Chapter 9

Emotion

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Conceptions of human nature derive from beliefs about human emotion. Are humans competitive and aggressive by nature or cooperative and kind? Do people seek to maximize personal desire or to enhance the welfare of others? What is the nature of human rationality? What is the path to the good life? Answers to these age-old questions hinge on an understanding of the emotions.

Western constructions of emotions have been guided by the *Romanticism thesis,* which dates back to Plato and found its clearest expression in the writings of Rousseau (Oatley, Keltner, & Jenkins, 2006; Solomon, 1976). The romanticism thesis holds that emotions are powerful, involuntary forces and that the experience of emotion guides patterns of reasoning, self-expression, and social behavior that are vital to healthy social communities. For many theorists, such as Kant, the power of emotions, in particular to shift reasoning in context-specific fashion, necessitated that emotions play minor roles in moral judgment, ethical conduct, and social organization. For others, such as Rousseau, Hume, and Darwin, these same properties qualified emotions as a source of moral intuition and ethical behavior and thus deserving of a privileged place in social life.

Founding figures in psychology—Darwin and James— focused their theoretical energies on the nature of emotion. The psychological science that would follow, however, would have little systematic to say about emotion (this is only the second *Handbook of Social Psychology* chapter devoted to the topic). During the heyday of behaviorism and learning theory, emotions resided inside the proverbial "black box of the mind," outside the purview of observable measurement and undeserving of scientific inquiry. Reacting against drive-based, psychodynamic approaches to the human mind, B. F. Skinner (1948) inveighed that emotions "are the

fictional causes to which we ascribe behavior" and "useless and bad for our peace of mind and our blood pressure" (p. 92). The cognitive revolution that followed behaviorism made significant progress in showing how cognitive processes could fully account for seemingly "hot" emotional processes such as prejudice, attraction, and group hatred.

In the last 30 years, however, a robust science of emotion has emerged, one that appears to represent a paradigm shift in thinking about human nature (Damasio, 1994; Davidson, Scherer, & Goldsmith, 2003; Frank, 1988; Keltner, 2009; LeDoux, 1996). The sources of this new science of emotion are numerous. Developmental psychologists began to document emotions as central to parent–child attachment and to children's navigation of their environment before language acquisition (Barrett & Campos, 1987; Campos, Campos, & Barrett, 1989; Cohn & Tronick, 1983). Neurological studies of split-brain patients discovered that one hemisphere of the brain (the right) preferentially responds to the emotional content of stimuli (Gazzaniga, 1985). Ethological studies of different hunter–gatherer cultures revealed striking universalißties in the expression of emotion and the prominent place of emotions in social interaction (Eibl-Eibesfeldt, 1989; Konner, 2003). And in the early 1980s, cognitive psychologists began to document how emotions shape memory (Bower, 1981), as well as judgment and decision making (Isen, 1987; Schwarz & Clore, 1983).

The study of emotion now claims a central position in social psychology (e.g., Tiedens & Leach, 2004; Zajonc, 1998). As social-psychological studies have advanced an understanding of the emotions, they have yielded answers to some of the age-old questions about human nature. This review focuses on the classic and contemporary questions that frame recent findings in this new science of

emotion. The first section addresses definitions of emotion from taxonomic, cross-cultural, and functional perspectives. The second section considers the extent to which emotions are universal and culturally specific. The next two sections ask how emotions are shaped by cognitive and social processes and, in turn, shape cognitive and social processes. In the concluding section, the contributions emotions make to happiness are considered.

WHAT IS AN EMOTION?

In 1884, James famously titled an essay in the journal *Mind,* "What Is an Emotion?" A consensual answer to this question has been hard to reach. Debates have flared regarding which emotions are "basic," that is, elemental, evolved, and genetically encoded in the nervous systems, and which emotions are secondary, or constructed from other emotions (Ekman, 1992; Ortony & Turner, 1990). More recently, controversies have arisen regarding the boundaries between emotions and whether or not (or to what extent) emotions are discrete entities or "natural kinds" (Barrett, 2006; Ekman & Davidson, 1994; Keltner, Ekman, Gonzaga, & Beer, 2003; Panksepp, 1998).

One answer to James's question is to differentiate emotions from other kinds of affective experience. The consensus now is that affective experiences, which involve feelings of good or bad (Russell, 2003), can be studied at four levels of analysis (Kahneman, 1999; Rosenberg, 1998). At the broadest level, emotional *traits* refer to general styles of emotional responses that persist across context and time (Larsen & Ketelaar, 1989; Shiota, John, & Keltner, 2006). For example, people who experience trait-like gratitude tend to feel grateful at different points and in different situations throughout their lives (McCullough, Emmons, & Tsang, 2002). People who report such trait-like tendencies for particular emotions show a subjective, expressive, and physiological profile that closely resembles that of the momentary emotion or emotional state (Gross, Sutton, & Ketelaar, 1998; Lazarus, 1991; Malatesta, 1990).

At a second level of analysis, *moods* are assumed to be longer lasting, less focused on a particular cause, and less context bound than specific emotions (Watson & Tellegen, 1985). For example, anger, an emotion, has a specific source (a slight at work or a humiliating comment from a spouse), whereas irritability, a mood, is less defined by a clear cause or intentional object. Numerous studies have characterized the temporal stability of positive and negative moods and their covariation with personality traits, such as extraversion and agreeableness, and subjective well-being (Lyubomirsky, King, & Diener, 2005; Watson & Clark, 1992).

Emotions, which represent a third level of analysis, are assumed to be briefer, more context specific, and more focused on a particular cause or intentional object than on positive moods and traits (Ekman, 1992; Schwarz, 1990). How specific positive emotions, such as gratitude, differ from related mood-like experiences, such as feeling appreciative, and coalesce into trait-like tendencies, such as a grateful disposition, has emerged as an essential question for the field (e.g.,. McCullough et al., 2002).

Sensory experiences of pleasure and pain represent the final, most specific level of analysis (Kahneman, 1999). Sensory experiences, such as an itch or the taste of a Belgian beer, are likely to have unique temporal dynamics (e.g., Fredrickson & Kahneman, 1993) that, when filtered through an individual's social goals and aspirations, can evolve into emotional experiences. For example, Rozin (1996) has offered an evolutionary account of how "distaste" for noxious smells and tastes (a sensory experience) evolves into "disgust," an emotion felt toward contaminating actions and traits.

Building on this basic conceptualization of emotion, Table 9.1 presents definitions of emotion from leading figures in the field, including those who have studied emotions through the lens of cultural constructivist assumptions (e.g., Lutz & White, 1986; Frijda & Mesquita, 1994) and evolutionary theory (Ekman, 1992; Tooby & Cosmides, 1990). Across these definitions, differences emerge: Many prioritize the physiological basis of emotion, for example, but some do not. Areas of convergence also appear; most theorists assume that emotions orient people to respond to ongoing events in their environment and that in this sense, emotions are "relational." In addition, these theorists tend to assume that emotions involve multiple responses. Thus, any attempt to answer James's question, "What is an emotion?" must consider the multiple components of emotion.

Components of Emotion

In *The Expression of the Emotions in Man and Animals,* Darwin (1872/1998) presented his *principle of serviceable habits,* which holds that the expressions of emotion that people observe today derive from habitual patterns of behavior that proved useful in the evolution of humans' mammalian predecessors. For example, sneering is a behavioral vestige of snarling and preparing to bite, and affectionate embrace and soothing touch evolved from patterns of protective physical contact.

Darwin's rich descriptions of more than 30 emotions presage the notion that emotions involve multiple bodily systems (Gross, 1998; Levenson, 1999). Darwin himself focused on facial muscle action, vocalization patterns, gesture, postural shifts, and gaze activity, as well as autonomic

Table 9.1   Definitions of Emotion

Source	Definition
James, 1884	"My thesis. . . is that the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur is the emotion."
Arnold & Gasson, 1954	"An emotion or an affect can be considered as the felt tendency towards an object judged suitable, or away from an object judged unsuitable, reinforced by specific bodily changes."
Lutz & White, 1986	"Emotions are a primary idiom for defining and negotiating social relations of the self in a moral order."
Barrett & Campos, 1987	"We conceive of emotions as bidirectional processes of establishing, maintaining, and/or disrupting significant relationships between an organism and the (external or internal) environment."
Tooby & Cosmides, 1990	"An emotion corresponds to a distinctive system of coordination among the mechanisms that regulate each controllable biological process. That is, each emotional state manifests design features 'designed' to solve particular families of adaptive problems, whereby psychological mechanisms assume unique configuration."
Lazarus, 1991	"Emotions are organized psychophysiological reactions to news about ongoing relationships with the environment."
Ekman, 1992	"Emotions are viewed as having evolved through their adaptive value in dealing with fundamental life-tasks. Each emotion has unique features: signal, physiology, and antecedent events. Each emotion also has characteristics in common with other emotions: rapid onset, short duration, unbidden occurrence, automatic appraisal, and coherence among responses."
Frijda & Mesquita, 1994	"Emotion . . . are, first and foremost, modes of relating to the environment: states of readiness for engaging, or not engaging, in interaction with that environment."

Table 9.2   Darwin's Descriptions of Four Emotions

Emotion	Expressive Behaviors
Devotion (reverence)	Face upward, eyelids upturned, fainting, pupils upward and inward, humbling kneeling posture, hands upturned
Laughter	Tears, deep inspiration, contraction of chest, shaking of body, head nodding to and fro, lower jaw quivering up and down, lip corners drawn backward, head thrown backward, shaking, head and face red, muscle around eyes contracted, lip pressing and biting
Rage	Uncovered teeth, hair bristled, face reddened, chest heaving, nostrils dilated, quivering, trembling, teeth clenched, respiration labored, gestures frantic, veins on forehead and neck distended, body erect, bent forward, rolling on ground and kicking, screaming (children), brow furrowed, glaring, protruding lips, retracted lips, tossing arms about, shaking fist, hissing
Terror (intense fear)	Pallor, nostrils flared, gasping, gulping, protruding eyeballs, pupils dilated, hands clenched or opened, arms protruded, sweat, prostration, body relaxed, eyebrow corners tightened and raised, upper eyelids raised, lip corners pulled sideways

responses such as facial coloring and fainting (see Table 9.2 for his analyses of four emotions). Contemporary analyses of emotion presuppose that emotions involve not only display behavior and physiological response but also specific appraisals and action tendencies, conceptual knowledge, language, and experience.

In general, empirical studies of the components of emotion have engaged in the surprisingly complex task of characterizing the response profiles of different emotions (which in Darwin's eyes would reveal their evolutionary origins). This descriptive task translates to empirical attempts to answer two questions. First, within a response system, say facial muscle action, how do the emotions differ? Ultimately, this kind of work speaks to the question of how many emotions are signaled, for example, in the face and voice, or registered in specific patterns of physiological response. Second, how do the components of emotion relate to subjective experience? Data relevant to this question inform age-old questions about the subjective quality of affective experience, which is considered in a later

section. Within the literatures on the different components of emotion, theoretical issues, tensions, and advances have arisen that frame the ensuing reviews.

Emotion-Eliciting Appraisals: Discrete Versus Dimensional Approaches and the Automaticity of Emotion

Emotions are rooted in appraisals. At the most general level, *emotion appraisals* involve evaluative judgments of whether an event is good or bad and whether people's current actions and environment correspond to their personal goals and expectations (Carver & White, 1994; Davidson, 2004; Higgins, 1997; Russell, 2003). The study of emotion-eliciting appraisals, or the "meaning making" processes that give rise to different emotions (Clore & Ortony, 2008; Roseman, 1991, 1984; Roseman, Spindel, & Jose, 1990; Roseman, Wiest, & Swartz, 1994; Scherer, 1997; Scherer & Wallbott, 1994; Smith & Ellsworth, 1985), was the intellectual offspring of two literatures: (1) research on stress and health, particularly Lazarus's (1991) reframing of specific stresses as emotion appraisals, and (2) the study of attribution, achievement motivation, and emotion (Weiner, 1985) and its documentation that successes and failures could lead to different emotions depending on how outcomes are interpreted.

Discrete approaches to emotion appraisals focus on the coherent themes, or *core-relational themes,* in Lazarus's words (1991), that give rise to the experience of emotions and that differentiate emotions from one another. For example, people feel anger when they appraise an unjustified offense against themselves or someone close; they feel compassion when they feel moved to help someone who is suffering. These core-relational themes are thought to result from two stages of appraisal: in the first, people appraise whether an event is congruent or incongruent with their goals; in the second, people consider a causal attribution for the event, potential responses, and future consequences of different courses of action (e.g., Folkman & Lazarus, 1989).

Discrete approaches to appraisal help to illuminate sources of individual variation in emotion—for example, why an angry person appraises ongoing events in ways that lead to a life rife with frustration and hostility (Rosenberg, 1998). Discrete emotion-eliciting appraisals can be captured in spontaneous discourse and relate to emotion-specific experiences and facial expressions (Bonanno & Keltner, 2004). Yet discrete approaches to appraisal fail to yield simple explanations of the similarities among emotions (e.g., between anger and fear) and do not readily explain rapid transitions between emotional states (Ellsworth, 1991).

By contrast, *dimensional approaches to appraisal* presuppose that core dimensions of appraisal, when combined, give rise to specific emotions (e.g., Ellsworth & Smith, 1988; Smith & Ellsworth, 1985). In their review of numerous studies of the semantic content of emotions, Smith and Ellsworth (1985) derived eight dimensions that capture the appraisal processes that lead to various emotions (see also Scherer, 1997). These appraisal dimensions can be thought of as the basic units of meaning that people ascribe to events (see Table 9.3).

Guided by dimensional approaches, studies of emotion-related recall (Ellsworth & Smith, 1988; Smith & Ellsworth, 1985) have documented that each emotion is defined by a fairly distinct pattern of appraisal (for critiques of this methodology, see Parkinson & Manstead, 1992). For example, interest is associated with appraisals of increased pleasantness, the desire to attend, the sense that situational factors are producing events, a perceived need to expend effort, moderate certainty about future outcomes, and little sense of obstacles or the illegitimacy of events.

Moreover, certain appraisal dimensions are central to the differentiation of clusters of emotions (Smith & Ellsworth, 1985). For example, agency, a combination of control and responsibility, differentiates anger, sadness, and guilt. In the face of a negative event, blaming others produces anger, believing that the situation is responsible produces sadness, and self-blame produces guilt (see also Weiner, 1985).

Dimensional accounts of emotion appraisal have generated several lines of inquiry. They identify mechanisms

Table 9.3   Dimensions of Emotion-Related Appraisal

Dimension	Definitions
Attention	Degree to which you focus on and think about the stimulus
Certainty	Degree to which you are certain about what is going to happen
Control coping	Extent to which you have control over outcomes in the environment
Pleasantness	Degree that the event is positive or negative
Perceived obstacle	Extent to which the pursuit of your goals is blocked
Responsibility	Extent to which other people, you, and situational factors are responsible for events
Legitimacy:	Extent to which the event is fair and deserved or unfair and undeserved
Anticipated effort:	Extent to which you must expend energy to respond to the event

Adapted from Smith & Ellsworth, 1985.

by which emotions influence different cognitive processes (see the section on emotion and reason) and pinpoint likely emotional processes associated with different central nervous system regions (see Davidson, Pizzagalli, Nitschke, & Kalin, 2003; Ochsner, 2008). For example, the experience of anger involving high levels of agency has been associated with activation in the left-frontal regions of the cortex, an area of the brain thought to facilitate approach-related behavior (Harmon-Jones, Sigelman, Bohlig, & Harmon-Jones, 2003). Dimensional accounts also illuminate likely areas of cultural variation in emotion-related appraisals. For example, based on how cultures vary in their conceptions of human agency (Morris & Peng, 1994), similar events are likely to trigger different emotions in members of different cultures, probably because of differences in appraisal.

Discrete and dimensional approaches both assume that emotion-eliciting appraisals begin with simple appraisals and proceed to complex meaning-making attributions. Along these lines, a critical question that has emerged concerns *automaticity:* which emotion-eliciting appraisals are automatic—that is, fast, beyond deliberative control, and preconscious—and which are more deliberative, controlled processes. Inspired by Zajonc's theorizing (1980), researchers now widely assume that an automatic, preconscious appraisal produces an evaluation of whether a stimulus is good or bad (LeDoux, 1996; Mischel & Shoda, 1995; Russell, 2003; Winkielman, Zajonc, & Schwarz, 1997). This system gives rise to automatic affective reactions that motivate rapid approach or avoidance responses and core feelings of positivity or negativity (Barrett, 2006; Russell, 2003).

Indeed, rapid exposure below conscious awareness to certain classes of stimuli triggers primary appraisals and core positive or negative feelings. Zajonc found that exposure to positive or negative stimuli at presentation rates that prevented conscious recognition of the stimulus colored participants' evaluations of subsequently presented stimuli (Murphy & Zajonc, 1993). Subliminally presented photos of smiles or anger displays trigger emotion-related facial expressions, subjective experience, and physiological response in the perceiver (Dimberg & Öhman, 1996; Öhman & Dimberg, 1978). In one study, snake phobics, but not control participants, showed a galvanic skin response when presented with photos of snakes so quickly that the images could not be consciously recognized (Öhman & Soares, 1994).

Subsequent work has begun to characterize the stimulus features that generate positive or negative primary appraisals. Positive as opposed to negative appraisals are generated by smooth rather than sharp-edged objects, light rather than dark objects, high rather than low pitch (Huron, 2006), and high versus low physical location (Clore & Ortony, 2008). Ito, Larsen, Smith, and Cacioppo (1998) have documented that brain activity associated with primary appraisals of negatively valenced stimuli may be of greater magnitude than those of positive stimuli.

