to describe the specific variables and processes involved in emotion, since delineating these specifics and their interrelationships in each kind of emotion represents the most pressing agenda for emotion theory and research.

THE ADAPTATIONAL PROBLEM AND THE EVOLUTION OF EMOTION

As Plutchik (1980) has cogently argued, each species faces a number of fundamental adaptational problems that it must adequately address in order to survive. The survival issues faced by most animal species include, among others, adequate nourishment, reproduction, and protection from external and internal threats to well-being.[1] Through natural selection, successful species develop mechanisms that enable them to meet these problems, and different species achieve solutions determined by both the environmental pressures they face and their biological potential.

Like many contemporary and recent theorists (e.g., Arnold, 1960; Ekman, 1984; Ellsworth & Smith, 1988a; Epstein, 1984; Izard, 1977; Lazarus, 1968; Lazarus, Kanner, & Folkman, 1980; Lazarus & Smith, 1988; Leeper, 1948, 1965; Leventhal, 1980; Plutchik, 1980; Roseman, 1984; Scherer, 1984b; Tomkins, 1962, 1980), we believe that emotions represent one class of solutions to these adaptational problems. Each emotion expresses a person's appraisal of a person–environment relationship involving a particular kind of harm or benefit. The appraisal is based on antecedent motivational and belief variables that confront (interact with) a set of environmental demands, constraints, and resources, and it generates action tendencies relevant to the specific conditions of harm or benefit confronted—tendencies that are embodied and expressed in a particular physiological pattern. However, emotions are not the only entities that serve adaptive functions; both within and across species, similar functions are also served by reflexes (e.g., startle) and physiological drives (e.g., hunger and thirst). Reflexes, physiological drives, and emotions all stimulate (motivate) the organism to behave in ways that enhance its potential to survive and flourish. In other words, each is a different "adaptational subsystem."[2]

Although serving similar general functions (i.e., promoting survival), the three adaptational subsystems are, in principle, distinguishable in an evolutionary sense. It is a reasonable inference that emotions evolved from simpler and more rigid adaptational systems such as reflexes and physiological drives (see Ellsworth & Smith, 1988a, 1988b; Epstein, 1984; Leeper, 1948, 1965; Scherer, 1984b; Tomkins, 1962). Undoubtedly, the most important evolutionary change was the movement away from specific built-in responses elicited by specific environmental stimuli toward increasing variability and complexity that decoupled the behavioral response from the environmental input. Along with this increasing variability and loss of behavioral rigidity, there simultaneously evolved an increasing dependence on intelligence and learning. As more complicated species evolved, they became less dependent on hard-wired reflexes, and a gap developed between environmental demand and action. This gap was filled increasingly by thought and judgment, as is

most evident in humans (Piaget, 1952; Werner, 1948). Instead of surviving and flourishing because of a built-in program of adaptive reactions for every specific environmental condition, more advanced species survived by learning how to deal with their environments and mobilizing accordingly. Increasingly, judgment took over from innate reflexes, and emotions—drawing upon both motives and thought—have become the key adaptational process intervening between environmental challenges and actions (Tomkins, 1962). In short, innate reflexes were once the simplest solutions to the adaptational problem of getting along in the world, but in more complex creatures these evolved into emotional patterns.

In considering the role of the emotions in adaptation, one must remember that the fundamental adaptational task is to mobilize the most efficacious behavior in the face of the biological and social requirements of living. Remember, too, that in order to effectively produce contingent behavior, the organism must meet two fundamental conditions: First, it needs to reliably detect when environmental circumstances are relevant to one or another of its survival needs; second, this detection must result in behavior that increases the likelihood of satisfying the need. In our view, reflexes, physiological drives, and emotions all represent mechanisms connecting the detection of survival-relevant conditions with the production of survival-enhancing behavior, but they achieve this connection in different ways.

Reflexes

The task of pairing adaptive behaviors with survival-relevant conditions is easiest when a need is reliably signaled by a very specific cue or set of cues, and can be met by performing a specific behavior. It is this very specific linkage that innate reflexes accomplish, and the hallmark of the reflex is its stimulus specificity and response rigidity (Ekman, 1984; Ekman et al., 1985). Very specific patterns of stimulation ("releasing stimuli") elicit very specific patterns of behavior ("fixed action patterns") that ensure the need signalled by the releasing stimulus is met. These characteristic properties of reflexes are summarized in the first column of Table 23.1.

Reflexes (at one time, the term "instincts" might have been used) constitute an effective adaptational system for organisms that can afford to interact with their environments in highly stereotyped ways. However, their simplicity—the rigid pairing of a specific stimulus with a specific response—has high costs, particularly as organisms and their environmental interactions become more complicated. For an organism dependent on reflex, each new mode of interaction with the environment requires the development of a new reflex, and at some relatively modest level of complexity this requirement becomes highly disadvantageous. As the survival issues themselves become more complex, they become increasingly difficult to address through the performance of rigid behavioral sequences, and more flexible, context-sensitive responses become necessary. Furthermore, it becomes increasingly unlikely that specific survival issues will be reliably signaled by single stimuli. Thus, with increasing complexity there is increasing selective pressure to surmount the behavioral rigidity inherent in reflexes and to decouple specific stimuli from specific responses (see Epstein, 1984; Leeper, 1965; Scherer, 1984b; Tomkins, 1962). There

TABLE 23.1. Comparison of Reflexes, Physiological Drives, and Emotions

Property	Reflex	Physiological drive	Emotion
Stimulus source	Internal or external event (real)	Internal tissue deficit (real)	Internal or external event (real or imagined)
Periodicity	Reactive	Cyclical	Reactive
Stimulus specificity	High	Moderate–high	Low
Response flexibility	Low	Moderate	High
Examples	Startle, eye blink	Hunger, thirst	Anger, sadness, guilt

is still a need for mechanisms that both alert the organism when it faces survival-relevant circumstances and compel it to respond adaptively to those circumstances. However, there is much to be gained if the organism is somehow able to equate distinct stimuli that signal functionally similar conditions, and/or to respond to those conditions with a degree of behavioral flexibility.

Physiological Drives

Physiological drives, such as hunger and thirst, evolved in the service of particular internal, homeostatic needs. For instance, hunger serves to ensure that the organism's nutritional needs are met, and thirst ensures that the organism maintains an adequate fluid balance. These drives have tended to remain stimulus-specific even in the most complicated species, presumably because the homeostatic needs they serve can be reliably anticipated on the basis of specific internal cues, resulting in little selective pressure to abandon the specificity. For example, in many animal species (including humans), an impending need for nourishment can be predicted quite reliably from specific internal cues, such as the level of sugar in the bloodstream, and these cues elicit hunger (e.g., Thompson & Campbell, 1977).

Physiological drives are distinguished from reflexes by a moderate degree of response flexibility. In most higher animals drives tend to motivate specific *classes* of behavior, but the specific behavioral sequences within these classes are not determined by the drive itself. For instance, hunger motivates the organism to *eat* something, but for many species (including humans), the hunger itself does not determine either the specific behaviors to be performed to obtain and prepare the food, or the identity of appropriate foodstuffs. This response flexibility provides considerable adaptational advantages, but also entails considerable cost.

The major advantage is that the behavioral flexibility enables the organism to adjust its behaviors sensitively to its specific environmental contingencies. Thus, in hunger, if one strategy for obtaining food fails, the organism is relatively free to try another; if a favorite food becomes scarce, the organism is able to seek an alternative; and so on. The major cost is that this flexibility makes the drive in some sense incomplete: It must be supplemented with

something that guides the organism toward specific appropriate behaviors. Thus, with hunger, appropriate strategies for obtaining food must come from somewhere, and the organism must have some means of identifying suitable foods.

The apparent evolutionary solution to this tradeoff has been to make the degree of behavioral flexibility associated with drives dependent upon the species' capacity for learning. The ability to draw upon past experience to guide present behavior seems to be a prerequisite for response flexibility (cf. Bolles, 1974; Ellsworth & Smith, 1988a; Epstein, 1984; Scherer, 1984b). Across species, organisms that demonstrate the most highly developed learning capabilities tend to be the ones that have acquired the greatest behavioral latitude in responding to specific physiological drives. For instance, human food preferences are dependent on culture and the individual's life experience (Rozin & Fallon, 1987).

Drives display an additional characteristic, "periodicity," that further distinguishes them from reflexes (and emotions). Unless anticipated, the homeostatic needs, and hence the drives that serve them, arise with great regularity. For example, after an extended period without nourishment (or fluid) an organism *will* become hungry (or thirsty, etc.) in a very predictable manner. In contrast, many reflexes, and all emotions, are "reactive." They arise in response to appropriate signals whenever those signals occur, and if the signal never arises then the reflex or emotion may never be experienced. As summarized in the second column of Table 23.1, physiological drives display periodicity, stimulus specificity, and moderate response flexibility, and they serve homeostatic needs.

Physiological drives—which are innate in all animal species, including humans—are not the only motivational forces to which complicated species respond. In humans, for example, there appear to be strong needs to explore, achieve, and gain mastery over the environment, as well as to maintain contact and form social bonds with others. Whether one refers to these needs as learned or acquired drives, or "social motives," the development of adaptational systems to satisfy them has depended on a powerful and abstract intelligence. Advanced intelligence also made possible the complex patterns of social organization that dominate the behavior of advanced species, and that are as important to

survival and prosperity as meeting physiological needs.

This is not the place to argue about the extent to which social motives are innate or acquired or developmentally dependent on conditioning in the presence of the subsidence of physiological drives such as hunger and thirst. Human functioning and adaptation are heavily dependent upon the fate of social motives, and in our view, emotions are part of an evolutionary solution for ensuring their satisfaction. An understanding of human emotions would be impossible without reference to a motivational principle that identifies what is regarded by the individual as important or unimportant to personal well-being. A cognitive—relational theory of emotions, such as the one we propose below, cannot depend on the fate of innate physiological needs alone, but rests on the premise of individual differences in motivational patterns—patterns that set the stage for defining harm and benefit for each individual.

Emotions

As we have said, emotions emerged in complicated species to meet the need for high degrees of response flexibility to the often complex and subtle conditions of life that could generate harms and benefits. They developed in ways that differentiate them from both reflexes and drives in flexibility, variability, richness, and dependence on intelligence. As indicated in the last column of Table 23.1, emotions not only expanded the response flexibility that distinguishes drives from reflexes, but also lost the stimulus specificity that characterizes both reflexes and drives.

Unlike physiological needs, which are internal and reliably signaled by specific stimulus conditions, adaptationally significant external events present themselves to complex species in a variety of guises. For instance, one class of events with which the organism must be prepared to cope in order to survive is that of *threats* to its well-being. All threats share the property of having the potential of resulting in harm if they are not avoided or neutralized.

However, these dangers can take a variety of forms, and each can be signaled by a wide array of conditions. The danger may be any one of several predators, whose presence may be signaled by diverse stimuli (an odor, a sound, the sudden movement of a shadow, etc.). The recognition of threat is further complicated by the fact that a predator is often not dangerous unless aggravated or hungry. Thus, the significance of any given signal may vary considerably across divergent contexts. In modern human existence, the danger from others may consist of subtle and concealed disapproval, patronizing statements that barely reveal a true attitude and require considerable social experience and intelligence to interpret, or poor matches between performance demands (e.g., at work) and the abilities and knowledge possessed by a person for meeting those demands. As a further complication, threats represent only one of several classes of significant events, each of which can take a variety of forms and be signaled in a multitude of ways.

In place of the unwieldy adaptational solution of developing a different reflex in response to every signal of every potentially significant event in all contexts, more complicated species have to stake their security on the capacity to evaluate the significance of what is happening. They need to be responsive to a wide variety of cues signaling a particular kind of significant event, and they need to be sensitive to the context in which these cues are encountered. In humans it is easy to demonstrate that, under the appropriate circumstances, just about any stimulus event can produce just about any emotion, and no single stimulus will always elicit a given emotion under all conditions (Ekman, 1984; Frijda, 1986).

The suggestion that emotions lack stimulus specificity does not imply that they are random response states. On the contrary, we see each distinct emotion as a response to a particular kind of significant event—a particular kind of harm or benefit (see Lazarus, 1968, 1982; Lazarus & Smith, 1988)—that motivates coping activity. However, because there is no simple mapping between objective stimulus properties and adaptive significance, the task of detecting significant events becomes quite formidable, and to accomplish it the organism must be able to somehow classify what is being confronted into a relatively small number of categories, corresponding to the various kinds of harm or benefit it may face. Above all, the emotional response is not a reaction to a stimulus, but to an organism (person)—environment *relationship*. Given the properties of the stimulus context and the organism's pattern of motivation, what must be detected is that the convergence of these two sets of characteristics

results in harm or benefit. This is what it means to speak of a "relational" approach to emotion. Moreover, with the adaptational responses having become less innate, more flexible, more variable, and more dependent upon the species' cognitive capabilities, emotions are not only reactions to ongoing relationships with the environment but are also cognitive.