Inspired in part by this literature, LeDoux (1996) argued that the *amygdala,* an almond-shaped region in the midbrain, is centrally involved in generating primary appraisals that give rise to emotion before conscious recognition and categorization of a stimulus (for a recent review, see Phelps, 2006). He grounds this claim in neuroanatomy: the amygdala receives inputs from sensory processing systems via the thalamus that are faster than the inputs that arrive from the hippocampus and cortex, where the semantic classification of the stimulus may originate. Once activated, the amygdala, via projections to the hypothalamus, regulates emotion-related behavior through activation of the autonomic nervous system, a branch of the peripheral nervous system considered in detail later (Adolphs, Tranel, Damasio, & Damasio, 1994; Aggleton, 2000).

Moreover, recent human imaging studies indicate that the amygdala is involved in primary evaluative appraisals (Baxter & Murray, 2002). The amygdala (along with other brain regions) becomes more active in response to sad film clips (Levesque et al., 2003), erotic film clips (Beauregard, Levesque, & Bourgouin, 2001), disturbing slides (Phan, Wager, Taylor, & Liberzon, 2004), and unpleasant tastes and odors (Zald, 2003). People show increased amygdala activation to faces of individuals from ethnic groups other than their own (Hart et al., 2000), and amygdala activation predicts whether people will recall emotionally evocative stimuli (Canli, Zhao, Desmond, & Gabrieli, 1999).

The literature on emotion appraisals is rich in theoretical development, but several areas of inquiry await empirical attention. Given critiques of self-report measures as assessments of online appraisals (Parkinson & Manstead, 1992), methods are needed to study the contents of appraisal processes as they occur. In addition, new questions have arisen concerning the semantic content of primary appraisals: Are primary appraisals attuned to the valence of a stimulus, its novelty, its salience, or its intensity? Are other dimensions, such as agency, involved in automatic, primary appraisals? Can discrete emotions be generated through automatic appraisals? To what extent do primary appraisals give rise to conscious experiences (Clore & Ortony, 2008; Winkielman, Knutson, Paulus, & Trujillo, 2007)? Answers to these questions will shed light on how emotions arise.

Signaling Behavior: New Emotions, New Signaling Systems, and the Grammar of Social Interaction

In *The Expression of the Emotions in Man and Animals,* Charles Darwin limned the expressive signatures of dozens of emotions (Darwin, 1872/1998; Matsumoto, Keltner,

Shiota, O'Sullivan, & Frank, 2008). He drew comparisons between human and nonhuman emotional display to challenge creationists' claims that God graced humans with special facial muscles that allow us to express uniquely human emotions.

The study of signaling behavior has enabled the developing science of emotion (Ambady, this volume, Ekman, 1993). Comparisons of human and nonhuman emotional display reveal the evolutionary origins of specific emotions, for example, that embarrassment evolved out of appeasement processes in nonhuman primates (Beer, Heerey, Keltner, Knight, & Scabini, 2003; Keltner & Buswell, 1997; Miller & Leary, 1992), that laughter and smiling evolved out of distinct affiliative displays in other primates (Preuschoft, 1992; van Hooff, 1972), and that human emotion vocalization resembles other mammals' vocalizations related to food, sex, affiliation, caretaking, and play (Snowdon, 2003). Studies of the perception and the production of emotional display have been central to affective neuroscience (Keltner, Ekman, et al., 2003). Emotional displays serve as building blocks for social relationships—a theme of the section on the social construction of emotion.

The study of emotional display is a descriptive enterprise: *encoding studies* ascertain which signaling behaviors covary with which distinct experiences, and *decoding studies* determine whether observers can make accurate inferences about emotion from nonverbal displays (Ekman, 1993; Ekman, Friesen, & Ellsworth, 1982; Keltner, 1995; Matsumoto et al., 2008). Initially, and controversially, studies of emotional display largely focused on displays of five negative emotions in the face and on one display of positive emotion, the smile. In the last 15 years, previously unstudied emotions (e.g., love, pride, gratitude, and embarrassment) have been shown to have distinct displays, and signaling systems such as touch have been investigated, revealing emotional displays to be central to the formation and maintenance of relationships.

Facial, Postural, and Gestural Displays of Emotion

The 30 to 40 facial muscles beneath the skin's surface are involved in numerous actions: breathing, eating, swallowing, speaking, prosodic vocalization, and expressing emotion. Of the tens of thousands of possible configurations of the facial muscles, a limited set express emotion (Ekman, 1993). Emotion-specific *facial muscle movements* tend to be brief (lasting between 1 and 5 seconds), symmetrical, and hard to produce voluntarily (Dimberg, Thunberg, & Grunedal, 2002; Ekman, 1993; Frank, Ekman, & Friesen, 1993). A genuine smile of pleasure, for example, is marked by these properties and serves as a reliable indicator of positive emotion; by contrast, polite smiles that mask

negative emotions do not tend to possess these temporal and morphological properties and are less reliable indicators of positive states.

Initial encoding studies documented distinct facial expressions of anger, disgust, fear, sadness, surprise, and happiness (Ekman, Friesen, & Ancoli, 1980; Hess, Banse, & Kappas, 1995; Matsumoto, 1987). More recently, encoding studies have measured gaze, head, and postural activity to chart the displays of other emotions. Embarrassment is signaled by gaze aversion, a controlled smile, head turns (typically down and to the left), and face touches (Harris, 2001; Keltner, 1995; Miller & Leary, 1992). A brief pattern of smiling, mutual gaze, affiliative hand gestures, open posture, and forward leans predicts increased self and partner reports of romantic love, but not desire, as well as peripheral oxytocin release (Gonzaga, Keltner, Londahl, & Smith, 2001; Gonzaga, Turner, Keltner, Campos, & Altemus, 2006). In contrast, this same research finds that sexual desire is signaled in puckers, lip licks and wipes, and tongue protrusions. Pride is reliably signaled with expansive posture, head movements up and back, and upward arm thrusts (Tracy & Matsumoto, 2008; Tracy & Robins, 2004). Sympathy correlates with oblique eyebrows, forward leans, and concerned gaze (Eisenberg et al., 1989), although this pattern of behavior is not reliably decoded as sympathy (Haidt & Keltner, 1999).

Dozens of decoding studies have likewise documented that several facial expressions of emotion—the six originally investigated by Ekman and colleagues (1982), as well as contempt, embarrassment, laughter, pride, shame, love, desire, and awe—are reliably judged by observers, at least in prototypical forms (Elfenbein & Ambady, 2002; Haidt & Keltner, 1999; Keltner, 1995; Tracy & Robins, 2004a).

Vocal Displays of Emotion

Few species communicate with as much precision and meaning as humans do with the voice: people tease, laugh, exhort, flirt, criticize, soothe, and engage the attention of infants with subtle and brief variations in vocal tone (Bachorowski, 1999; Bachorowski & Owren, 2001; Scherer, 1986). Researchers can capture more than 20 *acoustic properties* of speech, including speech rate and fluency, number of syllables per second, syllable duration, number and duration of pauses, pitch and pitch variability and range, perceived tempo, loudness, and perceived rhythm (Bachorowski, 1999; Scherer, Johnstone, & Klasmeyer, 2003).

Most evidence regarding the vocal display of emotion derives from decoding studies (Banse & Scherer, 1996; Scherer et al., 2003). In one line of research, people, often trained actors, express different emotions in the voice while reading nonsense syllables or relatively neutral text. Other studies have had participants communicate emotions

through *vocal bursts,* which are brief, nonword utterances that arise between speech incidents, such as shrieks, groans, or sighs.

This research has revealed the human voice to be rich with information about emotion. In recent reviews of more than 60 studies of this kind, Juslin and Laukka (2001) concluded that hearers can judge five emotions in the voice—anger, fear, happiness, sadness, and tenderness—with accuracy rates that approach 70% (see also Scherer et al., 2003). More recent studies have documented similarly high rates of identification of emotion vocal bursts conveying admiration, achievement, amusement, boredom, contempt, contentment, elation, pleasure, and relief (Sauter & Scott, 2007).

Tactile Displays of Emotion

Touch is central to species-characteristic patterns of soothing, flirtation, greeting, play, and proximity maintenance (Eibl-Eibesfeldt, 1989; Hertenstein, 2002). With the evolution of the skin and the increasing dexterity of the hand in humans, touch took on several functions related to emotion. First, touch soothes. Married women anticipating an electric shock showed decreased threat-related activity in the brain when holding the hand of a spouse but not that of a stranger (Coan, Schaefer, & Davidson, 2006). Rat pups that are handled extensively by their mothers (rat dams) show reduced levels of corticosterone, a stress-related hormone, in the bloodstream, later in development (Francis & Meaney, 1999). Second, touch rewards and punishes: the experience of gentle touch triggers activation in the *orbitofrontal cortex,* a brain region involved in the representation of secondary rewards (Rolls, 2000). Touch also signals safety and danger to developing infants (Hertenstein, Verkamp, Kerestes, & Holmes, 2006). Finally, touch enables reciprocal altruism (de Waal, 1996); in humans, friendly patterns of touch increase compliance to requests (Willis & Hamm, 1980) and cooperation toward strangers in economic games (Kurzban, 2001).

Touch conveys a great deal of information about emotions. In one study, an encoder (or toucher) and decoder (or touchee) sat at a table separated by a black curtain, which prevented all communication other than touch (Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006). With brief touches to the forearm, participants in the United States and Spain could reliably communicate anger, disgust, fear, love, sympathy, and gratitude (but not pride, embarrassment, or sadness) at levels of accuracy comparable to those observed in studies of the face and voice.

In summary, assuming that specific signal behavior is a defining characteristic of emotion (Ekman, 1992; Izard, 1971), the recent science of emotional display reveals a large array of states that can be readily signaled in fleeting facial expressions, vocalizations, posture, gesture, gaze, and touch. In this research, various emotions, including gratitude, pride, shame, embarrassment, love, desire, sympathy, and awe, have emerged as objects of empirical inquiry. The characteristics of displays of such emotions suggest their evolutionary origins—for example, the likelihood that shame and pride originated in nonhuman displays of dominance and submission (Tracy & Matsumoto, 2008).

Autonomic Physiology: The Controversial Search for Emotion Specificity

James's own answer to his question "What is an emotion?" has proven to be one of the most controversial (Cacioppo, Berntson, Larsen, Poehlmann, & Ito, 2000; Cacioppo, Klein, Berntson, & Hatfield, 1993; Larsen, Berntson, Poehlmann, Ito, & Cacioppo, 2008; Levenson, 1992, 2003). James argued that emotions are defined by distinct "reverberations in the viscera," or patterns of activation in the autonomic nervous system. This claim translates to two hypotheses: first, that each emotion is associated with a distinct activation pattern in peripheral physiology, and second, that the experience of emotion is based on the interoception of peripheral physiological response.

James's thesis is anatomically plausible (see Table 9.4). The *autonomic nervous system* involves approximately 20 bundles of neurons originating in the spinal cord that receive signals from regions of the cortex, the amygdala, and the hypothalamus and that activate different target organs, glands, muscles, and blood vessels distributed throughout the body. Notably, the autonomic nervous system controls several responses that people routinely report during emotional experiences: tears, dry mouth, goose bumps, blush, fainting, increased blood pressure, sexual arousal, changes in breathing, and cooling or heating up of the skin, to name just a few.

Are autonomic responses emotion specific? Hypotheses regarding this question can be arrayed on a continuum (Larsen et al., 2008; Levenson, 1992), with James's thesis of *autonomic specificity* on one end and, on the other, the claim that there is no emotion specificity (e.g., the early claims of Cannon, 1927 and Schachter and Singer, 1962). This latter view might hold, for example, that all negative emotions involve elevated activation in the *sympathetic branch* of the autonomic nervous system, which involves responses such as increased heart rate and patterns of vasoconstriction that enable fight-or-flight behavior (see Table 9.4 for other responses). Resolving this question would require the study of many indexes of autonomic activation and many emotions. Although empirical data lag in this area, recent studies suggest that different regions of the autonomic nervous system covary with different emotions.

Table 9.4 Effects of the Activation of the Parasympathetic and Sympathetic Branches of the Autonomic Nervous System

Activation of Organ	Activation of	
	Parasympathetic Nerves	Sympathetic Nerves
Heart muscle	Decrease of heart rate	Increase of heart rate
	Decrease of contractility	Increase of contractility
Blood vessels: arteries		
Trunk, limbs	0	Vasoconstriction
Skin of face	Vasodilation	Vasoconstriction
Visceral domain	0	Vasoconstriction
Skeletal muscle	0	Vasoconstriction
Erectile tissue	Vasodilation	Vasoconstriction
Cranium	0	Vasoconstriction
Blood vessels: veins	0	Vasoconstriction
Gastrointestinal tract		
Circular muscle	Increased motility	Decreased motility
Sphincters	Relaxation	Contraction
Urinary bladder	Contraction	Relaxation
Reproductive organs		
Seminal vesicles	0	Contraction
Vas deferens	0	Contraction
Uterus	0	Contraction
Pupil	Constriction	Dilation
Tracheobronchial	Contraction	Relaxation
Muscles		
Piloerector muscles	0	Contraction
Salivary glands	Strong secretion	Weak secretion
Lachrymal glands (tears)	Secretion	0
Sweat glands	0	Secretion
Digestive glands	Secretion	Decreased secretion
Metabolism		
Liver	0	Glycogenolysis
Fat cells	0	Free fatty acids in blood
Pancreas	Secretion of insulin	Decreased secretion of insulin
Adrenal medulla	0	Secretion of adrenaline, noradrenaline
Lymphoid tissue	0	Depression of activity (e.g., of natural killer cells)

Adapted from Janig, 2003.

Moving Facial Muscles Generates Autonomic Responses That Differentiate Negative Emotions

In one set of studies, Levenson, Ekman, and Friesen (1990) compared patterns of autonomic activity (largely sympathetic) associated with the facial muscle configurations associated with anger, disgust, fear, and sadness (Ekman, Levenson, & Friesen, 1983). Moving muscles into these configurations (known as the *directed facial action task*) often triggered the experience of the target emotion and some degree of autonomic specificity. Large increases of heart rate occurred for fear, anger, and sadness but not for disgust. Finger temperature was greater for anger than for fear, suggesting that anger is associated with increased blood flow to the hands (perhaps to aid in combat), whereas blood remained near the chest during experiences of fear, presumably to support flight-related locomotion (a finding not consistently replicated across studies; see Cacioppo et al., 2000).

Blush

The *blush* involves the spontaneous reddening of the face, ears, neck, and upper chest produced by increased blood volume in the subcutaneous capillaries in those regions (Leary, Britt, Cutlip, & Templeton, 1992). By contrast, a *flush* is a nonsocial response associated with physical exertion, temperature changes, or alcohol consumption (Leary et al., 1992). Mark Twain's famous observation—"humans are the only species who blush, and the only one that needs to"—is not quite apt: Some nonhuman primates show reddening in the face, perhaps as an appeasement gesture (Hauser, 1996). Twain was prescient, however, in highlighting the centrality of the blush to human social life (Leary et al., 1992; Miller, 1996, 2004).

The situations that produce the blush, which range from the proverbial faux pas to sudden exposure of the body, involve negative, self-focused attention (Leary et al., 1992). People report that they are more likely to blush when embarrassed than when feeling shame or guilt (Miller & Tangney, 1994). Shearn, Bergman, Hill, Abel, and Hinds (1990) have documented that the blush associated with embarrassment is distinct from the autonomic profile of fear. In this research, participants' cheek blood flow and cheek skin temperature increased more when, in the presence of four confederates, they were embarrassed by a videotape of themselves singing "The Star-Spangled Banner" than when they watched the frightening shower scene from the film *Psycho* (see also Shearn, Bergman, Hill, Abel, & Hinds, 1992).

Taken together, the findings from the directed facial action task and studies of the blush rebut a one-arousal-fits-all model of autonomic activity and negative emotions (see also Stemmler, 1989). All negative emotions do not involve a similar pattern of elevated sympathetic nervous system

arousal; meaningful differences in autonomic response are observed among fear, anger, disgust, and embarrassment.

Parasympathetic Response and Positive Emotion

Early studies of emotion and autonomic nervous system activity could be charged with a fight-or-flight bias—a focus on anger, fear, and sympathetic activation. How are positive emotions embodied in autonomic response? One possibility is that positive emotions covary with the cessation of elevated sympathetic autonomic response (Tomkins, 1984), a claim that has some empirical support (Fredrickson & Levenson, 1998). New studies suggest that activation of the *vagus nerve*—a branch of the parasympathetic autonomic nervous system—may be involved in positive emotion (Porges, 1998).

Based on comparisons of the autonomic nervous systems of different species, from fish species to humans, Porges (1998) has made a case for three stages in the evolution of the autonomic nervous system, which evolved different bundles of neurons to enable the increasingly complex social behavior of different species. A first stage produced the dorsal vagal complex, located in the brainstem, which is present in all reptiles and mammals. It regulates basic processes common to reptiles and mammals, including digestion and immobilization responses when attacked. Next to emerge in phylogenetic evolution was the sympathetic nervous system, which emerges in several neural bundles in the middle of the spinal cord and controls fight-or-flight behavior. The last portion of the autonomic nervous system to evolve, and only in mammals, is the ventral vagal complex. It is controlled by the 10th cranial nerve, known as the vagus nerve. As Porges points out, the vagus nerve also controls several behaviors critical to social interaction and attachment, such as facial muscle actions; head movements, and vocalizations. The ventral vagal complex also influences cardiac output in ways that allows people to rapidly adapt to changing social circumstances and, in particular, in ways that allow people to be calm and in close proximity with others.

Researchers measure activation in the vagus nerve by first assessing heart rate and then filtering out respiratory and sympathetic influences to yield an index of parasympathetic influence on heart rate (Berntson, Cacioppo, & Quigley, 1993). Select empirical studies suggest that activation in the vagus nerve may be associated with positive emotion. Resting cardiac vagal tone was associated with increases in spontaneous positive emotion during the Rorschach test (Kettunen, Ravaja, Naatanen, & Keltikangas-Jarvinen, 2000) and increased reports of positive emotion in response to emotionally evocative film clips (Oveis et al., 2009). College students prone to mania reported extremely high levels of positive emotion in response to positive and negative films clips and accompanying high levels of vagal response (Gruber, Johnson, Oveis, & Keltner, 2008).

Emotion and Hypothalamic-Pituitary-Adrenal Axis Activation, Oxytocin, and Immune System Response

Specific emotions also appear to map onto specific neuroendocrine and immune system responses (Kemeny & Shestyuk, 2008). One active area of inquiry concerns the *hypothalamic–pituitary–adrenal (HPA) axis* and the stress-related hormone *cortisol*. The HPA axis is regulated by neurons in the hypothalamus and the amygdala. Through the release of hormones, these regions of the brain stimulate the adrenal glands, which release cortisol into the bloodstream, to act on organs to facilitate fight-or-flight responses to stress. A recent meta-analysis of 208 studies found that the stressful events that most robustly trigger the release of cortisol involve negative self-evaluations (Dickerson & Kemeny, 2004). Lerner, Dahl, Hariri, and Taylor (2007) demonstrated that fearful facial expressions, but not angry and disgusted expressions, were associated with increased cortisol in response to a stressful task.

What cortisol is to fear-related stress, *oxytocin* is to attachment-related affect (Taylor, 2002; Taylor, Klein, Lewis, Gruenewald, Gurung, & Updegraff, 2000). Oxytocin is a peptide of nine amino acids that is produced in the hypothalamus and released into both the brain and the bloodstream. Receptors for this peptide are found in the olfactory system, limbic–hypothalamic system, brainstem, and regions of the spinal cord that regulate the autonomic nervous system, especially the parasympathetic branch (Morberg, 2003). Oxytocin is involved in uterine contractions, lactation, maternal bonding, and sexual interaction (Carter, 1998).

In nonhuman species, oxytocin regulates pair-bonding and caregiving behavior. Comparisons between prairie voles, which display pair-bonding, and closely related montane voles, which do not, have revealed differences in the location of oxytocin receptors in the brains of each species (Carter, 1998; Insel, 1993; Insel, Young, & Zuoxin, 1997). Injections of oxytocin or oxytocin agonists into these two species promote preferences for single partners or nonmonogamous behavior, respectively (Williams, Insel, Harbaugh, & Carter, 1994). Injections of oxytocin increase attachment-related behaviors in primates (Holman & Goy, 1995), voles (Witt, Carter, & Walton, 1990), and rats (Nelson & Panksepp, 1996).

Oxytocin influences the attachment-related emotions, such as love or compassion, by reducing anxiety (Carter & Altemus, 1997; Taylor et al., 2000) and making social contact pleasant (Insel et al., 1997; Panksepp, 1998). In studies of lactating women, for example, oxytocin reduced the activity of the HPA axis (Carter & Altemus, 1997).

Soothing touch and sexual behavior lead to the release of oxytocin (Murphy, Seckl, Burton, Checkley, & Lightman, 1987). Participants playing a trust game who received oxytocin nasally were more than twice as likely as comparison participants to trust strangers (Kosfeld et al., 2005). Gonzaga and colleagues (2006) have documented that nonverbal displays of love, but not sexual desire, covary with oxytocin release.

Proinflammatory Cytokines

Metaphors often describe emotions as kinds of disease—"I'm sick with love," for example, or "I'm dying of envy." New research on the immune system suggests a biological basis to these metaphors. *Proinflammatory cytokines (PICs)* are released in immunological cells to enable immune response and to activate "sickness behaviors"—increased sleep and inhibited social, exploratory, and aggressive behaviors (Kemeny & Shestyuk, 2008). These behaviors resemble the submissive behaviors seen in species other than humans, suggesting that PICs might be systematically involved in the submissive emotions, such as shame. Consistent with this thesis, Dickerson, Gruenewald, and Kemeny (2004) found that induced shame was associated with increases in PICs whereas guilt and other negative emotions were not.

The debate over emotion specificity in peripheral physiology has evolved in its methods and answers (Levenson, 2003). The empirical data suggest that general arousal models of emotion and autonomic and neuroendocrine response are inadequate (Kemeny & Sheystuk, 2008; Levenson, 2003), as the autonomic responses for high-arousal negative emotions (fear and anger) differ in discernible ways. The blush covaries with self-conscious emotion but not fear. Positive emotions may preferentially activate the vagus nerve. Prosocial emotions may map onto oxytocin release and submissive emotions onto immune-related responses. Several other branches of the autonomic nervous system—goose bumps and activation in the digestive and sexual organs, for example—await empirical attention. These studies, and the research they anticipated, provide preliminary support for James's counterintuitive speculations.

Language, Concepts, and Discourse: The Construction of Emotion

Emotions are not only experiences embodied in the peripheral branches of the nervous system but also experiences that people represent with language, concepts, and discourse—or what is known as *emotion knowledge* (Niedenthal, 2008). As evidence of this emotion knowledge, simply moving emotion-related facial muscles influences categorization of other facial expressions, recall of emotional memories,

judgments of ensuing stimuli, and identification of emotion-related concepts (Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). In other words, activation of one component of an emotion (specific facial muscles) triggers activation of emotion concepts. Drawing on this framework, the study of emotion knowledge offers a window onto the study of how emotions are constructed.

One layer of emotion knowledge is a culture's *emotion lexicon*. Words used to describe emotions clarify the *intentional object*—or perceived cause—of an experience (Schwarz, 1990). Many words and concepts used to describe emotions have a rich metaphorical content. Emotions have been represented as natural forces ("being swept away"), as opponents ("we wrestle with anger"), as diseases ("sick with grief"), as fluids ("bubbling over with joy"), and as animals or living organisms ("my love will wither and die"; Kövesces, 2003; Lakoff & Johnson, 1980).

The emotion lexicon can be organized into concepts and *categories* (Romney, Moore, & Rusch, 1997; Shaver, Schwartz, Kirson, & O'Connor, 1987). At the superordinate level, emotion knowledge distinguishes between positive and negative, or good and bad. At the next, basic level of knowledge, emotion concepts, such as love, joy, surprise, anger, sadness, and fear, are formed. In light of the literature on prototypes and language use (Rosch, 1973), one might expect such words to be most readily used in the description of emotional experience. At the subordinate level of analysis, more specific states exist; for example, the basic emotion concept "love" embodies love, compassion, lust, and longing.

People also represent emotional experiences in *narratives* or scripts (e.g., Johnson-Laird & Oatley, 1989; Russell, 1991; Shaver et al., 1987). Emotion narratives tend to take the form of *prototypes,* with lists of more central and more peripheral features of the narrative: characteristic causes, thoughts, feelings, actions, and expressive signs and consequences (e.g., see Table 9.5, which portrays a prototype for sadness). Narrative data are often a first step in differentiating emotions; for example, they have clarified distinctions among embarrassment, shame, and guilt (Keltner & Buswell, 1996; Miller, 1992; Miller & Tangney, 1994; Parrott & Smith, 1991; Tangney, Miller, Flicker, & Barlow, 1996). Humans construct emotion narratives in other modalities, including through visual art (Oatley et al., 2006), music (Juslin & Laukka, 2003), dance (Hejmadi, Davidson, & Rozin, 2000), and fiction and poetry (Oatley, 2003).

Finally, people actively represent emotions in *emotion discourses*, or acts of communication that take the form of gossip, teasing, jokes, satire and irony, songs, and poetry (Abu-Lughod, 1986; Griffin, 1994; Heath, Bell, & Sternberg, 2001; Lutz, 1990). Researchers have made headway in illuminating how emotion is represented in discourse in children's

Table 9.5   A Prototype of Sadness

Features of Emotion	Specific Elements of Sadness
Causes	Death, loss, not getting what one wants
Feelings	Helpless, tired, run down, slow
Expression	Drooping posture, saying sad things, crying, tears
Thoughts	Blaming, focusing on and criticizing self, irritable
Actions	Negative talk to others, taking action, suppressing negative feelings, disposing of present possessions and acquiring new ones

Adapted from Cryder, Lerner, Gross, & Dahl, 2008; Lerner et al., 2003; Shaver et al., 1987.

books (Tsai, 2007; Tsai, Louie, Chen, & Uchida, 2007), music (Juslin & Laukka, 2003; Snibbe & Markus, 2005), advertisements (Tsai, 2007), parenting manuals (Shields, 1991), and teasing (Keltner, Young, Oemig, Heerey, & Monarch, 1998).

In the most general sense, expressing emotions through language brings many benefits, such as relationship building (Clark & Finkel, 2004); indeed, people seem almost reflexively inclined to share their emotions with others (Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998; Rimé, Mesquita, Philippot, & Boca, 1991). How do concepts, words, narratives, and discourses shape emotional response? Three recent, distinct literatures seek different answers to this age-old question, which dates back to Aristotle's ideas about how the dramatic expression of emotion leads to catharsis, or insight into the nature of one's emotions (Oatley et al., 2006).

The first literature, which originates in claims about the social construction of emotion, holds that representations of emotion channel individuals into identity-based profiles of emotional response (e.g., Abu-Lughod, 1986; Briggs, 1970). As an example, consider how emotion is gendered in emotional discourse (Citrin, Roberts, & Fredrickson, 2004; Shields, 1991). Mothers talk about emotions, with the exception of anger, more with daughters than with sons (Fivush, 1991). These different emotion discourses socialize girls and boys into different patterns of emotional response. Females report higher levels of other-oriented positive emotions (e.g., love) than males, who in turn report higher levels of achievement-oriented emotions than women, such as pride, that separate self from other (Shiota et al., 2006). Females are assumed to express more submissive emotions, such as embarrassment, while males are assumed to express more dominant emotions, such as anger (Plant, Hyde, Keltner, & Devine, 2001). Women systematically show greater sensitivity to social contextual cues when interpreting emotion (Roberts & Pennebaker, 1995) and greater attunement to the emotions of others (Hall, Carter, & Horgan, 2000). Discourses about emotion, this first literature suggests, channel women and men into different emotional styles that place them into different roles within the social moral order (Citrin et al., 2004; Fischer, 2000; Tiedens, Ellsworth, & Mesquita, 2000).

A second literature centers on the question of how emotion representations shape the impact of powerful emotional events on social adjustment. Dozens of studies have documented that expressing deeply emotional, often traumatic experiences in emotion-centered writing yields health benefits (Pennebaker, 1989, 1997; Pennebaker & Seagal, 1999; Pennebaker, Mehl, & Niederhoffer, 2003). People who write about the most difficult emotions associated with bereavement, divorce, the experience of earthquakes, and the attacks of September 11, 2001, compared with people who write in more factual fashion about the same trauma, benefit in myriad ways. They are less likely to visit the doctor, they experience more life satisfaction, they show enhanced immune function, they report fewer absentee days at work or school, and perform better in school if they are college students (Pennebaker, 1997).

Expressing emotion in written form enables people to reflect on their emotions, to look at them from an outside perspective, and to gain insight into the causes and implications of emotional experience (Pennebaker, 1997). Similarly, putting feelings into words reduces the anxiety and uncertainty associated with an emotion (Wilson & Gilbert, 2008) by specifying its causes and relevance to the self (Keltner, Locke, & Audrain, 1993; Wilson & Brekke, 1994; Wilson, Centerbar, & Brekke, 2002). Representing emotional experiences in words (e.g., through reappraisal instructions) reduces the sympathetic autonomic arousal associated with emotional suppression (Gross, 1998) and activates frontal lobe regions of the brain (e.g., the ventromedial prefrontal cortex), which down-regulate limbic-based emotional responses (Ochsner, 2008). Representing negative emotions from an abstract perspective (focusing on why an event occurred rather than how) reduces stress-related cardiovascular response (Ayduk & Kross, 2008). Rumination, by contrast, offers no perspective, no distance, no third-person perspective on emotional events, and it tends to prolong experiences of emotion, both negative and positive (Lyubomirsky & Nolen-Hoeksema, 1995; Morrow & Nolen-Hoeksema, 1990).

A third area of inquiry asks whether people's representations of emotional events capture experiences in the past or future. Emotion representations removed temporally from actual experiences often fail to capture the content or duration of that experience. For example, people anticipate experiencing more intense emotions associated with a future

event than they recall experiencing them in retrospect (Van Boven & Ashworth, 2007).

The literature on affective forecasting reveals that people mispredict the impact of emotional events on their well-being (Gilbert, Lieberman, Morewedge, & Wilson, 2004; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). People routinely under- and overestimate the influences of emotional events—such as a breakup with a romantic partner or the failure of an academician to get tenure—on their well-being. Lay theories about the impact of emotional events overlook the human capacity to respond with resilience (Gilbert et al., 1998) as well as the effects of other events on personal satisfaction (Wilson, Wheatley, Meyers, Gilbert, & Axson, 2000).

Studies of the recollection of emotion reveal similar disjunctions between emotion representation and actual experience. People under- or overreport past emotions in ways that fit their current circumstances (Levine & Pizarro, 2004; Levine & Safer, 2002). Bereaved individuals' reports of past grief, for example, were more highly correlated with their current grief than with actual levels of the past grief being reported on (Safer, Bonanno, & Field, 2001). Romantic partners who had become more attached to their partner over time recalled having more positive initial evaluations of their partner than was actually the case, while those who became less attracted to their partner over time recalled initial feelings that were more negative than they actually experienced (McFarland & Ross, 1987).

Experience of Emotion: Bottom-Up and Top-Down Processes

Ironically, the component that may well define emotion—*subjective experience*—is in serious need of rigorous data and theoretical development (Barrett, Mesquita, Ochsner, & Gross, 2007). On the one hand, numerous self-report measures of emotional experience have been validated, including measures of global positive and negative moods (Watson, Clark, & Tellegen, 1988), anger (Spielberger, 1996), shame and guilt (Tangney, 1990), embarrassment (Miller, 1995), fear (Spielberger, 1983), gratitude (McCullough et al., 2002), and various positive emotions (Shiota et al., 2006). In addition, methods have been developed to capture the online, in-the-moment experience of emotion—for example, with experience sampling techniques (Bolger, Davis, & Refaeli, 2003). Yet the empirical study of emotional experience faces enormous challenges. As considered earlier, self-reports of emotion are prone to powerful memory biases (Levine & Pizarro, 2004; Safer et al., 2001), and several measures of emotion (e.g., autonomic physiology, facial expression, and self-report) inconsistently correlate with one another (e.g., Lang, Greenwald, Bradley, & Hamm, 1993; Mauss,

Levenson, McCarter, Wilhelm, & Gross, 2005). Cross-cultural studies of emotion experience are hindered by the difficulty of finding equivalent terms to capture the feeling of interest across cultures.

Several theories have attempted to explain subjective emotional experience (Barrett et al., 2007; Lambie & Marcel, 2002; Reisenzein, 1983). One school of thought follows *bottom-up assumptions:* The experience of emotion closely tracks somatovisceral changes in the musculature of the body or in different peripheral physiological systems (e.g., Damasio, 1994; Matsumoto, 1987). According to this view, emotional experience guides social action, with somatovisceral changes serving as input into the online assessment of the individual's adaptation to the environment (for analogous argument about self-representation, see Sedikides & Skowronski, 1997).

This approach presupposes fairly sensitive interoreceptive processes, an assumption that has been challenged since Cannon (1927) first critiqued James's account of autonomic specificity. It also assumes that emotional experience closely tracks activation in bodily movement, facial muscle contraction, or changes in peripheral physiology. More than 20 studies do indicate that experiences of specific emotions (e.g., anger, disgust, embarrassment, love, and desire) covary with emotion-specific facial muscle movements (Gonzaga et al., 2001; Hess et al., 1995; Keltner & Bonanno, 1997; Matsumoto, 1987; Ruch, 1995; for review, see Matsumoto et al., 2008). However, studies of the covariation between peripheral physiology and emotional experience yield less coherent results: some find associations between autonomic response and emotional experience (e.g., Dickerson et al., 2004; Eisenberg et al., 1989; Shearn et al., 1990), but many others do not (Cacioppo et al., 2000). Given more refined measures of peripheral physiology and a focus on more specific emotions, one might expect more robust and precise associations to arise between emotional experience and behavioral and physiological responses.

A second, more *top-down approach* to emotional experience holds that the experience of emotion is more of a conceptual act, constructed in top-down, knowledge-based processes grounded in language and representation (e.g., Barrett, 2006; Russell, 2003). Rapid, primary appraisals of a stimulus' goodness or badness, or harm or benefit, trigger a diffuse "core affect" that causes an individual to experience a broad, valenced emotional state. In this view, more specific emotions (such as sadness, guilt, compassion, or love) arise from situation-specific interpretations and categorizations.

Summary of the Components of Emotion

The scientific answer to James's question "What is an emotion?" is that emotions are complex, multidimensional

phenomena. Emotions involve appraisals, some automatic, which give rise to distinct experiences. More than 15 emotions are signaled in different facial, postural, vocal and tactile behavior, which in their forms and variations provide clues to the evolution of emotion and the influence of culture on emotional response. Clusters of emotion involve specific autonomic, neuroendocrine, and immune system responses. Emotions are represented in a rich language of words, metaphors, discourses, and theories that reveals how cultures construct emotions and how expression shapes emotional response. Although the experience of emotion can be readily measured, it remains mysterious, as contrasting theoretical perspectives can seem plausible.

Taxonomy of Emotions and Emotion Functions

The study of emotion has historically emphasized taxonomies, with particular focus on examining which affective states should be considered emotions. In an early wave of emotion research and theory (e.g., Ortony, Clore, & Collins, 1988; Ekman & Davidson, 1994), scholars developed criteria to answer this question, for example, that an emotional state be brief and involuntary and that it should have a distinct eliciting appraisal, signal, and physiological profile (Ekman, 1992). The field focused on six or seven negative emotional states and a general state of happiness. As the field of emotion has evolved, researchers have turned their attention to new states, such as the self-conscious emotions (e.g., Kemeny & Sheystuk, 2008; Tangney & Fischer, 1995) and the positive emotions (Bartlett & DeSteno, 2006; Fredrickson, 1998, 2001; Shiota et al., 2006).