However, the adaptive solution has not been merely to produce a purely cold cognitive process of detection and evaluation. Instead, it comprises a complex psychobiological reaction that fuses intelligence with motivational patterns, action impulses, and physiological changes that signify to both the actor and observer that something of significance for well-being is at stake in the encounter with the environment. We call this psychobiological reaction an "emotion." It is a very complex reaction that simultaneously encompasses motives and cognitive evaluations of the adaptational requirements of the encounter, and, if the encounter is evaluated as having important consequences for personal well-being, it results in organismic involvement. Therefore, in place of "emotion" we often use the expression "cognitive–motivational–emotive configuration."

The divorce of emotional response from specific stimuli and its replacement with a cognitive evaluation of the significance of the organism–environment relationship is the centerpiece of the emotion process in humans. By centering on the person's *interpretation* or *evaluation* of what an encounter signifies for its well-being, the effective stimulus for emotion has shifted from a concrete *event* to an abstract *meaning*. In becoming meaning-centered, emotions have achieved a flexibility and adaptational power that is simply not possible for stimulus-centered adaptational systems such as drives and reflexes.

From this point of view, *anything* that implies harm or benefit to the person can produce an emotion. Thus, pain, hunger, or even emotional reactions themselves (e.g., anger) can evoke fear, guilt, shame, or some other emotion—even a positive one such as happiness or love—if they are interpreted as somehow being a harm or threat, or a benefit. Just as significantly, the critical event—be it internal, external, or a combination of both—need not have actually occurred. *Anticipated* circumstances can be as emotionally arousing as the actual occurrence, if not more so (e.g., Folkins,

1970; Nomikos, Opton, Averill, & Lazarus, 1968). Even purely imaginary experiences, which the person in no way expects to take place, are quite effective at evoking low-level emotional reactions, as a long tradition of imagery-based research will attest (e.g., Carroll, Marzillier, & Merian, 1982; Lang, 1979; Schwartz, Fair, Salt, Mandel, & Klerman, 1976; Smith, 1989; Smith, McHugo, & Lanzetta, 1986).

That emotions are reactions to abstract meanings conveyed by just about any set of circumstances implies an emotion process that is extraordinarily complex, variable, and flexible. Whereas any given drive can only be satisfied by performing a particular class of behaviors (e.g., eating something in hunger, drinking something in thirst), this does not appear to be the case for emotions, perhaps because the diverse range of circumstances that can elicit a given emotion cannot be effectively addressed by any single class of behavior. For example, anxiety arises when we perceive ourselves to be in a potentially dangerous situation, and we become motivated to avoid or escape the threat. But a wide variety of behaviors that eliminate or reduce the threat can satisfy this motivation—fleeing the situation, remaining in the situation but increasing vigilance, or even mounting a pre-emptory attack to eliminate the source of threat. Thus, an emotion provides the motivation to react to the situation in an ill-defined way—in this case, to avoid the perceived threat—but it does not greatly constrain the specific behaviors produced.

Finally, the dependence on meaning lends emotion a dynamic fluidity that allows the response to sensitively track the changing adaptational significance of the person–environment relationship as an encounter unfolds. Thus, if the anxious person's attempts to avoid the threat prove successful, and the perceived danger is eliminated, the person's anxiety will be transformed into relief, and vigilance abates. If the threat materializes, and there is recognition of an irremedial harm, the anxiety will be transformed into sadness or despair, and the psychophysiological and behavioral pattern will look quite different.

The idea that the adaptational power and flexibility of emotion depend upon the organism's cognitive capabilities provides the basis for Plutchik's (1984) assertion that cognition evolved in the service of emotion, and has also

been invoked to explain why human beings, the most cognitive of creatures, also appear to be the most emotional (e.g., Hebb, 1949; Scherer, 1984b). Given the analysis above, it is not surprising that recent efforts to understand emotion have focused on the role of cognition, and in particular cognitive *appraisal,* in eliciting emotion.

APPRAISAL THEORY

How a given individual reacts emotionally to an encounter depends on an evaluation of what the encounter implies for personal well-being, which is what "appraisal" means in our usage. A fundamental proposition is that the evaluation causes the emotional response in accordance with a set of psychobiological laws, which we spell out later. That is, if we know how a person evaluates the relationship with the environment, we can predict that person's emotional reaction. In order to develop this position into a full-scale theory, and to make clear its utility, it is important to specify the causally relevant aspects of the appraisal process for each emotion. A large portion of our own recent collaboration (e.g., Lazarus & Smith, 1988; Smith, Lazarus, & Novacek, 1990) has been directed at developing a system of thought that specifies what a person must want and think in order to experience each kind of emotional response.

In developing the theory we wanted to integrate recent theoretical and empirical work relating specific types of cognitive activity to specific emotions (e.g., Ellsworth & Smith, 1988a, 1988b; Frijda, 1986; Roseman, 1984; Scherer, 1984b; Smith & Ellsworth, 1985, 1987; Weiner, 1985) with the more general theory of appraisal, stress, and coping developed by Lazarus and colleagues (e.g., Lazarus, 1966, 1968; Lazarus, Averill, & Opton, 1970; Lazarus & Folkman, 1984). We also wanted to clarify and refine the construct of "appraisal" so that it would refer only to the cognitive activities *directly* related to emotion. Finally, we hoped that by specifying the appraisals that produce individual emotions, the resulting theory would clarify how emotions motivate the organism to cope effectively with the adaptational demands confronting it.

Appraisal and Knowledge

Although emotions are evoked as a result of cognitive activity, not all cognitive activity is relevant to emotion, and even relevant cognitive activities are not all *equally* relevant. The task of interpreting the adaptational significance of our circumstances draws upon a highly complicated and only partially reliable arrangement of cues to determine what, if anything, the relationship to the environment implies for personal well-being. There appear to be at least two distinct types of cognition involved in this process.

First, there must be a well-developed representation of one's circumstances. Much social-psychological and personality research has been devoted to describing a vast array of attributional and inferential strategies that people use to go beyond the often paltry data directly available and construct rich representations of what is happening (e.g., Bruner, 1957; Heider, 1958; Jones et al., 1971; Lewin, 1936; Nisbett & Ross, 1980; Ross, 1977, 1987; Shaver, 1977). These representations, which reflect *knowledge* or *beliefs* about what is happening, are relevant to emotion because they are the data that the person evaluates with respect to their adaptational significance. These knowledge-centered representations, or "situational construals," however, do not directly produce emotions.

Instead, it is how these representations are *appraised* with respect to their significance for personal well-being—the second type of cognition—that directly determines the emotional state (see Lazarus & Folkman, 1984; Lazarus & Smith, 1988). Appraisals are strongly influenced by personality variables. Two individuals can construe their situations quite similarly (agree on all the facts), and yet react with very different emotions, because they have appraised the adaptational significance of those facts differently. This derives from the relational nature of emotions, in which the confluence of both an environmental configuration and personality traits is required to have a particular bearing on subjective well-being in the eyes of each individual.

The distinction between knowledge and appraisal can be understood as the difference between *distal* cognitive variables that influence emotions only indirectly, and *proximal* ones that have direct causal influences (see

House, 1981; Jessor, 1981). The appraisal construct encompasses the most proximal cognitive variables (Lazarus, 1966; Lazarus & Folkman, 1984), and in formulating our specific appraisal model, we have been quite restrictive about what we include as appraisal. We have not included a number of cognitive variables previously found to be relevant to emotion, because upon close inspection they reflect either the more distal, knowledge-based cognitive activities discussed above (e.g., locus of causality/control; Roseman, 1984; Smith & Ellsorth, 1985; Weiner, 1985) or the subjective properties of the emotional response itself (e.g., subjective pleasantness; Scherer, 1984b; Smith & Ellsworth, 1985), rather than being evaluative appraisals (see Lazarus & Smith, 1988, for a fuller account of this distinction).

Weiner (1985, p. 564), the foremost advocate of an attributional analysis of emotion, has himself acknowledged that knowledge or beliefs about how things work are more or less indeterminate with respect to their emotional consequences: "A word of caution . . . is needed. . . . Given a causal ascription, the linked emotion does not necessarily follow . . . [Attributional] dimension–affect relations are not invariant, but are quite prevalent in our culture, and perhaps in many others as well." What is needed to make the analysis more determinate is to add appraisal of the personal significance of what is happening for well-being.

Core Relational Themes and Appraisal Components

The appraisal task for the person is to evaluate perceived circumstances in terms of a relatively small number of categories of adaptational significance, corresponding to different types of benefit or harm, each with different implications for coping. A key proposition of a cognitive–relational theory of emotion is that the appraisal process results in the identification of a molar person–environment relationship, or what we call a "core relational theme," and that each distinct theme results in a distinct emotion (Lazarus & Smith, 1988). As indicated earlier, we think of this as a psychobiological law.

For each different emotion, one should be able to identify the core relational theme that summarizes the person's relationship to the en-

vironment in terms of a particular type of harm or benefit. For example, an ambiguous danger or threat produces anxiety; loss and helplessness produce sadness; offense to oneself or those one identifies with produces anger—much as Aristotle suggested in his *Rhetoric*—and so on for each emotion (see Abramson, Seligman, & Teasdale, 1978; Plutchik, 1980).

This molar level of description provides an economical summary of the appraised meaning leading to each distinct emotion. However, by itself, it is incomplete because it does not reveal the specific evaluations leading to the core relational theme. For example, knowing that an appraisal of "ambiguous danger" produces anxiety indicates very little about the specific cognitive decisions made in evaluating the situation as dangerous.

Therefore, the molar level of analysis must be supplemented by a more *molecular* one, which attempts to describe the specific appraisal questions and answers that result in each core relational theme. Knowledge of the details of appraisal would make it possible to describe and understand the details of the linkage between the core relational themes and the emotions that flow from them, as well as the similarities and differences among the various themes and emotions (see Smith & Ellsworth, 1985). For example, knowing about the component evaluations that combine to define uncertain threat and irretrievable loss, respectively, might suggest why subjective experiences of anxiety and sadness seem in many respects quite similar, why anxiety and sadness often co-occur in the same situation, and yet why they are so different as well (Ellsworth & Smith, 1988a).

We have made an effort to identify the major dimensional *components* of appraisal—that is, the specific questions evaluated in appraisal. The answers to these questions are then combined to produce the molar personal meanings that directly result in specific emotions (see Lazarus & Smith, 1988). To do this, we have drawn on a number of recent proposals attempting to identify the specific cognitions associated with particular emotions (e.g., Frijda, 1986; Roseman, 1984; Scherer, 1984b; Smith & Ellsworth, 1985, 1987; Weiner, 1985).

It is useful, we think, to view each appraisal component as addressing one of the two global appraisal issues originally proposed by Lazarus and his colleagues as relevant to well-being

(e.g., Lazarus, 1966; Lazarus et al., 1970; Lazarus & Folkman, 1984). "Primary appraisal" concerns whether and how the encounter is relevant to the person's well-being, and "secondary appraisal" concerns the person's resources and options for coping with the encounter.[3] Both of these issues can be further subdivided, and at present we have identified a total of six appraisal components—two for primary appraisal, and four for secondary appraisal.

Consistent with the doctrine that emotion depends on antecedent motivations that are part of personality, the two components of primary appraisal are motivational relevance (or importance) and motivational congruence or incongruence. "Motivational relevance" is an evaluation of the extent to which an encounter touches upon personal goals and concerns—in other words, the extent to which there are issues in the encounter about which the person cares or in which he or she has a stake. This appraisal component is also included in the theoretical systems of Frijda (1986), Scherer (1984b), and Smith and Ellsworth (1987). "Motivational congruence or incongruence" refers to the extent to which a transaction is consistent or inconsistent with what one wants—that is, the extent to which it either thwarts or facilitates personal goals. This corresponds closely to Roseman's (1984) concept of "motive consistency," Scherer's (1984b) "goal conduciveness," and Smith and Ellsworth's (1985) "perceived obstacle."

The four components of secondary appraisal are accountability, problem-focused coping potential, emotion-focused coping potential, and future expectancy. "Accountability" provides direction and focus to the emotional response and the coping efforts motivated by it. It determines who (oneself or someone else) is to receive the credit (if the encounter is motivationally congruent) or the blame (if it is motivationally incongruent) for the harm or benefit. It is also closely related to locus of causality (Ellsworth & Smith, 1988a; Weiner, Graham, & Chandler, 1982), which is an attributional or knowledge factor, but differs from it in ways that highlight the earlier stated difference between knowledge and appraisal.

Accountability is a more proximal construct than locus of causality, intentionality, legitimacy, and controllability, which are often combined in evaluating accountability—that is, who gets the credit or blame (McGraw, 1987; Shaver, 1985). For example, under conditions of harm, people who are considered the locus of causality will be held less accountable to the extent that their harmful actions are perceived as unintentional, just, and/or unavoidable (Pastore, 1952; Shaver, 1985; Weiner, Amirkhan, Folkes, & Verette, 1987). The attribution of causality is "cold," with no necessary motivational consequences, whereas a determination of blame or credit is "hot" because it not only implies personal involvement but also implies that one's subsequent emotion and coping efforts should be directed toward the target of that judgment.

Often what makes the difference between an attribution of mere locus of causality and an appraisal of accountability, and hence blame, is a judgment of imputed control by the other person. In other words, if the other person who has caused the harm could have done otherwise, as when he or she has acted maliciously or has treated us too lightly and hence demeaned us, there will be accountability, blame, and anger. If, however, the other person could not have controlled what was done, then there will be an attribution of causal locus without accountability or blame. In this case, anger will not occur, or it will be directed at other sources of blame on the basis of complex social judgments about the accountability, say, of the authorities, or the system, or the like. The different motivational dynamics of locus of causality and accountability can often be observed when in the course of their jobs people must inflict harm on others, and even while acknowledging being the locus of causality they try to deflect the accountability and blame to their social role in the hope that the other person's anger will be similarly deflected (e.g., "I'm sorry, I really hate to do this, but I have to—it's my job").

The remaining three components of secondary appraisal all have to do with evaluation of the potential for improving an undesirable situation or maintaining a desirable one. The two subvarieties of coping potential correspond to one's evaluations of the ability to engage in the two major types of coping identified by Folkman and Lazarus (1980, 1985; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus & Folkman, 1984). "Problem-focused coping potential" reflects evaluations of one's ability to act directly upon the situation to manage the demands of the encounter and actualize the personal commitments that are brought to it. This evalua-

tion is closely related to the concept of power as discussed by Roseman (1984), and control and power as discussed by Scherer (1984b). "Emotion-focused coping potential" refers to the perceived prospects of adjusting psychologically to the encounter—in other words, of regulating the emotional state that harmful or threatening consequences generate. This evaluation is closely related to Scherer's concept of "the potential for adjustment to the final outcome via internal restructuring" (Scherer, 1984a, p. 39). "Future expectancy" refers to the perceived possibilities, for *any* reason (i.e., independent of whether the individual plays a role), for changes in the psychological situation that could make the encounter more or less motivationally congruent.

Appraisals for Each Emotion

The six appraisal components noted above, which combine into core relational themes, provide the conceptual machinery needed to generate hypotheses about the specific appraisals responsible for every emotion. One task is to identify the core relational theme and its specific harm or benefit, which is necessary and sufficient to produce each emotion. A second task is to describe this theme in terms of a particular combination of the six appraisal components.

Primary appraisal is involved in every emotional encounter. The evaluation of motivational relevance is necessary for emotion, since it defines the most elemental aspect of a person's level of affective involvement by indicating whether there is any personal stake in the encounter. In the absence of motivational relevance, the person's state of mind is likely to be one of indifference or passive tranquility (cf. Ellsworth & Smith, 1988b). Motivational congruence or incongruence combines with relevance to define the encounter as beneficial or harmful, actually or potentially (Lazarus et al., 1980).

Motivational relevance and motivational congruence or incongruence are not sufficient to shape the kind of emotion that will be experienced. The components of secondary appraisal are also needed to determine whether one will experience happiness, relief, pride, gratitude, hope, or the like on the positive side, or anger, guilt, shame, anxiety, sadness, envy, or the like on the negative side.

Table 23.2 combines the appraisal components with core relational themes, and depicts the specific appraisals for illustrative emotions. These hypotheses are generally consistent with the findings of a number of studies that have examined the relationships between cognitive activities and emotions (e.g., Ellsworth & Smith, 1988a, 1988b; Frijda, 1987; Roseman, 1984; Scherer, Wallbott, &

TABLE 23.2. Functional Analysis of Some Illustrative Emotions

Emotion	Proposed adaptive function	Core relational theme	Important appraisal components
Anger	Remove source of harm from environment and undo harm	Other-blame	1. Motivationally relevant 2. Motivationally incongruent 3. Other-accountability
Guilt	Make reparation for harm to others/motivate socially responsible behavior	Self-blame	1. Motivationally relevant 2. Motivationally incongruent 3. Self-accountability
Anxiety	Avoid potential harm	Ambiguous danger/threat	1. Motivationally relevant 2. Motivationally incongruent 3. Low/uncertain (emotion-focused) coping potential
Sadness	Get help and support in the face of harm/disengage from a lost commitment	Irrevocable loss	1. Motivationally relevant 2. Motivationally incongruent 3. Low (problem-focused) coping potential 4. Low future expectancy
Hope	Sustain commitment and coping	Possibility of amelioration/success	1. Motivationally relevant 2. Motivationally incongruent 3. High future expectancy

Summerfield, 1986; Smith & Ellsworth, 1985, 1987; Weiner et al., 1982), even though these studies have not always examined the relevant appraisals directly (see Lazarus & Smith, 1988). The hypotheses have recently received further direct support in an initial study explicitly designed to test them (Smith, Lazarus, & Novacek, 1990).

For each emotion in the table, we have listed the adaptive function for that emotion. Then we have listed the core relational theme that corresponds to the particular relationship with the environment in which that function is likely to be appropriate. Finally, we have listed the major appraisal components that combine to define that core relational theme. For example, anger motivates the person to eliminate, neutralize, or undo a source of harm (Cannon, 1929; Ellsworth & Smith, 1988a; Izard, 1977; Plutchik, 1980; Tomkins, 1963). The core relational theme that defines the relevant circumstances for this function is "other-blame." In other words, anger arises when someone else is being blamed for a harmful situation, although if the "other person" being blamed is the self one could speak of anger at the self. Since anger motivates the person to do something to remove the source of harm, the assignment of accountability or blame provides a target for these coping efforts, which is crucial for its subjective and behavioral characteristics.

Guilt motivates the individual to make reparations for harm he or she has caused to others, and generally to engage in socially responsible behavior (Ellsworth & Smith, 1988a; Izard, 1977). Consistent with these functions, the core relational theme producing guilt is "self-blame," which means holding oneself accountable for an important, motivationally incongruent situation. Like anger, guilt motivates the person to do something to remove the source of harm, but because the focus is on oneself, it takes the form of a desire to make reparations for any harm the person has caused (e.g., Carlsmith & Gross, 1969; Freedman, Wallington, & Bless, 1967). In addition, guilt is painful and therefore self-punishing (Wallington, 1973), which reduces the probability that the person will continue to engage in the harmful behavior in the future.

We consider the blame in self-directed anger to be qualitatively distinct from the self-blame associated with guilt; accordingly, we hold that feeling guilty and feeling angry at oneself are different emotional states with distinct motiva-

tional consequences. The blame in self-directed anger is quite literally "other-blame directed at the self." That is, the person observes himself or herself behaving undesirably and holds the observed person (who happens to be the self) accountable. This blaming process does not necessarily implicate one's self-concept or feelings of self-worth. In contrast, the self-blame in guilt calls into question one's self-worth. The distinction is expressed in the internal dialogue that often accompanies these two forms of blame, the blame associated with self-directed anger expressed in the second person and that associated with guilt in the first person (e.g., "*You* idiot, what did *you* do that for?" vs. "What have *I* done?"). This example highlights how seemingly small cognitive differences can lead to large differences in the nature of the emotional reaction.

Whereas accountability or blame is of central importance in differentiating anger from guilt, other appraisal components are more important in differentiating anxiety from sadness. Both anxiety and sadness are associated with harmful situations in which the prospects for amelioration are uncertain or poor, and these similarities may explain why these emotions are often evoked in conjunction with each other. Nevertheless, there are distinct motivational functions for these emotions; their hypothesized core relational themes, as well as the appraisal components that define them, reflect these distinct functions.

Anxiety motivates the person to avoid potential harm (Cannon, 1929; Izard, 1977; Plutchik, 1980; Tomkins, 1963), the core relational theme being an appraisal of uncertain "danger" or "threat." The component of secondary appraisal is poor coping potential, which derives from the inevitable uncertainty in anxiety about what will happen and when. If it arises from symbolic and existential threats—which is one of the major conceptualizations of anxiety (see Lazarus & Averill, 1972)—the danger to self is obviously vague and ambiguous; this translates into a condition of poor coping potential, since one cannot know what to do about danger of this kind. Emotion-focused coping potential may be especially important in anxiety. The sense of danger, and hence anxiety, will be particularly acute when, beyond seeing potential or actual harm in the situation, one believes that this harm—say, a loss of self or meaningfulness—cannot be tolerated emotionally if it occurs (or has occurred).

On the other hand, sadness promotes disengagement from commitments that have been lost and motivates the person to get help (Izard, 1977; Klinger, 1975; Plutchik, 1980). The core relational theme producing this emotion is "irrevocable loss" or "helplessness" (Abramson et al., 1978). Accordingly, the components of secondary appraisal that distinguish this theme from anxiety are a combination of negative future expectancy and poor coping potential. In sadness, one is totally pessimistic about amelioration, whereas in anxiety there is mainly uncertainty. And whereas emotion-focused coping potential is salient for anxiety, problem-focused coping potential is particularly salient in sadness; in a condition of irrevocable loss, nothing that can be done seems capable of restoring the prior status.

Thus far, we have considered only "negative" emotions—those arising under conditions of harm or threat. However, an exclusive focus on harm-related emotions does a disservice to the role of emotion in adaptation, because there is also motivational incongruence when a person perceives the absence of potential benefits and gains. Avoiding or ameliorating harm is, of course, a factor in survival. However, striving for gain enables the person (and the species) to grow and flourish. Accordingly, human adaptational subsystems also include hope, which sustains positive striving toward mastery and gain (Ellsworth & Smith, 1988b; Lazarus et al., 1980). It seems wise here to again recognize the difficulty of deciding what are genuine emotions by begging the question of whether hope should be regarded as an emotion or a borderline state.

As depicted in Table 23.2, the core relational theme for hope combines an appraisal that existing conditions are not yet the way the person wants them to be (importance, motivational incongruence) with a future expectation that these conditions could become or be made motivationally more congruent. Hope can be maintained as long as there is some (however slight) potential for improvement in an otherwise bleak set of conditions, as when we "hope against all hope." Thus hope springs from the conviction, which may well be a characteristic of some personalities, that even under dire circumstances there is still a chance that things could get better (Lazarus et al., 1980).

The analyses above require several qualifications. First, the emotions examined do not include all the emotions in the human reper-toire, but are illustrative of some of the most important. They help us demonstrate how a more complete cognitive–relational theory of emotion might look. The richness of our English vocabulary of emotions (see Averill, 1975; Ortony et al., 1987; Shaver et al., 1987) suggests that there are many more emotional states, each produced by distinctive appraisals, than the few we have considered. For example, we have not analyzed a number of positive emotions, including happiness, pride, relief, and gratitude, that arise under various conditions of appraised benefit (Ellsworth & Smith, 1988b; Lazarus et al., 1980). A full theoretical statement must address positive or benefit-related emotions as well as those flowing from conditions of harm, and decisions must be made about which states should be considered bona fide emotions, nonemotions, or marginal instances.

Second, in discussing the primary appraisal of motivational relevance that gives rise to emotion, we have not considered the potential role of particular goals or stakes in providing emotional differentiation beyond what we have depicted. Stake-specific differentiation can sometimes occur between broad emotional categories such as guilt and shame. For instance, in guilt the stake is a moral value, while in shame it is an ego ideal. Moreover, consideration of particular stakes is likely to be especially important when attempting to differentiate among affective states *within* the broad emotion categories we have outlined here. For instance, many forms of anger specifically involve some sort of insult to one's personal identity, while others, such as annoyance, may be less stake-specific. Similarly, feelings of abandonment appear to involve a particular type of loss involving one's relationships with others, while the broader category of sadness is not specific with regard to the particular stake that has been lost or irreparably harmed (cf. Ortony et al., 1987).

Third, although we have given a relatively static description of the *structural* relations between appraisal and emotion, we do not minimize the importance of thinking about and studying emotion as a dynamic *process* (see Folkman & Lazarus, 1988b; Lazarus, 1989b). The theory of appraisal indicates how at any given moment the person's specific appraisals will produce a particular emotional state. Knowing these structural relations is, we believe, a crucial first step to understanding the

emotion process in cognitive–relational terms. However, as an encounter unfolds—as the person attempts to cope with the adaptive implications of the circumstances and the environment reacts to those coping efforts—the adaptive significance of the encounter is likely to shift, and as the appraisal shifts so will the emotional state.

Fourth and last, emotion is a much richer and broader construct than stress, and should supersede stress in the study of coping and adaptation (see Lazarus, 1968, in press; Lazarus & Folkman, 1984; Lazarus & Launier, 1978). The concept of stress is largely unidimensional, and expresses little beyond the idea that the person–environment relationship is adaptationally significant and motivationally incongruent. In contrast, emotion is a multidimensional construct that reveals a wealth of information about the adaptational encounter, the reaction to it, and the personality of the individual. Thus, the observation of anger in contrast with anxiety, guilt, shame, and so on tells us much more than merely knowing that a person is undergoing stress. Although the distinction among harm, threat, and challenge (Lazarus & Folkman, 1984), or between eustress and distress (Selye, 1974), modestly enlarges the scope of stress beyond its traditional unidimensional character, even this usage pales in richness and clinical significance compared with emotion.

PERSONALITY, SOCIETY, AND BIOLOGY IN EMOTION

A general theory of emotion must take into account the respective contributions of personality, culture, social structure, and biology to the emotional process. Most theories take one of two extreme positions, considering emotions to be either largely innate—that is, fundamentally fixed products of our biological heritage and subject to only modest cultural influences—or largely socioculturally defined.