Tables 9.6 and 9.7 synthesize theoretical claims about negative emotions and positive emotions, respectively. The definitions focus on two components of each emotion. The first is an *appraisal tendency* for the emotion, or the core subjective meaning of each emotion, which should relate systematically to the content of emotional experience and the influence of emotions on cognitive processes such as causal attribution, memory, risk assessment, and expectation. Because emotions dispose individuals toward goal-based actions (e.g., Fridlund, 1992; Frijda, Kuipers, & ter Schure, 1989), the second component is an *action tendency* for each emotion (Frijda, 1986; Rodriquez Mosquera, Fischer, & Manstead, 2004) or the organizing principle that motivates specific signaling behaviors, as well as supportive physiological response (Levenson, 2003).

The emotions in Tables 9.6 and 9.7 are classified as negative and positive, respectively, based on the scientific consensus that has arisen concerning the valence of their experience (Russell, 2003). The negative or positive *valence* of the emotion most typically reflects relative progress (or lack thereof) in meeting goals (Carver & White, 1994;

Higgins, 1997) and the tendency to avoid or approach (e.g., Davidson, 2000, 2004). This theoretical synthesis necessarily simplifies, and the complexities that are ignored present interesting avenues of empirical inquiry.[1] The taxonomies neglect the many nuances of states within a particular emotion category; for instance, empirical and theoretical treatments have identified many forms of disgust (Rozin, 1996), embarrassment (Tangney, 1992), and awe (Keltner & Haidt, 2003). Relations among the subtypes of an emotion represent an important area for future theoretical development (see Rozin, 1996). The taxonomies heuristically posit single appraisal and action tendencies for each emotion, when in actuality, emotional experience is certain to involve complex combinations of appraisal and action tendencies.

Importantly, much of emotional experience, perhaps even most, involves experiences of mixtures of emotions (Larsen, McGraw, Mellers, & Cacioppo, 2004; Schimmack, Oishi, & Diener, 2002). A better understanding of these *mixed emotions* requires precise measures of distinct emotions.

As evident in Tables 9.6 and 9.7, the field of emotion has evolved dramatically in the last 20 years. With these developments, a consensus has emerged that emotions serve important *functions;* most typically, emotions enable individuals to meet particular threats, challenges, and opportunities within their social environment (Consedine, 2008; Keltner & Gross, 1999; Mesquita, 2003; Oatley & Jenkins, 1992). Within an *evolutionary framework,* it is assumed that emotions enable individuals to meet specific problems and opportunities that increase their chances of physical survival, reproduction, and gene replication (Keltner & Haidt, 2001; Nesse, 1990; Simpson & Kenrick, 1998;

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[1] In one example of a possible oversimplification, decades of research and theorizing have classified anger as a negative emotion (Lazarus, 1991). Yet Lerner and Tiedens (2006) have argued that anger does not follow many typical patterns associated with negative emotions. For example, rather than triggering pessimism, it triggers optimism about one's outcomes (Lerner & Keltner, 2000, 2001; Lerner et al., 2003), and rather than triggering careful thought, it triggers careless thought (Bodenhausen, Kramer, et al., 1994; Lerner et al., 1998; Tiedens & Linton, 2001). Anger even resembles happiness in terms of hemispheric laterality; both state and trait anger are associated with relatively greater *left* frontal cortical activity than *right* frontal activity (for a review, see Harmon-Jones et al., 2003). To reconcile these findings, Lerner and Tiedens (2006) proposed assessing the positivity of anger across a temporal dimension. Specifically, they proposed that anger would be experienced as relatively unpleasant and unrewarding when reflecting back on the source of one's anger but may be experienced as relatively pleasant and rewarding when looking forward due to the belief that one can change the situation for the better.

Table 9.6   A Synthesis of Theoretical Accounts of Negative Emotion

Emotion	Appraisal Tendency	Action Tendency
Anger	Offense against self[1]	Restore justice, hold individuals responsible[2–4]
Contempt	Other violates role, duty, obligation[5]	Lower the reputation of perpetrator
Disgust	Contact with impure object or action[6]	Push away[6–8]
Embarrassment	Self has transgressed a social convention[9]	Apologize[10]
Envy	Other is superior to self[11]	Reduce status of other
Fear	Imminent threat to self[12]	Flee, reduce uncertainty[13,14]
Guilt	Self has violated moral standard regarding harm[15]	Remedy harm
Jealousy	Other threatens source of affection[16]	Protect source of affection from others
Sadness	Irrevocable loss[17]	Acquire new goods[7,13,18]
Shame	Self has transgressed aspiration or ideal[19]	Hide, avoid scrutiny

Note.1. Lazarus, 1991; 2. Lerner et al., 1998; 3. Small & Lerner, 2008; 4. Small, Lerner, & Fischoff, 2006; 5. Rozin, Lowery, Imada, & Haidt, 1999; 6. Rozin & Fallon, 1987; 7. Lerner, Small, & Loewenstein, 2004; 8. Han, Lerner, & Zeckhauser, 2008; 9. Miller & Tangney, 1992; 10. Keltner & Buswell, 1997; 11. Salovey, 1991; 12. Öhman, 1986; 13. Raghunathan & Pham, 1999; 14. Tiedens & Linton, 2001; 15. Baumeister, Stillwell, & Heatherton, 1994; 16. DeSteno & Salovey, 1996; 17. Lazarus, 1991; 18. Cryder et al., 2008; 19. Tangney, 1991.

Table 9.7   A Synthesis of Theoretical Accounts of Positive Emotion

Emotion	Appraisal Tendency	Action Tendency
Contentment	Pleasing stimulus[1]	Savoring[2,3]
Enthusiasm	Reward likely[1]	Goal approach[4]
Love	Perceived commitment[5]	Affection[6]
Sexual desire	Sexual cue or opportunity[7,8]	Sexual release
Compassion	Undeserved suffering[9,10]	Prosocial approach[11]
Gratitude	Unexpected gift	Promote reciprocity[12,13]
Pride	Self-relevant achievement[14]	Status display
Awe	Self is small vis-à-vis something[15] vast, beyond current understanding	Devotion, reverence[16]
Interest	Novel opportunity[17]	Exploration[18]
Amusement	Recognize incongruity[19]	Play[20]
Relief	Cause of distress ends[21]	Signal safety

Note.1. Berridge, 2003; 2. Fredrickson, 1998; 3. Wood, Heimpel, & Michaela, 2003; 4. DePue & Collins, 1999; 5. Gonzaga et al., 2001; 6. Hazan & Shaver, 1987; 7. Diamond, 2003; 8. Buss, 1992; 9. Davidson & Harrington, 2001; 10. Nussbaum, 1996; 11. Taylor, 2002; 12. McCullough, Kilpatrick, Emmons, & Larson, 2001; 13. Trivers, 1971; 14. Tracy & Robins, 2007; 15. Keltner & Haidt, 2003; 16. Woodruff, 2002; 17. Izard, 1977; Reeve, 1989; Silvia, 2005; 18. Panksepp, 1998; 19. Ruch, 1993; 20. Pelligrini, 1992; 21. Tomkins, 1984.

Tooby & Cosmides, 1990). Within a *cultural constructivist framework,* researchers assume that emotions help to reify and embody important facets of cultures, such as roles, ideologies, and values (Abu-Lughod, 1986; Citrin et al., 2004). Finally, functional arguments add an important interpretive context for understanding the origins, purpose, and design of different components of emotion, such as signal behavior, autonomic response, or the subjective feeling of emotion (e.g., Levenson, 1999).

Functionalist analyses open many areas of inquiry. Why do humans have emotions? What are the deepest origins of emotion in biological and cultural evolution? What are the systematic dysfunctions associated with excesses or deficits in emotion (e.g., Keltner & Kring, 1998; Rottenberg & Johnson, 2007)? Table 9.8 synthesizes hypotheses concerning the functions of emotions at four levels of analysis (see Keltner & Haidt, 2001; Fischer & Manstead, 2008). First, at the individual level of analysis, the subjective experience of an emotion and its accompanying memories and cognitive tendencies signal particular conditions in the world to the individual (e.g., Clore, 1994; Johnson-Laird & Oatley, 1989; Schwarz & Clore, 1983). For example, they signal whether a situation is benign or dangerous, albeit sometimes incorrectly. These informative properties of the subjective quality of emotion are thought to be guides for specific courses of action (Damasio, 1994; Frijda, 1988).

At the level of the dyad, emotions provide rapid and reliable information to others and thus coordinate brief social interactions (Eibl-Eibesfeldt, 1989; Keltner & Kring, 1998; Kring, 2008; Öhman, 1986). Emotional displays provide information about stimuli in the environment and about others' states and dispositions; they also serve as incentives and elicitors of action.

Third, at the level of the group, emotional experiences and displays help to define group roles, boundaries, and identities within and across groups (Citrin et al., 2004; Mackie, Devos, & Smith, 2000; Mackie, Silver, & Smith, 2004; Rodriguez Mosquera et al., 2004). In one recent line of empirical inquiry, Cortes, Demoulin, Rodriguez, Rodriguez, and Leyens (2005) found that group members define their

group in contradistinction to others by attributing more complex or "secondary" emotions (e.g., shame and compassion) to the ingroup than to the outgroup. The emotional display and experience of status-relevant emotions, such as embarrassment and contempt, shape how individuals negotiate rank within social hierarchies (e.g., Hall, Coats, & LeBeau, 2005; Tiedens et al., 2000).

Finally, at the cultural level of analysis, emotions embody cultural values, concerns, and ideologies (e.g., Rodriquez Mosquera et al., 2004). The experience and expression of sympathy, for example, are imbued with commitments to culturally proscribed values regarding caretaking and gender identity (Lutz, 1990). The likelihood that an individual smiles with affection is shaped by gender identity and the commitment to being oriented toward others (LaFrance & Banaji, 1992). The experience, enactment, and expression of specific emotions reflect an engagement with a set of cultural values and commitments. Deviations from culturally valued emotions, by implication, are likely to lead to feelings of cultural disengagement, anomie, and depression (Tsai, Knutson, & Fung, 2006).

If we were to review the empirical literature on emotion only 25 years ago, we would have found numerous studies of facial expressions that concentrated on a limited set of emotions: anger, disgust, fear, sadness, surprise, and happiness. Since then, the field of emotion has expanded dramatically, incorporating dozens of states, measures of multiple systems, and theories of many specific emotions (see Fredrickson, 1998; Keltner & Haidt, 2003; Rozin & Fallon, 1987; Tracy, Robins, & Tangney, 2007). Studies of emotion have made inroads in every conceivable area in

psychological science, from conceptions of psychological disorder to judgment and decision making.

UNIVERSALS AND CULTURAL VARIATIONS IN EMOTION

To ascertain whether members of different cultures express emotion in universal fashion, Darwin sent queries to 36 missionaries stationed in different corners of the British Empire, asking whether they had seen emotional expressions unknown to Victorian England. They had not. When anthropologist Lutz (1988) did her ethnographic research with the Ifaluk, a people on a Micronesian island, she documented radically different meanings of emotion: a child's enthusiasm was not encouraged, as in the West, but frowned on for its impertinence and immodesty. These contrasting observations highlight a central tension in the study of emotion: How are emotions universal, and how do they vary across cultures (for reviews, see Mesquita, 2001, 2003; Mesquita & Frijda, 1992)? This area of research has engaged founding figures in the field, from Darwin to Asch (see Keltner, Ekman, et al., 2003, for history), and been the source of impassioned debate (e.g., Ekman, 1994; Russell, 1994).

The study of cultural variations and universality in emotion brings into focus contrasting predictions of evolutionist and constructivist approaches to emotion, summarized in Table 9.9 (see Abu-Lughod, 1986; Hochschild, 1983, 1990; Keltner & Haidt, 1999; Mesquita, 2003; Oatley, 1993; Oatley & Jenkins, 1992). Evolutionists and constructivists alike start from the assumption that emotions are solutions to basic problems of social living. From there, the approaches diverge in essential ways. Within an evolutionary framework, emotions are genetically encoded biological processes that emerged in hominid evolution as adaptations to problems or opportunities specific to the environment of evolutionary adaptedness. Emotions

Table 9.8   Functions of Emotion at Four Levels of Analysis

Level of Analysis	Functions
Individual	Inform individual of problems or opportunities
	Prepare individual for action
Dyadic	Signal mental states
	Reward or punish prior action
	Evoke complementary or reciprocal behavior
Group	Define group boundaries and members
	Define group roles and identities
	Motivate collective action
Culture	Define cultural identity
	Identify norms and values
	Reify cultural ideologies and power structures

Table 9.9   A Comparison of Evolutionary and Cultural Approaches

Question of Interest	Evolutionary Approach	Cultural Approach
What is an emotion?	Genetically encoded	Language, discourse, beliefs, roles
What are the origins of emotions?	Environment of evolutionary adaptedness	Practices, institutions, values
Function	Individual: Action readiness	Reify roles, values
	Dyadic: Social coordination	Reify identities, ideologies

are species-characteristic patterns of action and therefore universal.

For constructivists, emotions are words, concepts, representations, and metaphors. Emotions are forms of discourse that emerge within culturally specific institutions, values, technologies, narratives, and social practices. What is most striking are pronounced cultural differences in emotion that reflect culturally specific concerns about identity, morality, and social structure (Averill, 1980; Mesquita, 2003; Shweder & Haidt, 2000).

As empirical data have been gathered, the field has moved from either–or assertions about universality and cultural variation (e.g., Haidt & Keltner, 1999; Mesquita, 2003; Rodriguez Mosquera et al., 2004; Russell, 1991, 1994). New evidence suggests that some emotions, such as shame or sympathy, may prove to be more variable across cultures than other emotions, such as anger and disgust (Haidt & Keltner, 1999; Russell, 1991). Work by Tsai and colleagues reveals that some components of emotion (e.g., autonomic response) may vary less across cultures than do self-reports of the experience of emotion (for relevant studies, Tsai, Chentsova-Dutton, Friere-Bebeau, & Przymus, 2002; Tsai & Levenson, 1997; Tsai, Levenson, & Carstensen, 2000; Tsai, Levenson, & McCoy, 2006). With these considerations as a backdrop, the literature on the universality and variability of emotion is framed by four generative ideas.

Potential Versus Practice

Empirical attempts seeking to document universality or cultural variability in emotion are guided by different assumptions (Mesquita, 2001). Those interested in universality (evolutionists) focus on the "potential" for emotion; that is, given a highly controlled stimulus, do members of different cultures show similar experiences, expressions, and physiological response? Those interested in cultural variation tend to focus on the actual "practice" of emotion; that is, how do emotions arise, and how are they experienced and expressed in daily living?

As one example, anger in East Asian cultures is thought to be highly muted, given its likely disruption of social harmony (Markus & Kitayama, 1991, 1994). In contrast, in the Ifaluk, anger, or *song*, is a highly public, dramatized display of expressing grievances and remedies through apology and reconciliation. Given these observations, constructivists would highlight the profound differences between the cultures in the actual expression of anger; evolutionists would likely see similarities in the potential of emotion—that anger across the two cultures is organized around similar appraisal themes and expressive behaviors (but intensified in the Ifaluk) and functions to restore just relations when they have gone awry.

This distinction between potential and practice illuminates how emotion-eliciting appraisals are both universal and culturally variable. At the most abstract level of analysis, the appraised antecedents of emotion are similar across cultures (Mauro, Sato, & Tucker, 1992; Mesquita & Ellsworth, 2001; Mesquita & Frijda, 1992; Scherer, 1997). For example, in an early study, young Americans and Malaysians described events that made them feel emotions such as fear, disgust, and joy (Boucher & Brandt, 1981). New participants from both cultures showed high levels of agreement in predicting which emotions would be produced by these events, even for events generated by individuals from a different culture. There appears to be a high degree of universality in the core appraisals that, in the abstract, give rise to emotions such as anger, embarrassment, or gratitude in different cultures.

In practice, cultural variations in the actual events that elicit specific emotions are readily documented and often profound. For example, in Hindu India, people are angered by several events that would not elicit much anger in Western European cultures (Shweder, Much, Mahapatra, & Park, 1997). These include when a child cuts his hair after the death of his father, when a woman eats with her husband's elder brother, when a husband cooks for his wife or massages her legs, and when upper-caste individuals come into physical contact with lower-caste individuals. In the West, jealousy tends to be felt when the sexual attention of a primary partner turns toward someone else (Buss, 1994; DeSteno & Salovey, 1996; Harris, 2003; Harris & Christenfeld, 1996). Ethnographic work with the Toda of India, in contrast, found that jealousy is not associated with a sexual partner having intercourse with an ingroup member, but only with an outgroup, non-Toda male (Hupka, 1991).

In the abstract, making progress toward personal goals has the potential to elicit positive emotions across cultures; in practice, those goals and conceptions of progress vary dramatically. For example, members of interdependent cultures, such as the Japanese, Surinamese, and Turkish, tend to experience positive emotions in socially engaging situations, such as in informal exchanges with friends (Kitayama, Karasawa, & Mesquita, 2003; Kitayama, Markus, & Kurokawa, 2000). By contrast, Americans and Dutch people are more likely to experience positive emotions in relatively disengaged situations, for example, in activities oriented toward personal accomplishments (see also Frijda & Mesquita, 1994). Evolutionists are right in arguing that in the abstract across cultures emotions arise in response to similar events and serve similar functions; constructivists are right in concluding that in practice the specific events that trigger emotion often vary dramatically in different cultures.