Many proponents of the biological position speak of an innate "affect program" for each emotion, which organizes the emotion process (e.g., Ekman, 1984; Ekman & Friesen, 1975; Izard, 1977; Tomkins, 1962, 1963). When the appropriate eliciting conditions for a particular affect program are present the program fires reflexively and runs its course, which includes preprogrammed action tendencies, physiolog-

ical changes, and subjective experiences. In support of this view, proponents cite evidence for cross-culturally universal associations between particular facial expressions and autonomic nervous system and hormonal response patterns for each emotion (e.g., Ekman & Friesen, 1971; Ekman, Sorenson, & Friesen, 1969; Izard, 1971, Levenson, 1988).

Proponents of the cultural position regard emotions as socially defined phenomena following conventional rules, or scripts, that vary widely across cultures (e.g., Averill, 1968, 1980; Hochschild, 1979; Sarbin, 1985). Evidence for this position typically includes observations of considerable cross-cultural diversity in both the conditions giving rise to particular emotions and the expressive and instrumental coping behaviors accompanying emotions that have been evoked.

Our view of emotion occupies a middle ground between these extremes. By tracing its evolution to the sensorimotor reflex we have assumed a substantial biological influence on the emotion process. Yet by emphasizing the loosening of reflexive ties between stimulus and reaction, and the importance of both cognitive activity and sociocultural learning factors, we have left much room for the influence of personality in emotion, which in turn is partially a product of developmental experience with the sociocultural environment (see Ryff, 1987; Shweder & LeVine, 1984). Emotion theory must go beyond the banal assertion that there is merit to both perspectives by offering specific proposals about the respective contributions of biology and the society.

The Biological Core of Human Emotion

Figure 23.1 depicts our overall theoretical model. The emotional response is at the innate biological center of the cognitive–motivational–emotive system. We assume that human beings (and, we believe, animals too) are constructed biologically to be constantly engaged in appraisals of ongoing and changing relationships with the environment. These relationships are evaluated in terms of a relatively small set of specific, innately determined appraisal issues, which we have identified above. Appraisals promote the detection and evaluation of adaptationally relevant conditions requiring action. They determine the emotional state, which prepares and motivates one

to cope with the adaptational implications of what is happening.

If a person appraises the conditions being confronted in a manner that corresponds to a particular core relational theme of harm or benefit, the preprogrammed emotion is automatically generated as a feature of our biological heritage. Although the appraisal is itself a continuing component of the emotional response, it is by no means the entire response. As indicated in Figure 23.1, additional components include a distinctive subjective feeling state, the urge to respond behaviorally to the situation in a particular manner (e.g., action tendency; see Frijda, 1986; Scherer, 1984b), and a patterned physiological response consisting of facial muscle, postural, and neurohumoral activity associated with the action tendency and coping process.

These response components are systematically organized around the adaptive implications evaluated in the appraisal, and appear to have evolved to serve the two general functions of social communication and coping (Lazarus, 1968; Scherer, 1984a; Smith, 1989). The motor–physiological changes are, in part, detectable by observation (e.g., changes in facial expression, posture, vocal tone, etc.; see Ekman, 1984; Riskind, 1984; Scherer, 1986), and they communicate important information to others in the social environment about appraisal and possible actions (Scherer, 1982, 1984a; Smith, 1989). The motor–physiological changes in posture, muscle tone, hormonal activity, and autonomic activity prepare the person physiologically to engage in and sustain the coping activities motivated by the action tendency, which itself directly reflects the
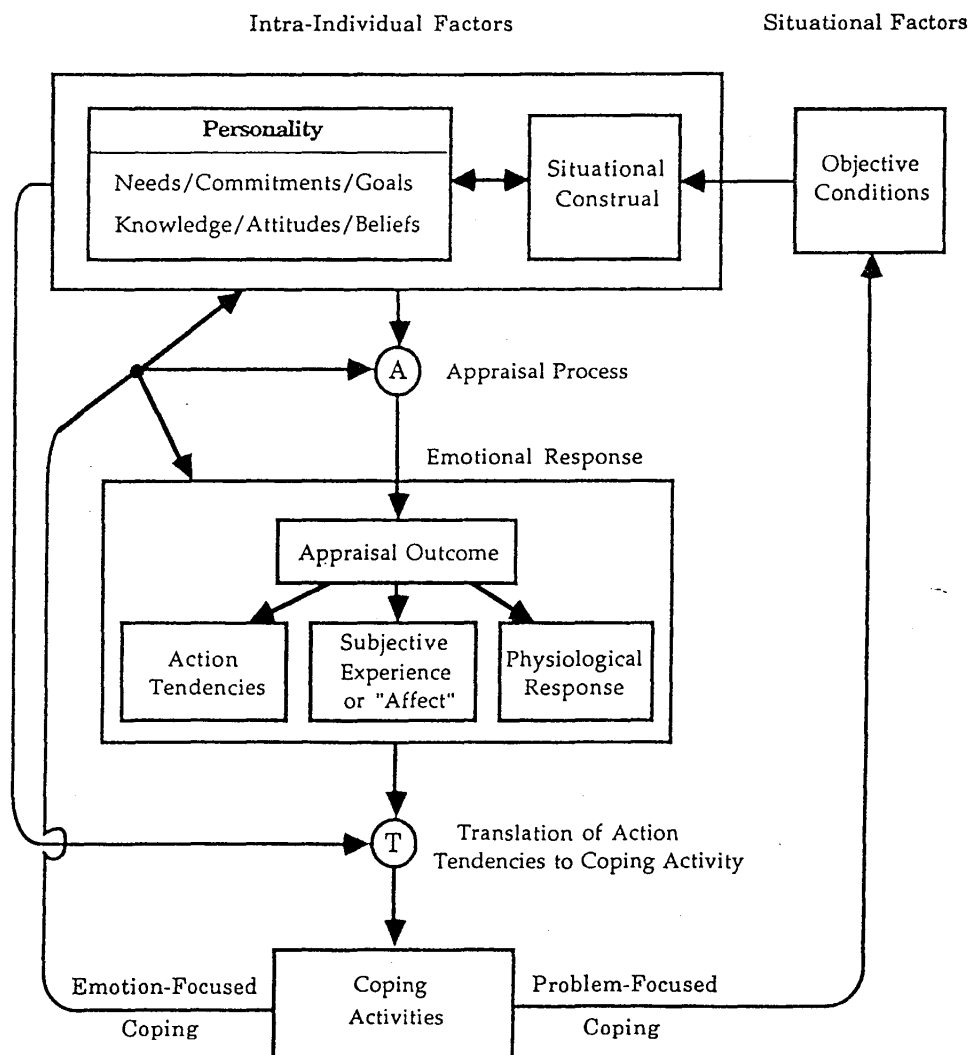

FIGURE 23.1. A model of the cognitive–motivational–emotive system.

adaptational demands implied by the continuing appraisal (Frijda, 1986; Lazarus, 1968; Smith, 1989). They also reflect changes in the organismic state resulting from a changed adaptational condition, as in relief or contentment after a threat has been removed.

The correlations between the appraisal and these response components appear to have two distinct levels of organization corresponding to the distinction we have drawn between core relational themes and appraisal components. The molar level of organization consists, as we have said, of core relational themes, and is parallel to the concept of affect programs. Particular action tendencies are probably emotion-specific and linked to specific relational themes. For example, "other-blame" generates anger and the impulse to attack the blameworthy agent, whereas an ambiguous threat generates anxiety and the impulse to avoid or escape the threat.

In addition, some of the innately determined motor–physiological consequences in emotion may be tied to molecular appraisal components. For example, Smith (1989) has provided evidence that activity of the corrugator supercilii muscles to pull the eyebrows together and down into a frown is associated with appraisals of motivational incongruence, and this association may extend over a broad range of emotions. It is possible that secondary appraisals having direct implications for subsequent coping (e.g., evaluations of coping potential) may have direct autonomic and postural effects consistent with the coping requirements.

The aspects of the emotional response described so far—the appraisals that define adaptationally significant core relational themes, and the subjective, physiological, and motivational consequences initiated by these evaluations—are, in our view, universal in our species. In considering this innate organization, which has yet to be detailed and demonstrated, it is important to consider what we have *not* included. The biologically fixed portion of the emotion system starts with the appraisal pattern and ends with the action tendency, leaving considerable flexibility and biological indeterminacy as to which stimulus configurations will result in which appraisals, and which actions (as opposed to action tendencies) will follow any given cognitive–motivational–emotive configuration. It is precisely at these two points—the process of appraisal and the translation of emotion into coping—

that personality and culture intersect with biology and play fundamental roles in the functioning of the cognitive–motivational–emotive system. These points of intersection give emotion the flexibility that differentiates it from reflexes and physiological drives and provides it with much of its adaptational power.

One way in which the sociocultural and biological points of intersection can be clarified is to make a statement with the following formal character: *If a person appraises his or her relationship to the environment in a particular way, then a specific emotion that is tied to the appraisal always results. Furthermore, if two individuals make the same appraisals they will experience the same emotion, regardless of the actual circumstances.*

Personality factors arising in the course of psychological development, as well as environmental variables (e.g., the immediate social structure), combine to influence the molecular appraisals—in effect, the specific meanings—that result in each core relational theme. These influences shape the "if" of the formal statement above. "If" means, in effect, that different individuals can appraise their relationships with the environment differently, or that the same individual can do so at different times or occasions. However, once a given appraisal pattern with its core relational theme has taken place, a particular emotion, with its subjective feeling state, action tendency, and motor–physiological response pattern, is generated as a *biological principle.* Each core relational theme has its own universal biological emotional outcome, which is invariant as long as the individual continues to appraise what is happening in a given way. The appraisal can, of course, change (1) as the person–environment relationship changes; (2) in consequence of self-protective coping activity (e.g., emotion-focused coping); (3) in consequence of changing social structures and culturally based values and meanings; or (4) when personality changes, as when goals or beliefs are abandoned as unserviceable.

Stated in a slightly different way, the "if" in the formula above provides for the flexibility and complexity made possible by intelligence and culture; the "then" provides the biological universal linking cognition to the emotional response. Change the "if" and the response configuration is also changed. Personality and environmental variables are the antecedents in this model, their emotional consequences

being mediated by appraisals (influenced recursively by coping and its effects) whose biologically determined consequences constitute the emotional response.

Knowledge, Appraisal, Culture, and Personality

It will now be useful to examine more closely some of the intersections implied above between personality, culture, and biology. The upper portion of Figure 23.1 depicts some personality factors that contribute to the emotional response at two levels. First, they influence the cognitive representation, or knowledge about the person–environment relationship being appraised, which is identified as a situational construal in the figure; second, they make contributions to the appraisal process itself. The figure identifies two distinct types of personality factors. One consists of motivational characteristics, which include the values, goals, and commitments that a person brings into every encounter. These characteristics have parallels in other concepts, such as "current concerns" (Klinger, 1975), "personal projects" (Little, 1983; Palys & Little, 1983), and "personal strivings" (Emmons, 1986). The second factor consists of the person's knowledge base, which includes generalized beliefs, both concrete and abstract, about the way things are, how they work, the nature of the world, and the person's place in it. It also includes attitudes, expectations, and intuitive theories about the self (including self-concept) and the world (see Epstein, 1983; Lazarus & Smith, 1988; Lewis & Michalson, 1983; Ross, 1977). We suggest that the two personality factors have distinctive but interactive influences on both the way a person construes what is happening and the appraisal of that construal.

Personality Contributions to Knowledge about the Encounter

Cognitive representations of our relationships with the environment often go far beyond the perceptual data directly available. Certain aspects of the encounter are ignored; others are emphasized; missing information is filled in; and any number of inferences are made regarding the possible causes, intentions, and motiva-

tions underlying observed events (see Jones et al., 1971; Lewis, 1935, 1936; Nisbett & Ross, 1980; Ross, 1977, 1987; Shaver, 1977). Within the social-psychological and personality literatures, there is ample documentation that these constructive, inferential processes are systematically influenced by the motivations, knowledge, and expectations the person brings into an encounter.

Goals often have an important role in determining the aspects of the situation that are noticed, encoded, and emphasized; one is likely to look for and notice things that are motivationally relevant (cf. the "New Look" perception research movement of the 1940s and 1950s; e.g., Postman, Bruner, & McGinnies, 1948). For example, partisans on both sides of a rough football game will tend disproportionately to notice penalties committed by the opposing team, thereby strengthening their view of the other team as consisting of undeserving cheaters (Hastorf & Cantril, 1954). Similarly, pro-Arab and pro-Israeli viewers watching the very same news coverage of the 1982 Beirut massacre came away convinced that the other side received a greater number of favorable references and a smaller number of negative ones than their side did, in support of their view of the media as biased against them (Ross, 1987; Vallone, Ross, & Lepper, 1985).

Even when strong motivations are not involved, prior knowledge and expectations influence the interpretation and encoding of subsequent information. Thus, initial information about a person can produce a "halo effect" that influences how subsequent information about that person is interpreted (Asch, 1946), and facts and events consistent with one's "schema" or mental model of an episode are likely to be assumed to be present in the encounter, and to be incorrectly remembered subsequently as having been directly observed (e.g., Bower, Black, & Turner, 1979; Owens, Bower, & Black, 1979).