Prototypes and Variations

Analyses of emotion-related appraisal, facial expression, and knowledge have found it useful to view emotions from a prototype perspective, as introduced earlier (e.g., Ekman, 1992; Fehr & Russell, 1984; Shaver et al., 1987). This argument holds that each emotion is defined by a constellation of central features, which reliably occur with an experience of a specific emotion, as well as peripheral features that less systematically occur with the emotion (and are less powerful in discriminating one emotion from close relatives). The appraisal processes that give rise to emotions involve more central and more peripheral features (for such an analysis of awe, see Keltner & Haidt, 2003). Emotion-related displays involve more central and more peripheral actions: For example, Ekman has detailed prototypical displays of anger—the furrowed brow, glare, and tightened and pressed lips—as well as variations that involve more peripheral facial muscle movements, such as the tightened lower eyelid (Ekman, 2004). Representations of specific emotions have more central and peripheral features (Shaver et al., 1987).

One intriguing possibility is that emotions show greater universality in their central features and greater cultural variability in their peripheral features. This claim helps to synthesize the evidence for universality and cultural variation in emotional display. The communication of each emotion involves facial muscle actions, bodily movements, acoustic markers, gestures, and tactile behaviors. Some display behaviors occur more reliably with an emotion; others less reliably so. For example, more central actions of the prototypical embarrassment display are gaze down, head turns and movements down, and a controlled smile; more peripheral elements of the display are face touches, head shakes, and shoulder shrugs (Keltner, 1995).

Fairly strong evidence exists for the universality of prototypical emotional displays. Japanese and American students' facial muscle movements in response to evocative film clips demonstrated correlations that ranged from 0.86 to 0.96 (Ekman, 1972). A recent review of 25 studies involving participants from more than 35 cultures found that people in different cultures show similar prototypical facial displays of anger, contempt, disgust, fear, pride, sadness, surprise, and happiness in comparable situations (see Matsumoto et al., 2008). Unsighted athletes from different cultures show remarkably similar facial expressions of emotions such as anger, sadness, shame, and pride following victory and loss (Matsumoto & Willingham, 2006; Tracy & Matsumoto, 2008). Ethological studies of several preindustrial cultures uncovered similar prototypical displays of anger, embarrassment, fear, sadness, surprise, and several varieties of smiles and laughs (Eibl-Eibesfeldt, 1989). Meta-analyses of more than 200 data sets find strong evidence of universality in the recognition of prototypical facial displays (Elfenbein & Ambady, 2002; Matsumoto et al., 2008) and emotion-specific vocalizations (Juslin & Laukka, 2003; Sauter & Scott, 2007). Even chimpanzees reliably differentiate among five human facial expressions (Parr, 2003). These findings follow from evolutionary accounts of emotional display: Humans across radically different cultures share the same facial musculature, vocal apparatus, and sensory receptors in the skin and signal emotion in prototypical displays in similar fashion.

At the same time, cultures vary in ritualized displays or *emotion accents,* which involve peripheral features of emotional displays that acquire culture-specific meaning (Elfenbein & Ambady, 2002). For example, throughout much of Southeast Asia, the tongue bite and shoulder shrug are ritualized displays of embarrassment. The tongue bite and shoulder shrug are peripheral components of the embarrassment display: exaggerated versions of the inhibitory muscle actions around the mouth (the tongue bite) and constricted, size-reducing posture (the shoulder shrug). In an emotion recognition study, Indian participants readily perceived the expressions that included the tongue bite as embarrassment, whereas U.S. participants saw no reliable emotion in the display (Haidt & Keltner, 1999). These findings dovetail with constructivists' claims that, as with the phonemes of language, cultures select and arrange the elements of emotional expression in culturally specific ways.

Empirical studies likewise find that certain appraisals are central to each emotion and others are more peripheral (e.g., Smith & Ellsworth, 1985), as well as that certain themes are central to the knowledge about an emotion and other themes are more peripheral (Shaver et al., 1987). The same may be true for other components of emotion (e.g., peripheral physiological response), and the foregoing analysis suggests that there are likely to be greater universality to the central features of an emotion and greater variability to the peripheral features.

Focal Emotions Within Cultures

Early in the anthropological study of emotion, scholars claimed that cultures vary in how prominent, or *hypercognized,* different emotions are in the language and discourse of the particular culture (Lutz & White, 1986). Distinctions were drawn between "shame" and "guilt" cultures (Benedict, 1946). Romantic love seems to be a highly salient emotion in the West. Tahiti has no word for guilt and, perhaps, no occurrence of it.

Cultural psychologists have drawn on these observations to propose that cultures vary in which emotions are *focal* (Mesquita, 2003; Mosquera Rodriquez et al., 2004). Members of a particular culture, the implication is, may be

more or less prone to regularly feel and express emotions such as anger, compassion, gratitude, or awe. The proximal sources of variations in focal emotions are cultural differences in self-construals, values or concerns, or epistemologies (Markus & Kitayama, 1994). One would expect focal emotions to be more readily elicited, experienced more intensely, represented in a richer lexicon, and signaled in more intense display behavior. Preliminary findings lend credence to these assertions.

For example, Rodriguez Mosquera and colleagues (2000) have documented that in cultures that prioritize concerns over honor (e.g., respect and face), honor-protecting emotions such as shame or anger are more focal. In relevant empirical studies, individuals from high honor cultures (Spaniards) responded with greater shame and anger when insulted than do individuals from other cultures, because these emotions protect honor and "face."

According to self-construal theories, emotions that fold people into harmonious, cooperative relations should be more focal in more interdependent cultures (see Markus & Kitayama, 1991). For example, self-conscious emotions such as shame and embarrassment express modesty and a sense of place within a social collective and can be thought of as highly interdependent emotions (Keltner & Buswell, 1997). In keeping with the analysis here, self-conscious emotions are indeed more focal in interdependent cultures (Goetz & Keltner, 2008). For example, in China at least 113 words are related to shame and embarrassment (Li, Wang, & Fischer, 2004). Olympic athletes from interdependent cultures showed stronger shame displays in response to losing than do individuals from independent cultures (Tracy & Matsumoto, 2008).

Cultures also vary according to which components of emotion are focal. Compared with Western European participants, East Asian participants were found to be more sensitive to emotion-related nonverbal vocalizations (Ishii, Reyes, & Kitayama, 2003). Consistent with claims about cultural variation in dialectical thought, East Asians are more likely to report the simultaneous experience of contradictory emotions (Kitayama et al., 2000; Schimmack et al., 2002).

Idealization

A final area of inquiry is guided by the assertion that members of different cultures value specific emotions differently according to how those emotions enable individuals to more readily enact culturally valued concerns related to social organization (Tsai, 2007). Cultures *idealize* different emotions.

This thesis helps to synthesize several areas of research. In the United States, emotions such as excitement and enthusiasm are more highly valued than emotions such as contentedness and modesty. Early work by Matsumoto (1989, 1990) found that Americans rated negative emotions as more appropriate than the Japanese did when expressed toward ingroup members, consistent with individualistic values of the expression of the true self around intimates. The Japanese, in contrast, rated the expression of negative emotion as more appropriate than Americans did when directed toward outgroup members, consistent with the interdependent, collectivist emphasis on ingroup harmony.

Cultural differences in ideal emotions are likely to explain cultural variation in emotion regulation. Members of interdependent cultures are more likely to regulate many emotions, in particular negative emotions, which impose on others, thus disrupting social harmony (Markus & Kitayama, 1991). Early work found that the Japanese regulate with polite smiles the display of negative emotion in the presence of an authority figure more so than do Americans (Friesen, 1972). Conceptually similar work by Tsai, Levenson, and colleagues (2006) has found that Asian Americans are more likely to regulate their emotional expression than Western European or American students. And in a recent study of 19 cultures, Matsumoto and colleagues (in press) documented that individuals from interdependent cultures report higher levels of emotion regulation than members of independent cultures. These differences in emotion regulation flow from cultural ideals about social harmony versus self-expression.

The debate over the universality and the cultural variability of emotion has long been an intellectual battleground for evolutionists and constructivists. The many new studies of emotion and culture are framed nicely by provocative ideas and findings that should buoy the spirits of evolutionists and constructivists alike. In the abstract, certain responses of emotion are universal, whereas in practice, cultures construct quite different emotions. The more prototypical features of an emotional response are likely to be universal, whereas the more peripheral features are more likely to vary. Some emotions appear to be more focal in specific cultures, and cultures vary in which emotions, and which styles of emotional expression, are valued. Emotions are universal and, at the same time, culturally variable.

EMOTION AND REASON

In Western thought, emotions have widely been viewed as lower, less sophisticated ways of perceiving the world when juxtaposed with loftier, principled forms of reason (Calhoun & Solomon, 1984; Nussbaum, 2001). Emotions, this view continues, subvert rational judgments and decisions

about matters of justice, causality, right and wrong, and the good life, and they should be extirpated from the mind and social exchange (Nussbaum, 1996; Oatley, 2004). For example, Kant (1960), in writing about judgments related to justice, suggested that emotions such as "sympathy" be considered unreliable because of their subjective nature, claiming such emotions reduce humans to "tender-hearted idlers." The rare exception was 18th-century moral philosopher Hume, who contended that emotions should guide reasoning (Hume, 1739/1978).

This dualistic perspective on emotion and reason has been countervailed by 25 years of research on the interplay between emotion and cognitive processes (Clore, 1994; Clore & Gasper, 2000; Clore, Gasper, & Garvin, 2001; Clore & Parrott, 1991; Forgas, 1995, 1998, 2000, 2003; Fredrickson, 2001; Isen, 1987). This literature can be traced back to an influential article by Simon (1967), who argued that emotions solve a general problem faced by intelligent agents: Emotions set priorities among the many goals and stimuli that impinge on individuals at any moment (see also Oatley & Johnson-Laird, 1987, 1996; Winkielman et al., 1997). Research by Bower (1981) on mood and memory and Isen (1987) on positive affect and judgment were early empirical inspirations to the studies that would follow.

As the literature has developed, several conceptual distinctions have become clear. A first is between the incidental and the integral influences of emotion on reasoning. *Incidental effects* occur when an emotion triggered by one event that influences judgments in an unrelated domain. In the studies that follow, people prove to quite consistently fail to understand that incidental emotions are not relevant to a judgment at hand. As a result, emotions can influence unrelated judgments in profound ways. *Integral effects* refer to the influences of emotion on judgments of the object that elicited the emotion (Forgas, 1995). Trait- and state-based approaches can be taken to characterize the incidental and integral influences of emotion on cognitive processes (Lerner & Keltner, 2001).

A second concerns the nature of the influence on judgment. *Processing style accounts* posit that emotions engage qualitatively different kinds of processing, which account for influences of emotions on cognition. Anger triggers more automatic forms of reasoning and sadness more controlled forms, accounting for why these two emotions lead to different likelihoods of relying on stereotypes (Bodenhausen, Kramer, & Süsser, 1994). Positive emotions trigger more associative, creative, or broadening patterns of thought (Fredrickson, 1998; Isen, 1987). Fear triggers a narrowing of attention or vigilance to threat (Mathews & MacLeod, 1994; Mineka & Sutton, 1992).

Informational accounts, by contrast, presuppose that emotions involve specific kinds of information that feed directly into cognitive processes (Forgas, 1995; Lerner & Keltner, 2001; Schwarz, 1990). Emotions are fast, embodied gut feelings that feed into important judgments. Framed by these concerns, the study of emotion and reason reveals that almost every cognitive process—attention, evaluative judgments, probability estimates, perceptions of risk, outgroup biases, and moral judgment—is shaped by momentary emotions in systematic and profound ways (Clore & Gasper, 2000; DeSteno, Petty, Rucker, Wegener, & Braverman, 2004; Forgas, 1995, 2000).

Emotion and Selective Attention

Jean Paul Sartre (1957) wrote of the "magical transformation" that emotions bring about in the perceptual world: that they direct attention to select classes of stimuli in the environment. The most fully researched effects of emotions on attention concern fear. Fear and anxiety narrow attention, leading to the selective perception of threats and dangers (Mathews & MacLeod, 1994; Mineka, Rafaeli, & Yovel, 2003). For example, in the dot probe paradigm, participants are presented with two words, one threatening (e.g., "disease") and the other neutral (e.g., "table"), on a screen, which then are replaced by a dot (Mathews, 1993; Mathews & Klug, 1993). Participants press a button when the dot appears. Highly anxious individuals demonstrate shorter reaction times to the appearance of the dot above threatening words when compared with nonanxious individuals and when compared with neutral words. In studies using the dichotic listening paradigm, highly anxious individuals more readily have their attention drawn away from the message they are asked to track in one ear when threatening words are presented to the other ear (Mathews & MacLeod, 1994). In studies using the Stroop paradigm, the slowing of color naming is greatest with words that correspond to the individual's greatest anxiety: people with social phobias are slowed by words about confidence; people with eating disorders are slowed by words for food (Mathews & Klug, 1993).

In a similar vein, work by Niedenthal and colleagues (Niedenthal, 2008; Niedenthal & Halberstadt, 2000; Niedenthal & Setterland, 1994) has found that current emotions lead individuals to more quickly categorize other stimuli that are congruent with the current emotional state. In lexical decision studies, people in happy moods were found to be faster at identifying at happy words than sad words, whereas sad individuals were happier at identifying sad words than happy words (Niedenthal & Setterlund, 1994). People feeling anger identified anger faces more quickly compared with appropriate controls (Niedenthal & Halberstadt, 2000). Emotions bias selective attention, perception, and categorization in an emotion-congruent

fashion, which raises interesting questions about the duration of emotions and moods (which should be extended by these effects of affect on selective attention), and this a likely place where regulation strategies should alter the course of an emotion episode.

Emotions and Evaluative Judgments

Momentary emotions wield powerful influences on evaluative judgments, a robust empirical generalization accounted for by a feelings-as-information perspective (Clore, 1992; Clore & Gasper, 2000; Clore & Parrott, 1991; Schwarz, 1990; Schwarz & Clore, 1983). This perspective assumes that emotions provide rapid signals about objects in the environment and that these momentary feelings feed into ongoing judgments about issues that are too complex to review and synthesize all relevant evidence.

In a seminal study, Schwarz and Clore (1983) asked people in Illinois either on a cloudy day or on a sunny day "All things considered, how satisfied or dissatisfied are you with your life as a whole these days?" Participants either rated their life satisfaction or did so after first responding to the question "How's the weather down there?" Participants reported greater life satisfaction on a sunny day than on a gloomy day, consistent with a robust literature showing that current feelings determine levels of subjective well-being (Lucas & Diener, 2008). The joys of the sunny day only influenced evaluations of life satisfaction, however, when participants did not attribute their current feelings to the weather (e.g., Martin, 2000). Subsequent studies have revealed that current moods and emotions exert powerful influences on evaluative judgments of life satisfaction (Lucas & Diener, 2008), political leaders (Forgas & Moylan, 1987), and consumer choices (Han, Lerner, & Keltner, 2007).

Emotions, Judgment, and Decision Making

An *appraisal tendency framework* has been offered to account for the effects of discrete emotions on judgment and decision making (Han et al., 2007; Lerner & Keltner, 2000, 2001; Lerner & Tiedens, 2006; Tiedens & Linton, 2001). An appraisal tendency framework assumes that each emotion is defined by a core appraisal: Compassion, for example, involves appraisals of the undeserved suffering; pride involves appraisals of strength of the self vis-à-vis others (see Tables 9.6 and 9.7). Specific emotions influence judgments, it is posited, in a manner consistent with the emotion's underlying appraisal tendency, but only in domains related to the appraisal. For example, fear should influence judgments of certainty and risk, the judgment domains most closely related to its underlying appraisal

tendency, but not judgments of blame or fairness, which are more closely related to anger.

Several studies guided by this perspective have revealed the extensive influences of specific emotions on judgments and decisions (Lowenstein & Lerner, 2003). People feeling sad were more likely to attribute ambiguous events to situational causes and to judge future events produced by situational factors (e.g., lightning sets your house on fire) as more likely than people feeling anger, who attributed the same events to the actions of others and judged future events produced by others' actions to be more likely (Keltner, Ellsworth, & Edwards, 1993). Fear amplifies the expectation of pessimistic life outcomes and risk compared with anger (Lerner, Gonzalez, Small, & Fischoff, 2003; Lerner & Keltner, 2001). Anxious decision-makers preferred uncertainty-reducing options, whereas sad decision-makers preferred the reward-seeking option (Raghunathan & Pham, 1999). Momentary anger increases the reliance on heuristic cues because of the underlying appraisal of certainty (Tiedens & Linton, 2001; see also Bodenhausen, Sheppard, & Kramer, 1994). When angry, individuals judge unfair actions to be more likely in their future, whereas when sad, individuals judge losses to be more likely (DeSteno, Petty, Wegener, & Rucker, 2000).

Positive Emotions Broaden and Build

Early in the study of emotion and judgment, Isen (1987) argued that happiness prompts people to think in more flexible and creative ways. People induced to feel happiness through trivial events, for example, in receiving candy, watching a pleasurable film clip, or finding a dime in a public telephone, were more likely to find creative solutions to novel problems, to produce unusual associations to words, and to categorize objects in inclusive or novel ways (Isen, 1987).

In an important extension of this work, Fredrickson (1998, 2001) has argued that the overarching function of positive emotions is to *broaden and build* thought repertoires. These basic broadening effects of positive emotion enable more creative and flexible thought, which help the individual in forming important bonds and exploring the environment. Relevant research has documented how positive emotions such as joy, amusement, contentment, and relief facilitate global visual processing relative to local processing, counter the outgroup homogeneity effect, and prompt self-expansion in interpersonal relationships (Fredrickson, 2001; Johnson & Fredrickson, 2005; Waugh & Fredrickson, 2006).

Emotions as Moral Intuitions

Moral judgments of an action as right or wrong, a person of good character or not, or a punishment as just or not have

long been assumed to be founded on higher-order cognitive processes (Haidt, 2001). The individual in the act of making a moral judgment is assumed to be guided by a priori, abstract principles (e.g., conceptions of rights or equality) that apply to all contexts and individuals. Moral judgments hinge on the development of basic cognitive processes, such as the capacity to take another's perspective.

A different view has emerged, one that prioritizes emotions as important *intuitions,* or fast, automatic judgments of right and wrong (Damasio, 1994; Greene & Haidt, 2002; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Haidt, 2007). This view flows readily from appraisal accounts of emotion, which identify morally significant themes (e.g., harm and fairness) involved in specific emotions, as well as evolutionary proposals that emotions orient cognitive processes to solving problems of social organization. The claim that emotions act as moral intuitions has found expression in the somatic marker hypothesis (Damasio, 1994) and Haidt's (2001, 2003, 2007) two-system view of moral judgment. Table 9.10 summarizes claims about relations between specific emotions and moral concerns. "Moral concern" refers to the principles or rules that govern judgment and action with respect to matters of the distribution of resources, punishment, and judgments of character and virtue (Haidt, 2001, 2007; Rozin, Lowery, Imada, & Haidt, 1999; Shweder et al., 1997; Vasquez, Keltner, Ebenbach, & Banaszynski, 2001).

One of the most widely investigated emotion–morality associations is that between disgust and purity. Feeling disgusted by apparent purity violations correlates with greater moral condemnation of those violations (Haidt & Hersh, 2001; Haidt, Koller, & Dias, 1993). Participants induced through posthypnotic suggestion to experience pangs of disgust in response to innocuous an target word ("take" or "often") reported greater feelings of disgust when the word was embedded in descriptions of moral violations and greater moral condemnation of those violations (Wheatley & Haidt, 2005). Opposition to two purity-relevant behaviors, meat consumption and cigarette smoking, coincided with greater disgust toward those behaviors and was better predicted by felt disgust than by perceived health risks (Rozin & Singh, 1999).

In one of the most systematic studies of emotion and moral judgment, Rozin and colleagues (1999) documented fairly clear associations between anger, contempt, and disgust and three moral domains: autonomy (rights, justice, and freedom), community (duties and obligations), and purity, respectively. In their research, participants consistently selected anger faces to label violations of autonomy (e.g., "A person is seeing someone steal a purse from a blind person"), contempt faces to label violations of community (e.g., "A person is hearing an 8-year-old student

Table 9.10   Emotions and Their Associated Moral Concerns

Emotion	Moral Concern
Anger	Rights, freedoms, retributive justice
Compassion	Harm, need
Contempt	Community role, position within hierarchy
Disgust	Purity, both sexual and spiritual
Gratitude	Reciprocity, equality
Guilt	Duty, obligation
Shame	Own character flaws
Awe, elevation	Other's virtue

speak to the teacher in the same way that student talks to friends"), and disgust faces to label purity violations (e.g., "A person is eating a piece of rotten meat").

Weiner and colleagues have documented how anger and sympathy lead to different punitive judgments of moral transgressions (Rudolph, Roesch, Greitemeyer, & Weiner, 2004; Weiner, Graham, & Reyna, 1997). Individuals angered by moral transgressions prefer the most vengeful form of punishment—retributive punishment (see also Carlsmith, Darley, & Robinson, 2002; Harmon-Jones et al., 2003; Lerner, Goldberg, & Tetlock, 1998). When angry, people blame others, attributing violations to stable, controllable, and internal causes (Quigley & Tedeschi, 1996). In contrast, participants who feel sympathy in response to the same crime prefer less severe forms of punishment, ones that protect the criminal and society, namely, utilitarian punishment (Weiner et al., 1997).

Emotional Component of Prejudice

Long ago, Gordon Allport (1954) argued that emotion organizes the content of different forms of prejudice. Empirical research has begun to provide data fitting with this assertion: that biases toward outgroups are colored by different emotions (Alexander, Brewer, & Herrmann, 1999; Cottrell & Neuberg, 2005; DeSteno, Dasgupta, Bartlett, & Cajdric, 2004; Fiske, Cuddy, Glick, & Xu, 2002; Mackie et al., 2000; Tapias, Glaser, Vasquez, Keltner, & Wickens, 2007). Stereotypes of competence and warmth trigger feelings of pity, contempt, and envy in systematic ways (Fiske et al., 2002). Perceptions of relative outgroup strength generate different negative emotions, such as anger, disgust, or fear (Mackie et al., 2000).

Outgroups trigger different threat appraisals, which account for the emotional component of distinct prejudices (Cottrell & Neuberg, 2005). Prejudice toward African Americans has been associated with anger, in terms of self-reported emotion (Cottrell & Neuberg, 2005; Tapias

et al., 2007), and measured changes in facial musculature, where Whites who viewed African American faces showed changes in the *corrugator supercilii* associated with anger (Vanman, Paul, Ito, & Miller, 1997; Vanman, Saltz, Nathan, & Warren, 2004). Prejudice against gays has been found to be systematically associated with increased disgust, which may be accounted for by the centrality of impurity to both gay stereotype (e.g., "diseased," "abnormal," and "inappropriate sexuality") and disgust (Rozin et al., 1999; Vasquez et al., 2001). People asked to describe their spontaneous reactions toward homosexuality indicate feeling "disgust" (Haidt & Hersh, 2001). Individuals predisposed toward experiencing disgust tend to report prejudice toward gays (Haidt, McCauley, & Rozin, 1994; Rozin, Haidt, & McCauley, 2000; Van de Ven, Bornholt, & Bailey, 1996).

Moderators of the Influences on Emotion and Cognition

The empirical literature suggests that emotions influence numerous cognitive processes—selective attention, evaluative judgments, perceptions of risk and estimates of value, causality, moral judgments of right and wrong, and biases toward different outgroups. Emotions might be thought of metaphorically as social sensory systems, guiding cognitive processes to significant classes of stimuli in the social environment, presumably laying the groundwork for particular courses of action (e.g., anger attunes the individual to matters of injustice and courses of action that potentially remedy injustice).

These different literatures raise an essential question: What processes moderate the influences of emotion on cognition? The most systematic answer to this question has been provided by Forgas (1995) in the *affect infusion model*. This model posits that emotions infuse into a cognitive process to the extent that the task is complex, involves constructive processing, and is not based on preexisting knowledge structures (e.g., prototypes). When judgments are less complex and preexisting schema or prototypes are salient, emotions influence cognition to a reduced extent. Other processes that mitigate the influences of emotion on cognition include accountability (Lerner et al., 1998) and the degree to which the individual has labeled the current state in words and narrative (Clore et al., 2001; Keltner, Locke, & Audrain, 1993).

SOCIAL CONSTRUCTION OF EMOTION

Emotions arise in social contexts and shape and are shaped by social dimensions of the situation—hierarchical concerns, interdependence, familiarity, intimacy (Clark & Finkel, 2004; Fischer & Manstead, 2008; Keltner & Haidt, 1999; Tiedens & Leach, 2004). Early ethological analyses

of social behavior in preindustrialized cultures revealed that brief emotional displays are a grammar of social interactions (Eibl-Eibesfeldt, 1989). Brief displays of coyness and desire, for example, are the basic elements of flirtatious interactions; flashes of anger, contempt, and embarrassment constitute negotiations of rank. Constructivists have long contended that emotions embody culturally specified roles and social identities (Averill, 1980; Hochschild, 1983, 1990; Lutz & White, 1986; Markus & Kitayama, 1994). In the expression of sympathy for a vulnerable child, for example, a woman assumes culturally based gender identities and roles (Citrin et al., 2004; Clark, 1990).

Two empirical traditions have emerged as responses to arguments that emotions are socially constructed. A first pertains to how social contextual factors—status, familiarity, intimacy, power, social class—shape emotional response. Emotions vary dramatically in interactions among friends versus among those of strangers, among bosses versus among subordinates, and in informal versus in formal settings. New studies, as the next section shows, are revealing how this is so.

A second emergent interest reverses the causal direction and asks how emotions give rise to specific social relationships. Here, the concern is in documenting how specific emotions or emotional processes create specific patterns of relationships. Expressions of gratitude, for example, have been theorized to give rise to cooperative relations among nonkin (Nesse, 1990; Trivers, 1971). As codes of etiquette spread through 17th- and 18th-century Europe, embarrassment at others' lack of manners created social boundaries between those in the court and those outside (Elias, 1939/1978). Certain emotions, for example, expressions of contempt, are especially powerful in predicting the demise of marriages (Gottman, 1993). With advances in the study of interdependent data of participants, such as couples or friends in dyadic interactions (Gonzalez & Griffin, 1997), new studies are revealing that fleeting expressions of emotion do indeed shape the course of different relationships.

Social Contextual Shaping of Emotion

Experience sampling and diary studies reveal that people's emotional profiles shift dramatically according to whether they are with friends or acquaintances, family or work colleagues, higher-status individuals or subordinates, or are in formal or less formal contexts (e.g., Bolger et al., 2003; Moskowitz, 1994). Early experimental studies converge on a similar theme. With the increasing sociality of the context, certain kinds of emotional behaviors—smiling for example—are amplified (Fridlund, 1992; Kraut & Johnson, 1979). More recent empirical studies have documented how

two pervasive dimensions to the social context—power and affiliation—shape momentary emotion.

Status, Power, and Emotion

Social status and power refer to different facets of the individual's relative rank, or position, vis-à-vis others, and relative capacity to alter the states of other individuals (Fiske, 1993; Keltner, Gruenfeld, & Anderson, 2003). Almost all relationships are imbued with power concerns, from interactions among school children on the playground to work colleagues jockeying in meetings. Power dynamics influence emotions in several important ways.

Power influences the overall valence of emotional experience. High-power individuals are prone to experience more positive emotions than are low-power people (Collins, 1990; Langner & Keltner, 2008). In contrast, low-power individuals tend to experience increased negative emotion. Children of low sociometric status report higher levels of negative moods, guilt, and depression (Hecht, Inderbitzen, & Bukowski, 1998). Lower socioeconomic status also relates to increased negative mood in adults (e.g., Link, Lennon, & Dohrenwend, 1993). Select studies yield relations between status and more specific negative emotions: In a study that manipulated status, low-status individuals reported more guilt and sadness in response to negative events, whereas high-status individuals reported more anger (Tiedens et al., 2000).

Power also influences the expression of emotion. High-power people express their positive emotions more readily in facial display (Hecht & LaFrance, 1998) and have been found to express more dominant emotions, such as anger and contempt (Keltner et al., 1998). High-power individuals show greater coherence between expression and experience of emotion (Hecht & LaFrance, 1998). The coherence between experience and expression contributes to social adjustment and physical health (Gross, 1998; Gross & John, 2003), suggesting that power-related influences on emotional coherence may contribute to the poor health outcomes of low-power individuals (see Adler et al., 2001).

Perhaps more provocatively, high-power individuals are less sensitive to the emotions of others. High-power individuals are less accurate in judging posed displays of emotions (Galinsky, Magee, Inesi, & Gruenfeld, 2006), as well as the spontaneous displays of emotion of an interaction partner (Gonzaga, Keltner, & Ward, 2008). High-power individuals also react less to others' emotions. Anderson, Keltner, and John (2003) found that low-power friends assimilated more to their higher-power friends in their emotional responses than vice versa. In negotiation studies, lower-power negotiators conceded more to angry opponents than to happy ones, whereas high-power negotiators

did not adjust their demands to their opponent's emotion (Van Kleef, De Dreu, Pietroni, & Manstead, 2006). High-power individuals have been shown to be less emotionally reactive to the suffering of another: In a study of conversations between two strangers, high-power individuals' experiences of compassion decreased as their partner disclosed more distressing experiences (Van Kleef et al., 2008).

The tendency for high-power individuals to respond less empathically to the emotions of others is certain to give rise to problems in relationships—an area ripe with interesting possibilities. For example, leaders who avoid empathy failures are more likely to maintain the respect and status of their group members (Coté & Miners, 2006; Keltner, Van Kleef, Chen, & Kraus, 2008). Empathy failures may cost high-power individuals in more intimate relationships as well.

Affiliation, Warmth, and Emotion

Affiliation or warmth is a basic dimension of social relationships, and it shapes emotional response in profound ways (Clark & Finkel, 2004. Affiliation or warmth leads to the convergence, or mimicry, of emotional responses (Hatfield, Cacioppo, & Rapson, 1994). In remarkable work on the acoustics of laughter, for example, Bachorowski and colleagues documented that within milliseconds the laughs of friends as opposed to those of strangers begin to mimic one another (e.g., Smoski & Bachorowski, 2003).

The degree of affiliation increases the likelihood of convergent autonomic physiology. For example, Shearn and colleagues (1992) brought two friends or two strangers to the laboratory and induced embarrassment in one of the participants. Friends showed a greater empathic blush at their friends' mortification than did strangers (see also Miller, 1987; Provine, 1992).

These studies suggest that as individuals form more interdependent relationships their emotions converge. Increased affiliation is certain to influence other facets of emotional response, including which emotions are experienced, the intensity of emotional response (Fridlund, 1992), the accuracy with which individuals identify emotions in others, and the degree to which individuals regulate their emotions (Butler, Wilhelm, & Gross, 2006).

Emotions Create Patterns of Social Relationships

Anthropologists have offered rich characterizations of how emotions establish relationships, helping individuals "negotiate the social and moral order" (Abu-Lughod & Lutz, 1990). For example, in Abu-Lughod's provocative analysis of emotion, poetry, and ritual in a Bedouin community in Egypt, the ritualized expression of *hasham*—a form of embarrassment and modesty—in submissive gesture,

facial and postural display, and patterns of dress—enables hierarchical relations among group members (1986). The experience and expression of emotion helps individuals act out certain roles and identities and signal or mark the parameters of particular social relationships.

Emotion and the Establishment of Status Relations

In nonhuman species, ritualized displays of dominance (deep vocalizations and postural expansion) and submissiveness (head bobbing and cowering) are less costly than direct aggressive encounters and have evolved as a means by which individuals negotiate rank (Krebs & Davis, 1993). Emotions contribute to the formation of status relations in humans in similar fashion.

Emotions evoke social inferences that clarify status relations among individuals. Emotional displays convey information about the sender's relative status and power vis-à-vis the receiver: displays of anger, for example, signal elevated status (Knutson, 1996), whereas displays of embarrassment mark relative submissiveness (Keltner, 1995). People assume that high-power people respond to difficulties with anger (Tiedens et al., 2000). Even more on point, another study found that participants attributed more elevated status to an individual who displays anger compared with other emotions (Tiedens et al., 2000). Quite remarkably, the same individual displaying anger in the face was assumed to be larger physically than when displaying a submissive emotion such as embarrassment (Ketelaar, 2004). Other things being held constant, individuals who express more powerful emotions (e.g., anger and pride) are afforded more status within hierarchies; individuals who express more submissive emotions (e.g., embarrassment) are afforded less status.

Specific interactions—humans' status contests—are likely to ritualistically evoke patterns of emotions that establish rank relationships. Teasing is one such interaction (Keltner et al., 2001). In one study, high- and low-power fraternity members took turns in a round-robin design teasing one another by making up nicknames and embarrassing stories about one another (Keltner et al., 1998). High-power members tended to display anger and contempt, emotions associated with high power. In contrast, the low-power members were more likely to show submissive emotions such as embarrassment.

Emotion and the Establishment of Intimate Bonds

Particular emotional exchanges help to establish intimate bonds (e.g., Clark & Mills, 1979). Sexual desire and romantic love are the *sine qua non* of short- and long-term reproductive relations (Buss, 1992; Ellis, 1992; Ellis & Malamuth, 2000; Gonzaga et al., 2001). Brief displays of sympathy are a foundation of communal relations (Clark &

Mills, 1979). Specific emotions produce particular relationship orientations—motivations to be monogamous, to trust, to reciprocate, and so on—that are vital to the maintenance of the relationship.

Early empirical studies, for example, documented that the degree of emotional mimicry predicted later reports of closeness in various relationships (Hatfield et al., 1994). More recent empirical studies have found that *emotional convergence* over time predicts increased friendship. In one illustrative study, friends came to the laboratory at two different times during the year and reported their emotional reactions to different evocative stimuli, such as humorous or disturbing film clips (Anderson et al., 2003). The emotions of friends converged over the course of the year: they became more similar in valence and intensity.

Early empirical studies of emotion largely focused on individuals extracted from the social context. As a result, claims about the social construction of emotion, about how emotions vary across relationships, and about how emotions give rise to different relationships extended well beyond what was empirically known. With the rise in interest in the study of relationships, and advances in statistical approaches to interdependent data of people in dyadic interactions, studies of emotions in social relationships are remedying this state of affairs. Dimensions of the social context—status and affiliation—shape emotions in important ways. Patterns of emotional exchange give rise to specific enduring relationships.

This literature on the social construction of emotion is in its infancy, and its progress will depend on new kinds of data—dyadic data, longitudinal studies, and careful studies of people in particular relationships. The promise of this line of inquiry is great and has profound implications for emotion theory. Models of emotion appraisal will need to incorporate social contextual factors as basic elements of emotion-related appraisal. Emotion-related physiological responses, for example, oxytocin release or vagus nerve activation, which are both associated with more prosocial emotions, are certain to prove highly sensitive to features of the social context. Emotions will prove to be integral to the social order, rather than disruptive of it.

EMOTION AND HAPPINESS

Cultural theories of happiness involve different claims about the place of emotion in social life (McMahin, 2006; Oatley, 2004). In many traditions, happiness is believed to be orthogonal to emotional experience: In classical Greek thought, happiness derives from virtuous action; for medieval Christian scholars, happiness was to be found in the

afterlife, in communion with God when the soul is liberated from the earthly passions of living. More skeptical stances in other ways of knowing presuppose that the emotions are impediments to happiness, a position found in the writings of the stoics, the Puritans, and some strains of Buddhism. A third view, perhaps more in keeping with the social-psychological study of emotion, is that individual and collective happiness require the experience and expression of emotions, from sympathy to love to anger. This view has its advocates in writers such as Hume, Rousseau, and Darwin.