Although they have seldom outlined the specific beliefs and motivations underlying them, clinical and personality researchers have documented the existence of relatively stable individual differences in characteristic ways of construing certain types of encounters, often referred to as "attributional biases" (e.g., Dodge & Coie, 1987; Nasby, Hayden, & dePaulo, 1979) or "attributional" or "explanatory styles" (e.g., Peterson & Barrett, 1987; Peterson et al., 1982). These differences have been reliably

associated with individual differences in coping and mood, presumably through the construal's influences on appraisal and emotional response. Recently it has been pointed out (Lazarus, 1989a) that emotion can be studied both as a personality trait (which is the dominant interest of clinical workers treating chronically dysfunctional emotional patterns), and as a state that is generated by particular encounters with the environment but that does not necessarily represent recurrent adaptational problems. A full approach to emotion requires both of these perspectives.

For example, chronically aggressive children, especially children whose aggression usually takes the form of angry reactions to perceived provocations, have been shown to have stronger tendencies than less aggressive children to attribute hostile intentions to the ambiguous actions of others (e.g., Dodge, 1980; Dodge & Coie, 1987; Dodge, Murphy, & Buchsbaum, 1984). Similarly, in adults the tendency to attribute negative events to internal, global, and stable causes, which is hypothesized to promote appraisals of helplessness and hence sadness and depression (Abramson et al., 1978), has been prospectively associated with enduring depression following poor performance on an exam (Metalsky, Halberstadt, & Abramson, 1987), relatively poor academic performance during the first year of college (Peterson & Barrett, 1987), and success and productivity of life insurance sales agents (Seligman & Schulman, 1986).

Personality Contributions to Appraisal

In addition to affecting emotion indirectly by systematically influencing the contents of knowledge a person draws upon in appraisal, personality contributes directly to the appraisal process itself. Primary appraisal makes sense only when one's relationship to the environment is considered in relation to needs, desires, or what one cares about—in effect, the goal hierarchy characteristic of a person as it intersects with the demands, constraints, and resources of the encounter. Without an analysis of what is (potentially) at stake in an encounter for that person, it is impossible to evaluate the appraisal components of motivational relevance and congruence or incongruence. If nothing the person cares about is at stake, then little or no emotion will result (see Lazarus,

1989b; Lazarus & Folkman, 1984; Lazarus & Smith, 1988).

The theoretical relationship between goal commitments and primary appraisal suggests that motivational measures—such as those developed by Little (1983) and Emmons (1986), as well as our own recent efforts—become necessary tools for predicting and understanding individual differences in emotional response, and make it possible to identify who will react to a particular situation with strong emotion and the specific encounters to which a particular individual is especially responsive emotionally (see Pervin, 1983).

A number of studies, both old and new, illustrate the promise of motivational measures in the prediction of emotional reactions. For example, Vogel, Raymond, and Lazarus (1959) showed that subjects having strong achievement goals and weak affiliation goals reacted to experimentally produced achievement-centered threats with more psychophysiological stress than to affiliation-centered threats; the reverse pattern was found for subjects with strong affiliation goals and weak achievement goals. Similarly, Bergman and Magnusson (1979) demonstrated that Swedish male high school overachievers, rated by their teachers as extremely ambitious, secreted more adrenaline in an achievement demanding encounter than other boys in the same class.

A study centered on health-related variables by Kasl, Evans, and Niederman (1979) showed that a combination of high academic achievement motivation and poor performance predicted risk of infectious mononucleosis among West Point cadets. Hammen, Marks, Mayol, and deMayo (1985) have also reported evidence that students for whom interpersonal issues were especially important were more likely to experience depression in relation to stressful events involving interpersonal relationships than they were to stressful events involving achievement concerns, while the reverse tended to be true for students with strong achievement concerns.

Finally, Gruen, Folkman, and Lazarus (1989) found that some day-to-day "hassles" and upsets were identified by respondents as being more important and central to their concerns than others. The contents of these "central hassles" varied considerably from individual to individual, presumably reflecting different patterns of commitment. Moreover, the central hassles were more strongly associated with

symptoms of psychological dysfunction than the peripheral hassles.

In addition to motivation, which is most closely tied to primary appraisal, a second type of personality factor—beliefs and expectations—is crucial for emotional differentiation and acts as an antecedent of secondary appraisal. For example, beliefs about what is normatively appropriate, feasible, legitimate, or excusable in a given situation should strongly influence whether and to what extent an appraisal of accountability for a noxious event will be made and result in anger, say, instead of sadness.

Beliefs also affect expectations about the probable effectiveness of various courses of action and one's ability to perform those actions, which contribute to judgments of self-efficacy (Bandura, 1977, 1982; Maddux, Norton, & Stoltenberg, 1987), and therefore to evaluations of coping potential and future expectancy. Evaluations of efficacy partially determine whether an encounter will be appraised as a harm, threat, or potential gain, and in consequence contribute to anxiety, sadness, or hope (see also the research and analyses of Antonovsky, 1987, and Scheier & Carver, 1987). Expanding on his well-known studies of self-efficacy as a factor in performance, persistence, and the emotional reaction, Bandura (in press) has also recently provided a rich overview of the role of self-efficacy beliefs in the development of competence and incompetence.

Knowledge and beliefs can also contribute to primary appraisal by helping us define what is relevant to our goal commitments and what constitutes harm or benefit. For example, beliefs and expectations about a necessary but aversive encounter (e.g., how much pain it is normal to experience during a particular dental procedure and the gains that result from undergoing it) can significantly influence the degree to which an encounter is appraised as motivationally incongruent, and also influence appraisals of coping potential and future expectancy.

In our own recent work (Smith, Novacek, Lazarus, & Pope, 1990), we have been attempting to develop measures that reflect stable individual differences in "appraisal style." We have used the measurement strategy employed by Peterson et al. (1982) in the Attributional Style Questionnaire. Respondents are asked to report their probable reactions to an

assortment of one-sentence descriptions of hypothetical situations. However, instead of asking about causal attributions in each situation, we ask about their appraisals along each of our six appraisal components, from which we hope to derive stable measures of an individual's characteristic appraisal style for each appraisal component. We conceive of these measures as reflecting the individual differences most proximal to the appraisal process, and they should enable predictions about the contextual appraisals that directly produce the emotional state. Research by others (e.g., Repetti, 1987; Solomon, Mikulincer, & Hobfoll, 1987) has demonstrated that proximal measures involving subjective appraisals are better predictors of emotional reactions than are (distal) objective measures.

Cultural Contributions to Appraisal

We have emphasized the contributions of personality to appraisal because emotions are responses of an individual person. Individuals, not cultures, perceive, construe, and appraise. Moreover, an individual's personal goals and beliefs should be important in shaping appraisals and their consequent emotions. Culture, however, significantly shapes an individual's beliefs and motivations over the course of personality development (see Ryff, 1987; Shweder & LeVine, 1984) by providing culturally shared meanings about what is socially important, what various circumstances imply for personal well-being, and therefore which emotions are appropriate under those circumstances (see, e.g., Hochschild, 1979).

It is common to contrast two broad forms of social influence: the living culture into which a person is born, and the social structure. "Culture" provides a set of meanings and symbols, many of which are internalized and carried with the person into transactions with the social and physical environment. The "social structure" produces a set of immediate demands, constraints, and resources that operate contemporaneously in adaptive transactions, though they can also be internalized and become part of an individual's personality. This contrast is well drawn by Schneider (1976, pp. 202–203):

Culture contrasts with norms in that norms are oriented to patterns of action, whereas culture constitutes a body of definitions, premises, state-

ments, postulates, presumptions, propositions, and perceptions about the nature of the universe and man's place in it. Where norms tell the actor how to play the scene, culture tells the actor how the scene is set and what it all means. Where norms tell the actor how to behave in the presence of ghosts, gods, and human beings, culture tells the actor what ghosts, gods, and human beings are and what they are all about.

Coping and Emotion

Just as the top part of the model in Figure 23.1 depicts personality factors as influencing appraisal, the bottom portion depicts them as determinants of coping. The emotional response includes an action tendency—that is, an urge to respond to the encounter in a particular way: to attack in anger, cry in sadness, flee or avoid in anxiety, and so on. Nevertheless, at all but the most extreme levels of emotional arousal, people have the ability to suppress the action tendency and select from a wide array of coping options; this illustrates the flexibility of the emotion process.

For example, we are free to engage in any of a number of problem-focused coping activities that reflect active attempts to influence the person–environment relationship and to maintain or increase its degree of motivational congruence. We are also free to engage in any of a number of emotion-focused coping strategies that attempt to regulate the emotional response itself (cf. Folkman & Lazarus, 1980, 1985; Lazarus & Folkman, 1984). We are not constrained to a single coping strategy, and under stressful circumstances it appears that people most often engage in a combination of many problem-focused and emotion-focused strategies (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984). Of the personality factors identified and discussed above, we suspect that beliefs are especially influential in affecting the actual coping activities to be engaged in, particularly beliefs about the coping options available and their probable effectiveness. Beliefs about the social appropriateness of the actions, which are often culturally defined—for example, the display rules about when and how it is appropriate to express an emotional state openly or to mask it behind some other expression (Ekman, 1984)—undoubtedly play a role too.

Explicit research on coping in the context of emotion theory is a neglected area of research, perhaps because the concept of coping has been used traditionally in stress theory and research and not in emotion (see Folkman & Lazarus, 1988b). Although specific action tendencies are almost universally assumed to flow from certain emotions such as anger and fear, biologically based action tendencies in coping and the consequences of beliefs for the coping process have received little research attention. Averill (1983) has even argued from his data on college students that attack is relatively uncommon in anger encounters, despite the usual expectation that it is a biologically generated action tendency. A basic unanswered question is this: What happens when the person copes in ways that run directly counter to the specific thrust of the action tendency itself? This would be the case when the impulse is to attack, but it is inhibited and perhaps even responded to by denial or suppression. Studies of the role of this pattern in stress-related disorders such as hypertension have been common but inconclusive.

The model portrayed in Figure 23.1 does not stop at coping, but is continuous (see Lazarus, 1968, 1989b), and depicts coping as influencing subsequent appraisal and emotion by at least two types of mechanisms: First, problem-focused coping consists of active attempts to alter the existing problematic relationship (Lazarus & Folkman, 1984). If the coping attempts are effective, and harm or threat is alleviated or removed, the change is likely to be reflected in subsequent appraisals, with consequent changes in emotion away from distress and toward positive states (see Folkman & Lazarus, 1989a). Ineffective attempts can influence subsequent appraisal as well, as when a nonresponsive environment alters the person's beliefs and expectations about both the nature or type of an encounter and the future sense of efficacy. Encounters originally appraised as subject to beneficial change can be reappraised as irremedial harms, producing corresponding emotional changes from hope to sadness or resignation.

Second, emotion-focused coping consists of managing distressing emotions that arise in any given encounter when the circumstances are refractory to change. Some forms of emotion-focused coping alter the emotional response directly without changing the meaning of what is happening (e.g., by affecting autonomic arousal through relaxation or exercise, or avoiding thinking about the appraisal, etc.). Other forms alter the appraised meaning of the encounter (e.g., by denial or distancing).

Even though cognitive dissonance encompasses a particular, limited type of motivational incongruence, many of the changes produced by emotion-focused coping overlap those identified in a long tradition of research into cognitive dissonance (e.g., Festinger, 1957; Wicklund & Brehm, 1976). For example, one can reconstrue the nature of the situation, such as by deciding that a perceived offense was really unintentional or unavoidable, or that an inferred event did not actually occur. Or one can alter personal beliefs about the meaning of the encounter, and hence its implications for well-being. In the face of a seemingly intractable unpleasant person–environment relationship, one can also give up cherished personal goals and values so that the encounter is no longer appraised as relevant to well-being, and it no longer has the power to evoke strong emotion (see Klinger, 1975).

Although emotion-focused coping alters the person instead of the environment, often by distorting reality, and although Western psychologists tend to assume (incorrectly, we think) that changing things by action is more adaptive than merely changing the way things are construed, emotion-focused coping is not inherently less adaptive than problem-focused coping (cf. Collins, Baum, & Singer, 1983; Lazarus, 1983; Strentz & Auerbach, 1988). On the contrary, both forms of coping have an important place in human adaptation. The two functions of coping (problem- and emotion-focused) are major strategies for achieving a better fit between persons and their environmental circumstances, and, in the long term, adaptive functioning requires maintaining a delicate balance between the two.

OTHER ISSUES

In this section we address briefly three topics of importance to emotion theory that have not yet been considered—namely, the characteristics of the appraisal process, the maladaptive aspects of emotion, and emotional development. Each of these also has relevance to personality and social psychology.

The Character of the Appraisal Process

In discussing appraisal and its role in emotion, we have focused primarily on the contents of appraisal, but have been relatively silent about the formal cognitive processes that underlie this content. Unless we are clear about this, there is a danger that we will be interpreted as implying that appraisal is a conscious, volitional, verbally accessible process that requires deliberation and considerable time. On the contrary, we have been consistent in maintaining that appraisal can be automatic (even primitive) and instantaneous, and can occur outside of consciousness (see Lazarus, 1966, 1968, 1982, 1984; Lazarus & Smith, 1988).

In this connection, it is useful to maintain a distinction advanced by Leventhal (1980, 1984; Leventhal & Scherer, 1987) between "schematic" and "conceptual" processing, which has also been discussed by others, including Lazarus (1982, 1984), in discussions of cognition–emotion relationships. In combination these two qualitatively distinct forms of cognition give the emotion system the ability to react nearly instantaneously to adaptationally significant events, and yet to draw fully upon the power and flexibility of human cognitive capacities.

Through "schematic processing," the personal significance of an encounter is appraised automatically and nearly instantaneously on the basis of past experiences with similar encounters. That is, the appraisal can act much like the "social affordances" described by Baron (1988; Baron & Boudreau, 1987), with the adaptational implications of the environment leaping automatically and without deliberation into the person's mind, so to speak.

One way in which the operation of schematic processing can be understood is by using the concepts of activation and associative networks commonly invoked in the study of memory (e.g., Anderson & Bower, 1973), although we need not commit ourselves to this idea and use it only to illustrate the point about rapid processing of complicated material. When a person becomes involved in an encounter similar to some in the past, memories of these past encounters are likely to become quickly activated. Personal meanings strongly associated with those previous encounters are likely to be activated and available as contributors to the person's current emotional state. In this way, complicated and involved appraisals, drawing heavily on the person's knowledge and past experiences, can be arrived at quickly and automatically. In considering this type of mechanism, it is not necessary to think of the appraisal process as following a fixed or predefined sequence (as, e.g., Scherer, 1984b, does in his concept of "evaluation checks"),

since the full appraised meaning associated with the past experience(s) can be activated in a single step.

Automatic or schematic processing, as we have described it, is quite passive, and it is important not to lose sight of the fact that humans are sentient, problem-solving beings who actively seek to understand the world and their reactions to it. Thus, schematic processing is accompanied by what Leventhal (1984) has termed "conceptual processing"—a set of more abstract, conscious, and deliberate cognitive processes—through which the person is able to evaluate the adaptational significance of the encounter more actively. Although conceptual processing of appraisal components could perhaps follow predefined sequences, as Scherer (1984b) has suggested, we are wary of a stage theory, since whatever issues and aspects of the encounter seem especially salient may well pre-empt attention at any given moment.

Conceptual processing is very important in much appraisal, as it permits the evaluation of the adaptational significance (hence the emotional response) and the availability of coping options to be finely tuned to the specific requirements of the encounter as it unfolds. It can also draw on highly complex, symbolic meanings, which we believe often underlie our garden-variety emotions. To the extent that they become associated with the encounter in memory, the results of conceptual processing become available for subsequent schematic processing and are an important aspect of emotional development. In any case, appraisal is a complex process that can occur on more than one level of cognitive processing.

Emotion and Dysfunction

Our focus has been on the functional, adaptive nature of emotion, the guiding thesis being that emotions evolved to ensure that the person responds effectively to the adaptational challenges that arise throughout the life course. However, emotions are often dysfunctional or maladaptive in individual cases. As such we can learn much about faulty appraisal and coping processes, and their personality determinants, from an examination of a person's emotional patterns.

For example, knowing that a person frequently reacts with high levels of anger and aggression reveals much about a troubled re-

lationship with the environment, and suggests a number of specific points for possible intervention. Anger indicates that important personal goals are being threatened, and also that this person tends to blame someone else for this, perhaps because of a vulnerable self-esteem that leads to assumptions of malevolence or insulting attitudes on the part of others. The clinician will be prompted to explore the circumstances giving rise to the anger, as well as the client's motivational patterns and beliefs, in order to understand whether and why the client is misconstruing what is happening interpersonally. Why does the client react with anger as opposed to anxiety, guilt, or envy? And what is it about the client that leads to aggression rather than to a more productive coping process?

The answers to these questions may suggest the most appropriate points for intervention. For example, the client may be correctly appraising what is happening—there may indeed be malevolence in those toward whom anger is experienced—but the coping response to this may be counterproductive. The best intervention may be to try to inhibit or suppress the aggressive reactions, and instead to evolve more effective coping options. Alternatively, analysis of the problem may suggest that the appraisal of other-blame, and hence the anger, is inappropriate to the social conditions; perhaps this is the result of incorrect or "irrational" assumptions or beliefs that should be changed (see Ellis & Bernard, 1985). Many programs of cognitive therapy are predicated on this latter type of analysis of dysfunctional emotions.

Emotional Development

The theory of emotion we have been describing has been cast in terms of adult human experience. However, the analysis is also intended to apply to human infants and other complex mammalian species (see Lazarus, 1982, 1984). Yet by emphasizing intelligence, personality, and culture (as values and meanings) in the emotion process, we imply that emotion in the newborn infant will not be exactly the same as in the adult. After all, the appraisal dimensions we have proposed (e.g., future expectancy, accountability) require cognitive capacities, skills, social motives, and understandings that the newborn simply does not yet possess.

As we see it, the emotion system develops in

two distinct ways—one primarily reflecting a biologically determined maturational process, and the other reflecting socioculturally based learning, which must eventually influence the personality variables shaping appraisal and emotion in adaptational encounters.

In the largely biological maturational process the components of appraisal become increasingly differentiated as the infant acquires the formal cognitive capacities (à la Piaget) necessary to make the various evaluations of the significance of what is happening for personal well-being. Therefore, consistent with the observations of numerous developmentalists (e.g., Bridges, 1932; Emde, 1980; Izard, 1977; Lewis & Michalson, 1983; Piaget, 1981; Sroufe, 1979; Stein & Levine, 1987), we would expect the infant to demonstrate increasing emotional differentiation as it matures. The developing child should not experience a particular emotion until it is able, at least in rudimentary form, to make the appraisals that together comprise the core relational theme for that emotion (see Scherer, 1984b). The developmental research task is to delineate the unfolding of the appraisal process and the appreciation by the child of its environmental and motivational components in the case of each emotion as it emerges.

For example, the newborn may only be capable of rudimentary appraisals along the two components of primary appraisal, motivational relevance and motivational congruence or incongruence. This will restrict the newborn's emotional range to states of interested awareness, generalized pleasure, and generalized distress. Anger, as differentiated from generalized distress, should not appear until the infant is capable of some form of rudimentary accountability judgment, perhaps involving little more than the most primitive notion of causality. The differentiation between fear and sadness should not appear until the infant is capable of assessing coping potential/future expectancy, which would seem to require, at minimum, the ability to anticipate and form expectations about future events and perhaps even about one's own competence to influence outcomes. In all likelihood, the relatively fine-grained distinctions among emotion-focused coping potential, problem-focused coping potential, and future expectancy emerge even later, from a more general evaluation of coping potential. Emotions implicating the self, such as pride, shame, and guilt, would seem to require

the ability to maintain a rudimentary self-concept, and perhaps the ability to make a more sophisticated accountability judgment (involving notions of responsibility as well as causality) than might be required for, say, anger. Or perhaps a rudimentary self is a *sine qua non* of true emotions, as distinguished from undifferentiated contentment and distress.

Learning and culture interact with this biologically determined unfolding of cognitive abilities to give the cognitive–motivational–emotive system the full flexibility and power of which it is capable. Throughout the lifespan both the person's knowledge base and motivational hierarchy continue to change. Therefore, as the person's cognitive capacities and knowledge base increase, we should expect to see increasing sophistication and flexibility in both coping activities and the evidence used to make evaluations along the various appraisal dimensions.

In the newborn, appraisal of motivational congruence or incongruence may be based primarily (and almost reflexively) upon perceptual data, with pleasant sensations indicating motivational congruence, and unpleasant ones (e.g., physical discomfort, pain) indicating motivational incongruence (cf. Emde, 1980; Leventhal, 1980, 1984; Piaget, 1981; Sroufe, 1979). However, by adulthood, the evaluation of motivational congruence or incongruence is far more complex, involving subtle implications about the person's relationship with the environment with respect to personal needs and desires, and strategies of self-control. By adulthood, low to moderate sensations of physical discomfort should no longer be reliable indicators of motivational incongruence, and under the right circumstances may actively be sought, as when discomfort signals to the athlete that training is progressing as desired (see Lazarus & Smith, 1988). In a similar manner, the earliest appraisals of accountability may consist of little more than the primitive identification of a causal agent (e.g., identifying the direct source of undesired physical restraint), whereas by adulthood accountability is a highly complicated social judgment that combines causal information with beliefs about intentionality, justifiability, foreseeability, and so on.

Finally, we should see a similar development in the complexity and flexibility of the relationship between emotion and coping. Early on we would expect the emotionally pro-

duced action tendencies arising in an encounter to be acted on in a rather direct, impulsive, almost reflexive manner. Thus, in the infant, distress reliably produces crying, and in young children anger is very likely to produce overt aggression. However, as the child matures the capacity for behavioral control is much increased; in addition, through direct and vicarious experience, children acquire and can use complex knowledge of what is effective and normatively appropriate under various circumstances in choosing the coping activities that are acted on in an encounter. Although largely limited to Western culture, research on the development of children's knowledge of emotions provides an important step in the direction of studying the development of the emotion process (e.g., Gnepp, Klayman, & Trabasso, 1982; Harris, 1985; Stein & Levine, 1987).

CONCLUDING THOUGHTS

We have begun this chapter with an expression of regret that emotion has not served—as we think it should—as an integrating concept in psychology. In our discussion of emotion and dysfunction, we have intimated that emotions are instructive about persons because both emotions and the personality are organized around the problem of surviving, getting along, and flourishing over the life course. Our conclusion returns to this theme.

We have been saying that emotions are the product of *transactions* or *relationships* between the person and the environment (Lazarus & Folkman, 1987; Lazarus & Launier, 1978). This suggests one resolution to the person—situation debate (e.g., Bem & Funder, 1978; Endler & Magnusson, 1976; Epstein, 1979, 1983; Mischel, 1968; Mischel & Peake, 1982) and provides some statements about how personality and situational variables interact (see Figure 23.1).

Since the emotion process serves adaptation, theorists and researchers who would like to put the "person" back into personality research (e.g., Carlson, 1984)—that is, to move from the study of a disparate, seemingly random collection of "traits" to the study of an organized, coherent being who responds to the environment in ways that are intended to realize valued goals and to promote survival and personal growth in the face of potential harms, threats,

and challenges (see Pervin, 1983)—ought to concentrate on the emotional life. They are likely to find the personality variables most relevant to emotion to be a rich starting point for this synthetic (rather than analytic) perspective on persons. Of all the personality characteristics one could use to measure individual differences and to describe functioning persons, those that we have identified as being most relevant to emotion—the persons' goals and commitments, and knowledge and beliefs about self and the world relevant to avoiding harm and achieving those goals and commitments—are the very variables most likely to give rise to a coherent picture of personality. In other words, if one wants to understand whole persons and how they function in nature, what better place to begin than with a consideration of how the persons are equipped to handle the challenges, opportunities, and problems of living? This is, indeed, what emotions are all about.

NOTES

1. Although we find Plutchik's (1980) analysis to be important and thought-provoking, we disagree with one of his basic assumptions—namely, that there are eight survival issues universal to all animal species, and that the "basic" emotions for any species reflect that species' solutions to these specific issues. We see this assumption as simultaneously being too constraining and too broad. It is too constraining because, by imposing a constant set of survival issues across species, it overestimates the number of distinct issues facing very simple organisms and underestimates the number facing more complex species. As species and their interactions with the environment become more complex, they often face new, emergent problems, fundamental to *their* survival but irrelevant to simpler species (see Frijda, 1986, p. 86). For example, social beings, like humans, must find solutions to a number of fundamental issues surrounding the coordination of cooperative and competitive behavior among conspecifics—issues that need not be addressed by species whose members tend to lead their lives in isolation. At the same time, the assumption is too broad because it equates *emotion* with *any* solution a species has evolved to contend with a survival issue. By contrast, we view emotion as being one of

several types of solution (including physiological drives and reflexes) that species have evolved to foster adaptation.

2. We are referring to emotions, reflexes, and drives as "adaptational subsystems" rather than as "motivations" or "motives" in order to maintain a clear distinction between the *urges* (or tendencies) to behave in particular ways produced by emotions, drives, and reflexes, and the underlying *goals* or *needs* those urges serve. In the past, "motivation" has been used rather indiscriminately to refer to the underlying needs, the behavioral urges, and the processes that give rise to the urges in response to the needs. We believe that a clear understanding of emotions and their role in adaptation depends upon the ability to distinguish among these aspects of "motivation," and we have tried to select our language accordingly.