What is robustly clear in the empirical literature is that the balance of negative to positive emotions is a powerful determinant of happiness, or *subjective well-being* (Bentham, 1996; Lucas & Diener, 2008; Lyubomirsky et al., 2005). This is not a surprising relationship given the degree of semantic overlap between measures of well-being ("I feel satisfied with my life") and emotion ("I feel happy, content, proud," etc). Still, the relationship is robust: Self-reports of increased positive emotion and reduced negative emotion strongly predict overall well-being, in particular for Western Europeans (Lucas & Diener, 2008). Studies of really happy people find, on average, that they experience about three positive emotions for every negative one (Fredrickson, 2001). Studies of really happy marriages find that five positive emotions transpire for every negative one (Gottman, 1993).

A synthesis of 250 studies of state and trait positive affect found that increased positive emotion promotes greater marital satisfaction, better outcomes at work, and improved physical health (Lyubomirsky et al., 2005). For example, the degree of positive emotion expressed in the face as captured in a college yearbook photo (measured in the activity of the *orbicularis oculi* and *zygomatic major* muscles) predicted less daily anxiety and distress, greater warmth felt toward others, increased sense of accomplishing goals, warmer responses evoked in strangers 20 years later, and increased marital satisfaction and overall well-being 30 years later (Harker & Keltner, 2001).

Positive emotion makes for greater success at work. For example, in one study, highly cheerful undergraduates compared with less cheerful peers made on average $25,000 more per year on entering into the workforce (Diener, Nickerson, Lucas, & Sandvik, 2002). A preponderance of positive emotion promotes more robust physical health and longevity. One well-known study found that nuns who in personal narratives at age 20 reported greater happiness were 2.5 times less likely to die between the ages of 80 and 90 than were nuns who reported in their narratives being less happy. Being happy at age 70 was found to add 20 months, on average, to an individual's life expectancy.

These kinds of results beg for data that explain how patterns of emotion contribute to happiness and health. One central hypothesis is that positive emotions buffer against the toxic effects of chronic anxiety and stress (e.g., Fredrickson & Levenson, 1998; Taylor et al., 2000). The effects of chronic stress are well known and include damaging different organs and branches of the nervous system, as well as undermining personal well-being. The *buffering hypothesis* suggests that positive emotions enable people to respond with resilience to the stresses and trauma that can lead to disease and despair. For example, in longitudinal research, individuals who reported higher levels of positive emotion responded with reduced traumatic symptoms, anxiety, and health problems to the September 11 terrorist attacks (Fredrickson, Tugade, Waugh, & Larkin, 2003). In research on bereavement, measures of laughter and smiling gathered in a semistructured interview about the deceased spouse 6 months after loss predicted reduced grief as assessed in independent interviews conducted at 6, 14, and 25 months after loss, whereas increased expressions of anger, disgust, and fear in the face predicted increased grief at these assessments (Bonanno & Keltner, 1997).

Positive emotions are vital to adjustment to trauma for numerous reasons. Positive emotions build strong relationships, so essential to adaptive responses to stress (Baumeister & Leary, 1995; Fredrickson, 1998, 2001). Positive emotions enable more creative, resilient, insightful patterns of thought (Fredrickson, 2001). Positive emotions enhance immune function (Kemeny & Shestyuk, 2008) and reduce stress-related cardiovascular arousal (Fredrickson & Levenson, 1998).

A second line of inquiry has begun to explore how the cultivation of more prosocial emotions gives rise to boosts in well-being. These sorts of interventions are all the more relevant given claims that upward of 40% of individual variation in happiness is due to freely chosen practices, actions, and thought patterns (Lyubomirsky, 2007). The relevant evidence fits with age-old wisdom: The cultivation of different positive emotions is a pathway to happiness. Reflecting on reasons for being grateful leads to increased happiness and fewer problematic health symptoms measured several weeks later (Emmons, McCullough, & Tsang, 2003). Forgiving someone increases well-being and promotes reduced stress-related physiology (Lawler et al., 2003). Practicing mindfulness meditation, with a focus on being mindful of breathing and extending loving kindness to others, boosts happiness several weeks later, as well as the relative left hemispheric lateralization in the brain, a pattern of activation associated with increased well-being (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Davidson, Kabat-Zinn, et al., 2003). The positive emotions can be cultivated and are a pathway to more general well-being.

SUMMARY

Answers to age-old questions about human nature involve assumptions about the emotions. As the empirical science of emotion has matured, long-standing notions that emotions are disruptive, irrational forces that undermine the social order have given way to a much different view. Emotions involve highly sophisticated systems—display, physiology, language, representation, and experience—that enable people to adapt to changing social circumstances and fold into different relationships. More specific empirical literature reveals emotions to be both universal (as evolutionists hold) and culturally variable (as constructivists contend) and to be central elements of humans' most important judgments and decisions. In addition, emotions are shaped by, and shape, social interaction, and the balance of emotions gives rise to the sense of the life well lived.

REFERENCES

Abu-Lughod, L. (1986). *Veiled sentiments*. Berkeley: University of California Press.

Abu-Lughod, L., & Lutz, C. A. (1990). *Introduction to language and the politics of emotion*. New York: Cambridge University Press.

Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., & Kahn, R. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist, 49*, 15–24.

Adolphs, R., Tranel, D., Damasio, H., & Damasio, A. (1994). Impaired recognition of emotion in facial expressions following bilateral damage to the human amygdala. *Nature, 22*, 669–672.

Aggleton, J. P. (Ed.). (2000). *The amygdala* (2nd ed.). Oxford: Oxford University Press.

Alexander, M. G., Brewer, M. B., & Herrmann, R. K. (1999). Images and affect: A functional analysis of out-group stereotypes. *Journal of Personality and Social Psychology, 77*, 78–93.

Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.

Anderson, C., Keltner, D., & John, O. P. (2003). Emotional convergence between people over time. *Journal of Personality and Social Psychology, 84*, 1054–1068.

Arnold, M. B., & Gasson, J. A. (1954). Feelings and emotions as dynamic factors in personality integration. In M. B. Arnold & S. J. Gasson (Eds.), *The human person* (pp. 294–313). New York: Ronald.

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

Ayduk, O., & Kross, E. (2008). Enhancing the pace of recovery: Self-distanced analysis of negative experiences reduces blood pressure reactivity. *Psychological Science, 19*, 229–231.

Bachorowski, J. A. (1999). Vocal expression and perception of emotion. *Current Directions in Psychological Science, 8*, 53–57.

Bachorowski, J. A., & Owren, M. J. (2001). Not all laughs are alike: Voiced by not voiced laughter readily elicits positive affect. *Psychological Science, 12*, 252–257.

Banse, R., & Scherer, K. R. (1996). Acoustic profiles in vocal emotion expression. *Journal of Personality and Social Psychology, 70*, 614–636.

Barrett, K. C., & Campos, J. J. (1987). Perspectives on emotional development II: A functionalist approach to emotions. In J. D. Osofsky (Ed.), *Handbook of infant development* (2nd ed., pp. 558–578). New York: Wiley.

Barrett, L. F. (2006). Are emotions natural kinds? *Perspectives on Psychological Science, 1*, 28–58.

Barrett, L. F., Mesquita, B., Ochsner, K. N., & Gross, J. J. (2007). The experience of emotion. *Annual Review of Psychology, 58*, 373–403.

Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science, 17*, 319–325.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497–529.

Baumeister, R. F., Stillwell, A. M., & Heatherton, T. F. (1994). Guilt: An interpersonal approach. *Psychological Bulletin, 115*, 243–267.

Baxter, M. G., & Murray, E. A. (2002). The amygdala and reward. *Nature Reviews Neuroscience, 3*, 563–574.

Beauregard, M., Levesque, J., & Bourgouin, P. (2001). Neural correlates of conscious self-regulation of emotion. *Journal of Neuroscience, 21*, 1–6.

Beer, J., Heerey, E. A., Keltner, D., Knight, R., & Scabini, D. (2003). The regulatory function of self-conscious emotion: Insights from patients with orbitofrontal damage. *Journal of Personality and Social Psychology, 85*, 594–604.

Benedict, R. (1946). *The chrysanthemum and the sword: Patterns of Japanese culture*. Boston: Houghton Mifflin.

Bentham, J. (1996). *An introduction to the principles of morals and legislation: An introduction*. J. H. Burns & H. L. A. Hart (Eds.). New York: Oxford University Press.

Berntson, G. G., Cacioppo, J. T., & Quigley, K. S. (1993). Respiratory sinus arrhythmia: Autonomic origins, physiological mechanisms, and psychophysiological implications. *Psychological Bulletin, 114*, 296–322.

Berridge, K. C. (2003). Comparing the emotional brains of humans and other animals. In R. J. Davidson, K. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective science* (pp. 25–51). New York: Oxford University Press.

Bodenhausen, G. V., Kramer, G. P., & Süsser, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality and Social Psychology, 66*(4), 621–632.

Bodenhausen, G., Sheppard, L., & Kramer, G. (1994). Negative affect and social judgment: The different impact of anger and sadness. *European Journal of Social Psychology, 24*, 45–62.

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*, 579–616.

Bonanno, G. A., & Keltner, D. (1997). Facial expressions of emotion and the course of conjugal bereavement. *Journal of Abnormal Psychology, 106*, 126–137.

Bonanno, G. A., & Keltner, D. (2004). The coherence of emotion systems: Comparing "on-line" measures of appraisal and facial expressions, and self-report. *Cognition and Emotion, 18*, 431–444.

Boucher, J. D., & Brandt, M. E. (1981). Judgment of emotion: American and Malay antecedents. *Journal of Cross-Cultural Psychology, 3*, 309–314.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129–148.

Briggs, J. L. (1970). *Never in anger*. Cambridge, MA: Harvard University Press.

Buss, D. M. (1992). Mate preference mechanisms: Consequences for partner choice and intrasexual competition. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 267–288). New York: Oxford University Press.

Buss, D. M. (1994). *The evolution of desire: Strategies of human mating*. New York: Basic Books.

Butler, E. A., Wilhelm, F. H., & Gross, J. J. (2006). Respiratory sinus arrhythmia, emotion, and emotion regulation during social interaction. *Psychophysiology, 43*, 612–622.

Cacioppo, J. T., Berntson, G. G., Larsen, J. T., Poehlmann, K. M., & Ito, T. A. (2000). The psychophysiology of emotion. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (2nd ed., pp. 173–191). New York: Guilford Press.

Cacioppo, J. T., Klein, D. J., Berntson, G. G., & Hatfield, E. (1993). The psychophysiology of emotion. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 119–142). New York: The Guilford Press.

Calhoun, C., & Solomon, R. (1984). What is an emotion? In C. Calhoun & R. Solomon (Eds.), *Readings in philosophical psychology*. New York: Oxford University Press.

Campos, J. J., Campos, R. G., & Barrett, K. C. (1989). Emergent themes in the study of emotional development and emotion regulation. *Developmental Psychology, 25*, 394–402.

Canli, T., Zhao, Z., Desmond, J. E., & Gabrieli, J. (1999). fMRI identifies a network of structures correlated with retention of positive and negative emotional memory. *Psychobiology, 27*, 441–452.

Cannon, W. B. (1927). The James–Lange theory of emotion: A critical examination and an alternative theory. *American Journal of Psychology, 39*, 106–124.

Carlsmith, K. M., Darley, J. M., & Robinson, P. H. (2002). Why do we punish? Deterrence and just deserts as motives for punishment. *Journal of Personality and Social Psychology, 83*, 284–299.

Carter, C. S. (1998). Neuroendocrine perspectives on social attachment and love. *Psychoneuroendocrinology, 23*(8), 779–818.

Carter, C. S., & Altemus, M. (1997). Integrative functions of lactational hormones in social behavior and stress management. In C. S. Carter & I. I. Lederhendler (Eds.), *Annals of the New York Academy of Sciences* (Vol. 807, pp. 164–174). New York: New York Academy of Sciences.

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*, 319–333.

Citrin, L. B., Roberts, T. A., & Fredrickson, B. L. (2004). Objectification theory and emotions: A feminist psychological perspective on gendered affect. In L. Z. Tiedens & C. W. Leach (Eds.), *The social life of emotions* (pp. 203–226). New York: Cambridge University Press.

Clark, C. (1990). Emotions and the micropolitics in everyday life: Some patterns and paradoxes of "place." In T. D. Kemper (Ed.), *Research agendas in the sociology of emotions* (pp. 305–334). Albany: State University of New York Press.

Clark, M. S., & Finkel, E. J. (2004). Does expressing emotion promote well-being? It depends on relationship context. In L. Z. Tiedens & C. W. Leach (Eds.), *The social life of emotions* (pp. 105–126). New York: Cambridge University Press.

Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology, 37*, 12–24.

Clore, G. L. (1992). Cognitive phenomenology: Feelings and the construction of judgment. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 133–163). Hillsdale, NJ: Erlbaum.

Clore, G. L. (1994). Why emotions are felt. In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion* (pp. 103–111). New York: Cambridge University Press.

Clore, G. L., & Gasper, K. (2000). Feeling is believing: Some affective influences on belief. In N. H. Frijda, A. S. R. Manstead, & S. Bem (Eds.), *Emotions and beliefs: How feelings influence thoughts* (pp. 10–44). Cambridge, England: Cambridge University Press.

Clore, G. L., Gasper, K., & Garvin, E. (2001). Affect as information. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 121–144). Mahwah, NJ: Erlbaum.

Clore, G. L., & Ortony, A. (2008). Appraisal theories: How cognition shapes affect into emotion. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 628–644). New York: Guilford Press.

Clore, G. L., & Parrott, W. G. (1991). Moods and their vicissitudes: Thoughts and feelings as information. In J. Forgas (Ed.), *Emotion and social judgment* (pp. 107–123). Oxford: Pergamon.

Coan, J. A., Schaefer, H. S., & Davidson, R. J. (2006). Lending a hand: Social regulation of the neural response to threat. *Psychological Science, 17*, 1032–1039.

Cohn, J. F., & Tronick, E. Z. (1983). Three month old infants' reactions to simulated maternal depression. *Child Development, 54*, 185–193.

Collins, R. C. (1990). Stratification, emotional energy, and the transient emotions. In T. D. Kemper (Ed.), *Research agendas in the sociology of emotions* (pp. 27–57). Albany: State University of New York Press.

Consedine, N. S. (2008). Health-promoting and health-damaging effects of emotion: The view from developmental functionalism. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 676–690). New York: Guilford Press.

Cortes, B. P., Demoulin, S., Rodriguez, R. T., Rodriguez, A. P., & Leyens, J. P. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup, and the outgroup. *Personality and Social Psychology Bulletin, 31*, 243–253.

Coté, S., & Miners, C. T. H. (2006). Emotional intelligence, cognitive intelligence, and job performance. *Administrative Science Quarterly, 51*, 1–28.

Cottrell, C. A., & Neuberg, S. L. (2005). Different emotional reactions to different groups: A sociofunctional threat-based approach to "prejudice." *Journal of Personality and Social Psychology, 88*, 770–789.

Cryder, C. E., Lerner, J. S., Gross, J. J., & Dhal, R. E. (2008). Misery is not miserly. *Psychological Science, 19*, 525–530.

Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain*. New York: Free Press.

Darwin, C. (1872/1998). *The expression of the emotions in man and animals* (3rd ed.). New York: Oxford University Press.

Davidson, R. J. (2000). Affective style, psychopathology, and resilience: Brain mechanisms and plasticity. *American Psychologist, 55*, 1196–1214.

Davidson, R. J. (2004). What does the prefrontal cortex "do" in affect: Perspectives on frontal EEG asymmetry research. *Biological Psychology, 67*(1–2), 219–233.

Davidson, R. J., & Harrington, A. (2001). *Visions of compassion: Western scientists and Tibetan Buddhists examine human nature*. New York: Oxford University Press.

Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., Urbanowsky, F., Harrington, A., Bonus, K., & Sheridan, J. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine, 65*, 564–570.

Davidson, R. J., Pizzagalli, D., Nitschke, J. B., & Kalin, N. H. (2003). Parsing the subcomponents of emotion and disorders: Perspectives from affective neuroscience. In R. J. Davidson, K. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective science* (pp. 8–24). New York: Oxford University Press.

Davidson, R. J., Scherer, K., & Goldsmith, H. H. (2003). *Handbook of affective science*. New York: Oxford University Press.

DePue, R. A., & Collins, P. F. (1999). Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioral and Brain Sciences, 22*, 491–569.

DeSteno, D., Dasgupta, N., Bartlett, M. Y., & Cajdric, A. (2004). Prejudice from thin air: The effect of emotion on automatic intergroup attitudes. *Psychological Science, 15*, 319–324.

DeSteno, D., Petty, R., Wegener, D., & Rucker, D. (2000). Beyond valence in the perception of likelihood: The role of emotion specificity. *Journal of Personality and Social Psychology, 78*, 397–416.

DeSteno, D., Petty, R. E., Rucker, D. D., Wegener, D. T., & Braverman, J. (2004). Discrete emotions and persuasion: The role of emotion-induced expectancies. *Journal of Personality and Social Psychology, 86*, 43–56.

DeSteno, D. A., & Salovey, P. (1996). Jealousy and the characteristics of one's rival: A self-evaluation maintenance perspective. *Personality and Social Psychology, 22*, 920–932.

De Waal, F. B. M. (1996). *Good natured: The origins of right and wrong in humans and other animals*. Cambridge, MA: Harvard University Press.

Diamond, L. M. (2003). What does sexual orientation orient? A biobehavioral model distinguishing romantic love and sexual desire. *Psychological Review, 110*, 173–192.

Dickerson, S. S., Gruenewald, T. L., & Kemeny, M. E. (2004). Immunological effects of induced shame and guilt. *Psychosomatic Medicine, 66*, 124–131.

Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: A theoretical integration and synthesis of laboratory research. *Psychological Bulletin, 130*, 355–391.