3. In referring to appraisal as "primary" or "secondary" we are *not* referring sequential properties and implying that primary appraisal necessarily precedes secondary appraisal in time. As we discuss in a later section of this chapter, whether and under what conditions appraisal may follow a sequential process are important and open issues for further research. Instead, we consider primary appraisal "primary" because it establishes the personal relevance of the encounter, and this relevance is hypothesized to be a prerequisite for strong emotion. That is, primary appraisal is responsible for the degree of emotional "heat" in a transaction. If the encounter is appraised as not relevant to well-being, then secondary appraisal is relatively unimportant because there will be little emotion of any kind. However, if primary appraisal indicates that the situation is relevant to well-being, then secondary appraisal plays a vital role in differentiating the emotional experience. Thus, secondary appraisal is "secondary" because its role in differentiating the emotional response is highly dependent on the outcome of primary appraisal (see Lazarus, 1968).

REFERENCES

Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87,* 49–74.

Anderson, J. R., & Bower, G. H. (1973). *Human associative memory.* Washington, DC: Hemisphere.

Antonovsky, A. (1987). *Unraveling the mystery of health.* San Francisco: Jossey-Bass.

Arnold, M. B. (1960). *Emotion and personality* (2 vols.). New York: Columbia University Press.

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41,* 258–290.

Averill, J. R. (1968). Grief: Its nature and significance. *Psychological Bulletin, 70,* 721–748.

Averill, J. R. (1975). A semantic atlas of emotional concepts. *JSAS: Catalogue of Selected Documents in Psychology, 5,* 330. (Ms. No. 421)

Averill, J. R. (1980). A constructivist view of emotion. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research, and experience. Vol. 1. Theories of emotion* (pp. 305–339). New York: Academic Press.

Averill, J. R. (1983). Studies on anger and aggression: Implications for theories of emotion. *American Psychologist, 38,* 1145–1160.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191–215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37,* 122–147.

Bandura, A. (in press). Reflections on nonability determinants of competence. In J. Kolligan, Jr., & R. J. Sternberg (Eds.), *Competence considered: Perceptions of competence and incompetence across the lifespan.* New Haven, CT: Yale University Press.

Baron, R. M. (1988). An ecological framework for establishing a dual-mode theory of social knowing. In D. Bar-Tal & A. W. Kruglanski (Eds.), *The social psychology of knowing* (pp. 48–82). New York: Cambridge University Press.

Baron, R. M., & Boudreau, L. A. (1987). An ecological perspective on integrating personality and social psychology. *Journal of Personality and Social Psychology, 53,* 1222–1228.

Bem, D. J., & Funder, D. C. (1978). Predicting more of the people more of the time: Assessing the personality of situations. *Psychological Review, 85,* 485–501.

Bergman, L. R., & Magnusson, D. (1979). Overachievement and catecholamine excretion in an achievement-demanding situation. *Psychosomatic Medicine, 41,* 181–188.

Bolles, R. C. (1974). Cognition and motivation: Some historical trends. In B. Weiner (Ed.), *Cognitive views of human motivation* (pp. 1–20). New York: Academic Press.

Bower, G. H., Black, J. B., & Turner, T. J. (1979). Scripts in text comprehension and memory. *Cognitive Psychology, 11,* 177–220.

Bridges, K. M. B. (1932). Emotional development in early infancy. *Child Development, 4,* 36–49.

Bruner, J. S. (1957). Going beyond the information given. In H. Gruber, K. R. Hammond, & R. Jesser (Eds.), *Contemporary approaches to cognition* (pp. 41–69). Cambridge, MA: Harvard University Press.

Cannon, W. B. (1929). *Bodily changes in pain, hunger, fear, and rage* (2nd ed.). New York: Appleton-Century.

Carlsmith, J. M., & Gross, A. E. (1969). Some effects of guilt on compliance. *Journal of Personality and Social Psychology, 11,* 232–239.

Carlson, R. (1984). What's social about social psychology? Where's the person in personality research? *Journal of Personality and Social Psychology, 47,* 1304–1309.

Carroll, D., Marzillier, J. S., & Merian, S. (1982). Psy-

chophysiological changes accompanying different types of arousing and relaxing imagery. *Psychophysiology, 19,* 75–82.

Collins, D. L., Baum, A., & Singer, J. E. (1983). Coping with chronic stress at Three Mile Island: Psychological and biochemical evidence. *Health Psychology, 2,* 149–166.

Dodge, K. A. (1980). Social cognition and children's aggressive behavior. *Child Development, 51,* 162–170.

Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53,* 1146–1158.

Dodge, K. A., Murphy, R. R., & Buchsbaum, K. (1984). The assessment of intention-cue detection skills in children: Implications for developmental psychopathology. *Child Development, 55,* 163–173.

Drever, J. (1952). *A dictionary of psychology.* Harmondsworth, England: Penguin.

Ekman, P. (1984). Expression and the nature of emotion. In K. R. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 329–343). Hillsdale, NJ: Erlbaum.

Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology, 17,* 124–129.

Ekman, P., & Friesen, W. V. (1975). *Unmasking the face: A guide to recognizing emotions from facial clues.* Englewood Cliffs, NJ: Prentice-Hall.

Ekman, P., Friesen, W. V., & Simons, R. C. (1985). Is the startle reaction an emotion? *Journal of Personality and Social Psychology, 49,* 1416–1426.

Ekman, P., Sorenson, E. R., & Friesen, W. V. (1969). Pan-cultural elements in facial displays of emotions. *Science, 164,* 86–88.

Ellis, A., & Bernard, M. E. (1985). What is rational–emotive therapy (RET)? In A. Ellis & M. E. Bernard (Eds.), *Clinical applications of rational–emotive therapy* (pp. 1–30). New York: Plenum.

Ellsworth, P. C., & Smith, C. A. (1988a). From appraisal to emotion: Differences among unpleasant feelings. *Motivation and Emotion, 12,* 271–302.

Ellsworth, P. C., & Smith, C. A. (1988b). Shades of joy: Patterns of appraisal differentiating pleasant emotions. *Cognition and Emotion, 2,* 301–331.

Emde, R. N. (1980). Levels of meaning for infant development. In W. A. Collins (Ed.), *Minnesota Symposium on Child Psychology* (Vol. 13, pp. 1–37). Hillsdale, NJ: Erlbaum.

Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology, 51,* 1058–1068.

Endler, N. S., & Magnusson, D. (Eds.). (1976). *Interactional psychology and personality.* New York: Wiley.

Epstein, S. (1979). The stability of behavior: I. On predicting most of the people much of the time. *Journal of Personality and Social Psychology, 37,* 1097–1126.

Epstein, S. (1983). A research paradigm for the study of personality and emotions. In M. M. Page (Ed.), *Nebraska Symposium on Motivation* (Vol. 30, pp. 91–154). Lincoln: University of Nebraska Press.

Epstein, S. (1984). Controversial issues in emotion theory. In P. Shaver (Ed.), *Review of personality and social psychology: Vol. 5. Emotions, relationships, and health* (pp. 64–88). Beverly Hills, CA: Sage.

Fehr, B., & Russell, J. A. (1984). Concept of emotion viewed from a prototype perspective. *Journal of Experimental Psychology: General, 113,* 464–486.

Festinger, L. (1957). *A theory of cognitive dissonance.* Stanford, CA: Stanford University Press.

Folkins, C. H. (1970). Temporal factors and the cognitive mediators of stress reaction. *Journal of Personality and Social Psychology, 14,* 173–184.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21,* 219–239.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48,* 150–170.

Folkman, S., & Lazarus, R. S. (1988a). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54,* 466–475.

Folkman, S., & Lazarus, R. S. (1988b). The relationship between coping and emotion: Implications for theory and research. *Social Science in Medicine, 26,* 309–317.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). The dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50,* 992–1003.

Freedman, J. L., Wallington, S. A., & Bless, E. (1967). Compliance without pressure: The effect of guilt. *Journal of Personality and Social Psychology, 7,* 117–124.

Frijda, N. H. (1986). *The emotions.* New York: Cambridge University Press.

Frijda, N. H. (1987). Emotion, cognitive structure, and action tendency. *Cognition and Emotion, 1,* 115–143.

Gnepp, J., Klayman, J., & Trabasso, T. (1982). A hierarchy of information sources for inferring emotional reactions. *Journal of Experimental Child Psychology, 33,* 111–123.

Gruen, R. J., Folkman, S., & Lazarus, R. S. (1989). Centrality and individual differences in the meaning of daily hassles. *Journal of Personality, 56,* 743–762.

Hammen, C. L., Marks, T., Mayol, A., & deMayo, A. R. (1985). Depressive self-schemas, life stress, and vulnerability to depression. *Journal of Abnormal Psychology, 94,* 308–319.

Harris, P. L. (1985). What children know about the situations that provoke emotions. In M. Lewis & C. Saarni (Eds.), *The socialization of affect* (pp. 161–186). New York: Plenum.

Hastorf, A. H., & Cantril, H. (1954). They saw a game: A case study. *Journal of Abnormal and Social Psychology, 49,* 129–134.

Hebb, D. O. (1949). *The organization of behavior.* New York: Wiley.

Heider, F. (1958). *The psychology of interpersonal relations.* New York: Wiley.

Hillman, J. (1960). *Emotion: A comprehensive phenomenology of theories and their meanings for therapy.* Evanston, IL: Northwestern University Press.

Hochschild, A. R. (1979). Emotion work, feeling rules, and social structure. *American Journal of Sociology, 85,* 551–575.

House, J. S. (1981). Social structure and personality. In M. Rosenberg & R. H. Turner (Eds.), *Social psychology: Sociological perspectives* (pp. 525–561). New York: Basic Books.

Izard, C. E. (1971). *The face of emotion.* New York: Appleton-Century-Crofts.

Izard, C. E. (1977). *Human emotions.* New York: Plenum.

Izard, C. E., Kagan, J., & Zajonc, R. B. (Eds.). (1984).

Emotions, cognition, and behavior. New York: Cambridge University Press.

Jessor, R. (1981). The perceived environment in psychological theory and research. In D. Magnusson (Ed.), *Toward a psychology of situations: An interactional perspective* (pp. 297–317). HIllsdale, NJ: Erlbaum.

Jones, E. E., Kanouse, D. E., Kelley, H. H., Nisbett, R. E., Valins, S., & Weiner, B. (Eds.). (1971). *Attribution: Perceiving the causes of behavior.* Morristown, NJ: General Learning Press.

Kasl, S. V., Evans, A. S., & Niederman, J. C. (1979). Psychosocial risk factors in the development of infectious mononucleosis. *Psychosomatic Medicine, 41,* 445–466.

Klinger, E. (1975). Consequences of commitment to and disengagement from incentives. *Psychological Review, 81,* 1–25.

Lang, P. J. (1979). A bio-informational theory of emotional imagery. *Psychophysiology, 16,* 495–512.

Lazarus, R. S. (1966). *Psychological stress and the coping process.* New York: McGraw-Hill.

Lazarus, R. S. (1968). Emotions and adaptation: Conceptual and empirical relations. In W. J. Arnold (Ed.), *Nebraska Symposium on Motivation* (Vol. 16, pp. 175–266). Lincoln: University of Nebraska Press.

Lazarus, R. S. (1982). Thoughts on the relations between emotion and cognition. *American Psychologist, 37,* 1019–1024.

Lazarus, R. S. (1983). The costs and benefits of denial. In S. Breznitz (Ed.), *The denial of stress* (pp. 1–30). New York: International Universities Press.

Lazarus, R. S. (1984). On the primacy of cognition. *American Psychologist, 39,* 124–129.

Lazarus, R. S. (1989a). Cognition and emotion from the RET viewpoint. In M. E. Bernard & R. DiGiuseppe (Eds.), *Inside rational–emotive therapy* (pp. 47–68). Orlando, FL: Academic Press.

Lazarus, R. S. (1989b). Constructs of the mind in mental health and psychotherapy. In A. Freeman, K. M. Simon, L. E. Beutler, & H. Arkowitz (Eds.), *Comprehensive handbook of cognitive therapy* (pp. 99–121). New York: Plenum.

Lazarus, R. S. (in press). Theory-based stress measurement. *Psychological Inquiry.*

Lazarus, R. S., & Averill, J. R. (1972). Emotion and cognition: With special reference to anxiety. In C. D. Spielberger (Ed.), *Anxiety and behavior* (2nd ed., pp. 242–283). New York: Academic Press.

Lazarus, R. S., Averill, J. R., & Opton, J. R., Jr. (1970). Toward a cognitive theory of emotion. In M. B. Arnold (Ed.), *Feelings and emotions: The Loyola Symposium* (pp. 207–232). New York: Academic Press.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality, 1,* 141–169.

Lazarus, R. S., Kanner, A. D., & Folkman, S. (1980). Emotions: A cognitive–phenomenological analysis. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research, and experience. Vol. 1. Theories of emotion* (pp. 189–217). New York: Academic Press.

Lazarus, R. S., & Launier, R. (1978). Stress-related transactions between person and environment. In L. A. Pervin (Ed.), *Perspectives in interactional psychology* (pp. 287–327). New York: Plenum.

Lazarus, R. S., & Smith, C. A. (1988). Knowledge and appraisal in the cognition–emotion relationship. *Cognition and Emotion, 2,* 281–300.

Leeper, R. W. (1948). A motivational theory of emotion to replace "emotion as disorganized response." *Psychological Review, 55,* 5–21.

Leeper, R. W. (1965). Some needed developments in the motivational theory of emotions. In D. Levine (Ed.), *Nebraska Symposium on Motivation* (Vol. 13, pp. 25–122). Lincoln: University of Nebraska Press.

Levenson, R. W. (1988). Emotion and the autonomic nervous system: a prospectus for research on autonomic specificity. In H. L. Wagner (Ed.), *Social psychophysiology and emotion: Theory and clinical applications* (pp. 17–42). New York: Wiley.

Leventhal, H. (1980). Toward a comprehensive theory of emotion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 139–207). New York: Academic Press.

Leventhal, H. (1984). A perceptual motor theory of emotion. In K. R. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 271–291). Hillsdale, NJ: Erlbaum.

Leventhal, H., & Scherer, K. R. (1987). The relationship of emotion to cognition: A functional approach to a semantic controversy. *Cognition and Emotion, 1,* 3–28.

Lewin, K. (1935). *A dynamic theory of personality.* New York: McGraw-Hill.

Lewis, K. (1936). *Principles of topological psychology.* New York: McGraw-Hill.

Lewis, M., & Michalson, L. (1983). *Children's emotions and mood: Developmental theory and measurement.* New York: Plenum.

Little, B. R. (1983). Personal projects: A rationale and method for investigation. *Environment and Behavior, 15,* 273–309.

Maddux, J., Norton, L., & Stoltenberg, C. (1986). Self-efficacy expectancy, outcome expectancy, and outcome value: Relative effects on behavioral intentions. *Journal of Personality and Social Psychology, 51,* 783–789.

McGraw, K. M. (1987). Guilt following transgression: An attribution of responsibility approach. *Journal of Personality and Social Psychology, 53,* 247–256.

Metalsky, G. I., Halberstadt, L. J., & Abramson, L. Y. (1987). Vulnerability to depressive mood reactions: Toward a more powerful test of the diathesis–stress and causal mediation components of the reformulated theory of depression. *Journal of Personality and Social Psychology, 52,* 386–393.

Mischel, W. (1968). *Personality and assessment.* New York: Wiley.

Mischel, W., & Peake, P. K. (1982). Beyond deja vu in the search for cross-situational consistency. *Psychological Review, 89,* 730–755.

Nasby, W., Hayden, B., & dePaulo, B. M. (1979). Attributional bias among aggressive boys to interpret unambiguous social stimuli as displays of hostility. *Journal of Abnormal Psychology, 89,* 459–468.

Nisbett, R., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment.* Englewood Cliffs, NJ: Prentice-Hall.

Nomikos, M. S., Opton, E. M., Jr., Averill, J. R., & Lazarus, R. S. (1968). Surprise versus suspense in the production of stress reaction. *Journal of Personality and Social Psychology, 8,* 204–208.

Ortony, A. (1987). Is guilt an emotion? *Cognition and Emotion, 1,* 283–298.

Ortony, A., Clore, G. L., & Foss, M. A. (1987). The referential structure of the affective lexicon. *Cognitive Science, 11*, 341–364.

Owens, J., Bower, G. H., & Black, J. B. (1979). The "soap opera" effect in story recall. *Memory and Cognition, 7*, 185–191.

Palys, T. S., & Little, B. R. (1983). Perceived life satisfaction and the organization of personal project systems. *Journal of Personality and Social Psychology, 44*, 1221–1230.

Pastore, N. (1952). The role of arbitrariness in the frustration–aggression hypothesis. *Journal of Abnormal and Social Psychology, 47*, 728–731.

Pervin, L. A. (1983). The stasis and flow of behavior: Toward a theory of goals. In M. M. Page (Ed.), *Nebraska Symposium on Motivation* Vol. 30, pp. 1–53). Lincoln: University of Nebraska Press.

Peterson, C., & Barrett, L. C. (1987). Explanatory style and academic performance among university freshmen. *Journal of Personality and Social Psychology, 53*, 603–607.

Peterson, C., Semmel, A., von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. P. (1982). The Attributional Style Questionnaire. *Cognitive Therapy and Research, 6*, 287–300.

Piaget, J. (1952). *The origins of intelligence in children.* New York: International Universities Press.

Piaget, J. (1981). *Intelligence and affectivity.* Palo Alto, CA: Annual Reviews Monographs.

Plutchik, R. (1980). *Emotion: A psychoevolutionary synthesis.* New York: Harper & Row.

Plutchik, R. (1984). Emotions: A general psychoevolutionary theory. In K. R. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 197–219). Hillsdale, NJ: Erlbaum.

Plutchik, R., & Kellerman, H. (Eds.). (1980). *Emotion: Theory, research, and experience. Vol. 1. Theories of emotion.* New York: Academic Press.

Postman, L., Bruner, J. S., & McGinnies, E. (1948). Personal values as selective factors in perception. *Journal of Personality and Social Psychology, 43*, 142–154.

Repetti, R. L. (1987). Individual and common components of the social environment at work and psychological well-being. *Journal of Personality and Social Psychology, 52*, 710–720.

Riskind, J. H. (1984). They stoop to conquer: Guiding and self-regulatory functions of physical posture after success and failure. *Journal of Personality and Social Psychology, 47*, 479–493.

Rosch, E. (1978). Principles of categorization. In E. Rosch & B. B. Lloyd (Eds.), *Cognition and categorization* (pp. 27–71). Hillsdale, NJ: Erlbaum.

Roseman, I. J. (1984). Cognitive determinants of emotion: A structural theory. In P. Shaver (Ed.), *Review of personality and social psychology: Vol. 5. Emotions, relationships, and health* (pp. 11–36). Beverly Hills, CA: Sage.

Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 173–220). New York: Academic Press.

Ross, L. (1987). The problem of construal in social inference and social psychology. In N. E. Grunberg, R. E. Nisbett, J. Rodin, & J. E. Singer (Eds.), *A distinctive approach to psychological research: The influence of Stanley Schachter* (pp. 118–150). Hillsdale, NJ: Erlbaum.

Rozin, P., & Fallon, A. E. (1987). A perspective on disgust. *Psychological Review, 94*, 23–41.

Ryff, C. D. (1987). The place of personality and social structure research in social psychology. *Journal of Personality and Social Psychology, 53*, 1192–1202.

Sarbin, T. H. (1985, June). *Emotions as situated actions.* Paper presented at the Conference on the Role of Emotions in Ideal Human Development, Heinz Werner Institute of Developmental Psychology, Clark University, Worcester, MA.

Scheff, T. J. (1979). *Catharsis in healing, ritual and drama.* Berkeley: University of California Press.

Scheier, M. F., & Carver, C. S. (1987). Dispositional optimism and physical well-being: The influenced of generalized outcome expectancies on health. *Journal of Personality, 55*, 169–210.

Scherer, K. R. (1982). Emotion as process: Function, origin and regulation. *Social Science Information, 21*, 555–570.

Scherer, K. R. (1984a). Emotion as a multicomponent process: A model with some cross-cultural data. In P. Shaver (Ed.), *Review of personality and social psychology: Vol. 5. Emotions, relationships, and health* (pp. 37–63). Beverly Hills, CA: Sage.

Scherer, K. R. (1984b). On the nature and function of emotion: A component process approach. In K. R. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 293–317). Hillsdale, NJ: Erlbaum.

Scherer, K. R. (1986). Vocal affect expression: A review and a model for future research. *Psychological Bulletin, 99*, 143–165.

Scherer, K. R., & Ekman, P. (Eds.). (1984). *Approaches to emotion.* Hillsdale, NJ: Erlbaum.

Scherer, K. R., Wallbott, H. G., & Summerfield, A. B. (Eds.). (1986). *Experiencing emotion: A cross-cultural study.* New York: Cambridge University Press.

Schneider, D. M. (1976). Notes toward a theory of culture. In K. Basso & H. Selby (Eds.), *Meaning in anthropology* (pp. 197–220). Albuquerque: University of New Mexico Press.

Schwartz, G. E., Fair, P. L., Salt, P., Mandel, M. R., & Klerman, G. L. (1976). Facial muscle patterning to affective imagery in depressed and nondepressed subjects. *Science, 192*, 489–491.

Seligman, M. E. P., & Schulman, P. (1986). Explanatory style as a predictor of productivity and quitting among life insurance sales agents. *Journal of Personality and Social Psychology, 50*, 832–838.

Selye, H. (1974). *Stress without distress.* Philadelphia: J. B. Lippincott.

Shaver, K. G. (1977). *Principles of social psychology.* Cambridge, MA: Winthrop.

Shaver, K. G. (1985). *The attribution of blame: Causality, responsibility, and blameworthiness.* New York: Springer.

Shaver, P. (Ed.). (1984). *Review of personality and social psychology: Vol. 5. Emotions, relationships, and health.* Beverly Hills, CA: Sage.

Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further exploration of a prototype approach. *Journal of Personality and Social Psychology, 52*, 1061–1086.

Shweder, R. A., & LeVine, R. A. (Eds.). (1984). *Culture theory: Essays on mind, self, and emotion.* Cambridge, England: Cambridge University Press.

Skinner, B. F. (1953). *Science and human behavior.* New York: Appleton.

Smith, C. A. (1989). Dimensions of appraisal and physiological response in emotion. *Journal of Personality and Social Psychology, 56,* 339–353.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48,* 813–838.

Smith, C. A., & Ellsworth, P. C. (1987). Patterns of appraisal and emotion related to taking an exam. *Journal of Personality and Social Psychology, 52,* 475–488.

Smith, C. A., Lazarus, R. S., & Novacek, J. (1990). *Appraisal components, relational themes, and emotion.* Manuscript submitted for publication, Vanderbilt University.

Smith, C. A., McHugo, G. J., & Lanzetta, J. T. (1986). The facial muscle patterning of posed and imagery-induced expressions of emotion by expressive and nonexpressive posers. *Motivation and Emotion, 10,* 133–157.

Smith, C. A., Novacek J., Lazarus, R. S., & Pope, L. K. (1990). *Antecedents of emotion: Situations, dispositions, attributions, and appraisals.* Manuscript in preparation, Vanderbilt University.

Solomon, Z., Mikulincer, M., & Hobfoll, S. E. (1987). Objective versus subjective measurement of stress and social support: Combat-related reactions. *Journal of Consulting and Clinical Psychology, 55,* 577–583.

Sroufe, A. L. (1979). Socioemotional development. In J. Osofsky (Ed.), *The handbook of infant development* (pp. 462–516) New York: Wiley.

Stein, N., & Levine, L. (1987). Thinking about feelings: The development and organization of emotional knowledge. In R. E. Snow & M. Farr (Eds.), *Aptitude, learning, and instruction: Vol. 3. Cognition, conation, and affect* (pp. 165–198). Hillsdale, NJ: Erlbaum.

Strentz, T., & Auerbach, S. M. (1988). Adjustment to the stress of simulated captivity: Effects of emotion-focused versus problem-focused preparation on hostages differing in locus of control. *Journal of Personality and Social Psychology, 55,* 652–660.

Thoits, P. A. (1984). Coping, social support, and psychological outcomes: The central role of emotion. In P. Shaver (Ed.), *Review of personality and social psychology: Vol. 5. Emotions, relationships, and health* (pp. 219–238). Beverly Hills, CA: Sage.

Thompson, D. A., & Campbell, R. G. (1977). Hunger in humans induced by 2-deoxy-D-glucose: Glucoprivic control of taste preference and food intake. *Science, 198,* 1065–1068.

Tomkins, S. S. (1962). *Affect, imagery, consciousness: Vol. 1. The positive affects.* New York: Springer.

Tomkins, S. S. (1963). *Affect, imagery, consciousness: Vol. 2. The negative affects.* New York: Springer.

Tomkins, S. S. (1980). Affect as amplification: Some modifications in theory. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research, and experience. Vol. 1. Theories of emotion* (pp. 141–164). New York: Academic Press.

Vallone, R., Ross, L., & Lepper, M. R. (1985). The hostile media phenomenon: Biased perception and perceptions of media bias in coverage of the Beirut massacre. *Journal of Personality and Social Psychology, 49,* 577–585.

Vogel, W., Raymond, S., & Lazarus, R. S. (1959). Intrinsic motivation and psychological stress. *Journal of Abnormal and Social Psychology, 58,* 225–233.

Wallington, S. A. (1973). Consequences of transgression: Self-punishment and depression. *Journal of Personality and Social Psychology, 28,* 1–7.

Watson, J. B. (1919). *Psychology from the standpoint of a behaviorist.* Philadelphia: J. B. Lippincott.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92,* 548–573.

Weiner, B., Amirkhan, J., Folkes, V. S., & Verette, J. A. (1987). An attributional analysis of excuse giving: Studies of a naive theory of emotion. *Journal of Personality and Social Psychology, 52,* 316–324.

Weiner, B., Graham, S., & Chandler, C. (1982). Pity, anger, and guilt: An attributional analysis. *Personality and Social Psychology Bulletin, 8,* 226–232.

Werner, H. (1948). *Comparative psychology of mental development* (rev. ed.) Chicago: Follett.

Wicklund, R. A., & Brehm, J. W. (1976). *Perspectives on cognitive dissonance.* Hillsdale, NJ: Erlbaum.