Diener, E., Nickerson, C., Lucas, R., & Sandvik, E. (2002). Dispositional affect and job outcomes. *Social Indicators Research, 59*, 229–259.

Dimberg, U., & Öhman, A. (1996). Behold the wrath: Psychophysiological responses to facial stimuli. *Motivation and Emotion, 20*, 149–182.

Dimberg, U., Thunberg, M., & Grunedal, S. (2002). Facial reactions to emotional stimuli: Automatically controlled emotional responses. *Cognition and Emotion, 16*, 449–471.

Eibl-Eibesfeldt, I. (1989). *Human ethology*. New York: Aldine de Gruyter.

Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (Ed.), *Nebraska symposium on motivation, 1971* (pp. 207–283). Lincoln: University of Nebraska Press.

Ekman, P. (1992). Are there basic emotions? *Psychological Review, 99*, 550–553.

Ekman, P. (1993). Facial expression and emotion. *American Psychologist, 48*, 384–392.

Ekman, P. (1994). Strong evidence for universals in facial expressions: A reply to Russell's mistaken critique. *Psychological Bulletin, 115*, 268–287.

Ekman, P. (2004). *Emotions revealed*. New York: Owl Books.

Ekman, P., & Davidson, R. J. (1994). *The nature of emotion*. New York: Oxford University Press.

Ekman, P., Friesen, W., & Ancoli, S. (1980). Facial signs of emotional experience. *Journal of Personality and Social Psychology, 39*, 1125–1134.

Ekman, P., Friesen, W. V., & Ellsworth, P. C. (1982). *Emotion in the human face*. Cambridge, England: Cambridge University Press.

Ekman, P., Levenson, R. W., & Friesen, W. V. (1983). Autonomic nervous system activity distinguishes among emotions. *Science, 221*, 1208–1210.

Elfenbein, H. A., & Ambady, N. (2002). On the universality and cultural specificity of emotion recognition: A meta-analysis. *Psychological Bulletin, 128*, 203–235.

Elias, N. (1939/1978). *The history of manners: The civilization process* (Vol. 1, E. Jephcott, Trans.). New York: Pantheon.

Ellis, B. (1992). The evolution of sexual attraction: Evaluative mechanisms in women. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 267–288). New York: Oxford University Press.

Ellis, B. J., & Malamuth, N. M. (2000). Love and anger in romantic relationships: A discrete systems model. *Journal of Personality, 68*, 525–556.

Ellsworth, P. (1991). Some implications of cognitive appraisal theories of emotion. In K. T. Strongman (Ed.), *International review of studies on emotion* (pp. 143–161). Chichester, England: Wiley.

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

Emmons, R. A., McCullough, M. E., & Tsang, J. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology, 84*, 377–389.

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

Fischer, A.H. (2000). *Gender and emotion: Social psychological perspectives*. New York: Cambridge University Press.

Fischer, A. H., & Manstead, A. S. R. (2008). Social functions of emotion. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 456–470). New York: Guilford Press.

Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist, 48*(6), 621–628.

Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82*, 878–902.

Fivush, R. (1991). Gender and emotion in mother–child conversations about the past. *Journal of Narrative and Life History, 1*, 325–341.

Folkman, S., & Lazarus, R. J. (1989). Coping and emotion. In N. L. Stein, B. Leventhal, & T. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 313–332). Hillsdale, NJ: Erlbaum.

Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*(1), 39–66.

Forgas, J. P. (1998). On being happy and mistaken: Mood effects on the fundamental attribution error. *Journal of Personality and Social Psychology, 75*(2), 318–331.

Forgas, J. (Ed.). (2000). *Feeling and thinking: The role of affect in social cognition*. Cambridge, England: Cambridge University Press.

Forgas, J. P. (2003). Affective influences on attitudes and judgments. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 596–218). New York: Oxford University Press.

Forgas, J. P., & Moylan, S. (1987). After the movies: The effect of mood on social judgments. *Personality and Social Psychology Bulletin, 13*, 465–477.

Francis, D., & Meaney, M. J. (1999). Maternal care and the development of stress responses, *Development, 9*, 128–34.

Frank, R. H. (1988). *Passions within reason: The strategic role of the emotions*. New York: W. W. Norton.

Frank, M., Ekman, P., & Friesen, W. V. (1993). Behavioral markers and recognizability of the smile of enjoyment. *Journal of Personality and Social Psychology, 64*, 83–93.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300–319.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218–226.

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, *95*, 1045–1062.

Fredrickson, B. L., & Kahneman, D. (1993). Duration neglect in retrospective evaluations of affective episodes. *Journal of Personality and Social Psychology, 65*, 45–55.

Fredrickson, B. L., & Levenson, R. W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Cognition and Emotion, 12*, 191–220.

Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. (2003). What good are positive emotions in crises? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology, 84*, 365–376.

Fridlund, A. J. (1992). The behavioral ecology and sociality of human faces. *Review of Personality and Social Psychology, 13*, 90–121.

Friesen, W. V. (1972). *Cultural differences in facial expressions in a social situation: An experimental test of the concept of display rules*. Unpublished doctoral thesis, University of California, San Francisco.

Frijda, N. (1986). *The emotions*. Cambridge, England: Cambridge University Press.

Frijda, N. (1988). The laws of emotion. *American Psychologist, 43*, 349–358.

Frijda, N. H., Kuipers, P., & ter Schure, E. (1989). Relations among emotion, appraisal, and action readiness. *Journal of Personality and Social Psychology, 57*(2), 212–228.

Frijda, N. H., & Mesquita, B. (1994). The social roles and functions of emotions. In S. Kitayama & H. Marcus (Ed.), *Emotion and culture: Empirical studies of mutual influence* (pp. 51–87). Washington, DC: American Psychological Association.

Galinsky, A. D., Magee, J. C., Inesi, M. E., & Gruenfeld, D. H. (2006). Power and perspectives not taken. *Psychological Science, 17*, 1068–1074.

Gazzaniga, M. S. (1985). *The social brain*. New York: Basic Books.

Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. (1998). Immune neglect: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology, 75*, 617–638.

Gilbert, D. T., Lieberman, M. D., Morewedge, C. K., & Wilson, T. D. (2004). The peculiar longevity of things not so bad. *Psychological Science, 15*, 14–19.

Goetz, J., & Keltner, D. (2008). Cultural variation in self-conscious emotion. In J. Tangney, R. Robins, & J. Tracy (Eds.), *Handbook of self-conscious emotions*. New York: Guilford.

Gonzaga, G. C., Keltner, D., Londahl, E. A., & Smith, M. D. (2001). Love and the commitment problem in romantic relationships and friendship. *Journal of Personality and Social Psychology, 81*, 247–262.

Gonzaga, G. C., Keltner, D., & Ward, D. (2008). Power in mixed-sex interactions. *Cognition and Emotion, 22*, 1555–1568.

Gonzaga, G. C., Turner, R. A., Keltner, D., Campos, B., & Altemus, M. (2006). Romantic love and sexual desire in close bonds. *Emotion, 6*, 163–179.

Gonzalez, R., & Griffin, D. (1997). On the statistics of interdependence: Treating dyadic data with respect. In S. Duck (Ed.), *Handbook of personal relationships: Theory, research, and interventions* (2nd ed., pp. 271–302). Chichester, England: Wiley.

Gottman, G. (1993). *Why marriages succeed or fail*. New York: Simon and Schuster.

Greene, J., & Haidt, J. (2002). How (and where) does moral judgment work? *Trends in Cognitive Sciences, 6*, 517–523.

Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI study of emotional engagement in moral judgment. *Science, 293*, 2105–2108.

Griffin, D. (1994). *Satire: A critical reintroduction*. Lexington: University of Kentucky Press.

Gross, J. J. (1998). Antecedent-and-response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74*, 224–237.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*, 348–362.

Gross, J. J., Sutton, S. K., & Ketelaar, T. (1998). Relations between affect and personality: Support for the affect-level and affective-reactivity views. *Personality and Social Psychology Bulletin, 24*(3), 279.

Gruber, J., Johnson, S. L., Oveis, C., & Keltner, D. (2008). Risk for mania and positive emotional responding: Too much of a good thing? *Emotion, 8*, 23–33.

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review, 108*, 814–834.

Haidt, J. (2003). The moral emotions. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 852–870). Oxford: Oxford University Press.

Haidt, J. (2007). The new synthesis in moral psychology. *Science, 316*, 998–1002.

Haidt, J., & Hersh, M. (2001). Sexual morality: The cultures and emotions of conservatives and liberals. *Journal of Applied Social Psychology, 31*, 191–221.

Haidt, J., & Keltner, D. (1999). Culture and facial expression: Open-ended methods find more faces and a gradient of recognition. *Cognition and Emotion, 13*, 225–266.

Haidt, J., Koller, S. H., & Dias, M. G. (1993). Affect, culture, and morality, or is it wrong to eat your dog? *Journal of Personality and Social Psychology, 65*, 613–628.

Haidt, J., McCauley, C. R., & Rozin, P. (1994). Individual differences in sensitivity to disgust: A scale sampling seven domains of disgust elicitors. *Personality and Individual Differences, 16*, 701–713.

Hall, J. A., Carter, J. D., & Horgan, T. G. (2000). Gender differences in nonverbal communication of emotion. In A. Fischer (Ed.), *Gender and emotion: Social psychological perspectives* (pp. 97–117). New York: Cambridge University Press.

Hall, J. A., Coats, E. J., & LeBeau, L. S. (2005). Nonverbal behavior and the vertical dimension of social relations: A meta-analysis. *Psychological Bulletin, 131*(6), 898–924.

Han, S., Lerner, J. S., & Keltner, D. (2007). Feelings and consumer decision making: The appraisal-tendency framework. *Journal of Consumer Psychology. 17*, 158–168.

Han, S., Lerner, J. S., & Zeckhauser, R. (2008). *Disgust promotes disposal: Souring the status quo*. Manuscript under review.

Harker, L. A., & Keltner, D. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology, 80*, 112–124.

Harmon-Jones, E., Sigelman, J. D., Bohlig, A., & Harmon-Jones, C. (2003). Anger, coping, and frontal cortical activity: The effect of coping potential on anger-induced left frontal activity. *Cognition and Emotion, 17*, 1–24.

Harris, C. R. (2001). Cardiovascular responses of embarrassment and effects of emotional suppression in a social setting. *Journal of Personality and Social Psychology, 81*, 886–897.

Harris, C. R. (2003). A review of sex differences in sexual jealousy, including self-report data, psychophysiological responses, interpersonal violence, and morbid jealousy. *Personality and Social Psychology Review, 7*, 102–128.

Harris, C. R., & Christenfeld, N. (1996). Gender, jealousy, and reason. *Psychological Science, 7*, 364–366.

Hart, A. J. Whalen, P. J., Shin, L. M., McInerney, S. C., Fischer, H., & Rausch, S. L. (2000). Differential response of the human amygdala to racial outgroup vs. ingroup face stimuli. *NeuroReport, 11*, 2351–2354.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). *Emotional contagion*. Cambridge, England: Cambridge University Press.

Hauser, M. D. (1996). *The evolution of communication*. Cambridge, MA: MIT Press.

Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511–524.

Heath, C., Bell, C., & Sternberg, E. (2001). Emotional selection in memes: The case of urban legends. *Journal of Personality & Social Psychology, 81*, 1028–1041.

Hecht, D. B., Inderbitzen, H. M., & Bukowski, A. L. (1998). The relationship between peer status and depressive symptoms in children and adolescents. *Journal of Abnormal Child Psychology, 26*, 153–160.

Hecht, M., & LaFrance, M. (1998). License or obligation to smile: The effect of power and sex on amount and type of smiling. *Personality and Social Psychology Bulletin, 24*, 1332–1342.

Hejmadi, A., Davidson, R. J., & Rozin, P. (2000). Exploring Hindu Indian emotion expressions: Evidence for accurate recognition by Americans and Indians. *Psychological Science, 11*, 183–187.

Hertenstein, M. J. (2002). Touch: Its communicative functions in infancy. *Human Development, 45*, 70–94.

Hertenstein, M. J., Keltner, D., App, B., Bulleit, B. A., & Jaskolka, A. R. (2006). Touch communicates distinct emotions. *Emotion, 6*, 528–533.

Hertenstein, M. J., Verkamp, J. M., Kerestes, A. M., & Holmes, R. M. (2006). The communicative functions of touch in humans, nonhuman primates, and rats: A review and synthesis of the empirical research. *Genetic, Social, and General Psychology Monographs, 132*, 5–94.

Hess, U., Banse, R., & Kappas, A. (1995). The intensity of facial expression is determined by underlying affective states and social situations. *Journal of Personality and Social Psychology, 69*, 280–288.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280–1300.

Hochschild, A. R. (1983). *The managed heart: Commercialization of human feeling*. Berkeley: University of California Press.

Hochschild, A. R. (1990). Ideology and emotion management. In T. D. Kemper (Ed.), *Research agendas in the sociology of emotions* (pp. 117–142). Albany: State University of New York Press.

Holman, S. D., & Goy, R. D. (1995). Experiential and hormonal correlates of care-giving in Rhesus macaques. In C. R. Pryce & R. D. Martin (Eds.), *Motherhood in human and nonhuman primates: Biosocial determinants* (pp. 87–93). Basel: Karger.

Hupka, R. B. (1991). The motive for the arousal of romantic jealousy: Its cultural origin. In P. Salovey (Ed.), *The psychology of jealousy and envy* (pp. 252–270). New York: Guilford.

Hume, D. (1739/1978). *A Treatise of Human Nature*. Oxford: Oxford University Press.

Huron, D. (2006). *Sweet anticipation and the psychology of expectation*. Cambridge, MA: MIT Press.

Insel, T. R. (1993). Oxytocin and the neuroendocrine basis of affiliation. In J. Schulkin (Ed.), *Hormonally induced changes in mind and brain* (pp. 225–251). San Diego: Academic Press.

Insel, T. R., Young, L., & Zuoxin, W. (1997). Molecular aspects of monogamy. In C. S. Carter & I. I. Lederhendler (Eds.), *Annals of the New York Academy of Sciences* (Vol. 807, pp. 302–316). New York: New York Academy of Sciences.

Isen, A. M. (1987). Positive affect, cognitive processes and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 203–253). New York: Academic Press.

Ishii, K., Reyes, J. A., & Kitayama, S. (2003). Spontaneous attention to word content versus emotional tone: Differences among three cultures. *Psychological Science, 14*, 39–46.

Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology, 75*, 887–900.

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

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

James, W. (1884). What is an emotion? *Mind, 9*, 188–205.

Janig, W. (2003). The autonomic nervous system and its coordination by the brain. In R. Davidson, K. Scherer, & H. Goldsmith (Eds.), *Handbook of Affective Science* (pp. 135–186). London: Oxford University Press.

Johnson, K. J., & Fredrickson, B. L. (2005). "We all look the same to me": Positive emotions eliminate the own-race bias in face recognition. *Psychological Science, 16*, 875–881.

Johnson-Laird, P. N., & Oatley, K. (1989). The language of emotions: An analysis of a semantic field. *Cognition and Emotion, 3*, 81–123.

Juslin, P. N., & Laukka, P. (2003). Communication of emotions in vocal expression and music performance: Different channels, same code? *Psychological Bulletin, 129*, 770–814.

Kahneman, D. (1999). Objective happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Hedonic psychology*. New York: Cambridge University Press.

Kant. I. (1960). *Observations on the feeling of the beautiful and the sublime*. J. T. Goldthwait (Trans.). Berkeley: University of California Press.

Keltner, D. (1995). The signs of appeasement: Evidence for the distinct displays of embarrassment, amusement, and shame. *Journal of Personality and Social Psychology, 68*, 441–454.

Keltner, D. (2009). *Born to be good: The science of a meaningful life*. New York: W. W. Norton.

Keltner, D., & Bonanno, G. A. (1997). A study of laughter and dissociation: The distinct correlates of laughter and smiling during bereavement. *Journal of Personality and Social Psychology, 73*, 687–702.

Keltner, D., & Buswell, B. N. (1996). Evidence for the distinctness of embarrassment, shame, and guilt: A study of recalled antecedents and facial expressions of emotion. *Cognition and Emotion, 10*(2), 155–171.

Keltner, D., & Buswell, B. N. (1997). Embarrassment: Its distinct form and appeasement functions. *Psychological Bulletin, 122*, 250–270.

Keltner, D., Ekman, P., Gonzaga, G. C., & Beer, J. (2003). Facial expression of emotion. In R. Davidson, K. Scherer, & H. Goldsmith (Eds.), *Handbook of affective science* (pp. 415–432). London: Oxford University Press.

Keltner, D., Ellsworth, P. C., & Edwards, K. (1993). Beyond simple pessimism: Effects of sadness and anger on social perception. *Journal of Personality and Social Psychology, 64*, 740–752.

Keltner, D., & Gross, J. J. (1999). Functional accounts of emotions. *Cognition and Emotion, 13*, 467–480.

Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*(2), 265–284.

Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition and Emotion, 13*, 505–521.

Keltner, D., & Haidt, J. (2001). Social functions of emotions. In T. Mayne & G. Bonanno (Eds.), *Emotions: Current issues and future directions* (pp. 192–213). New York: Guilford.

Keltner, D., & Haidt, J. (2003). Approaching awe, a moral, spiritual, and aesthetic emotion. *Cognition and Emotion, 17*(2), 297–314.

Keltner, D., & Kring, A. M. (1998). Emotion, social function, and psychopathology. *Review of General Psychology, 2*, 320–342.

Keltner, D., Locke, K. D., & Audrain, P. C. (1993). The influence of attributions on the relevance of negative emotions to personal satisfaction. *Personality and Social Psychology Bulletin, 19*, 21–29.

Keltner, D., Van Kleef, G. A., Chen, S., & Kraus, M. W. (2008). A reciprocal influence model of social power: Emerging principles and lines of inquiry. *Advances in Experimental Social Psychology, 40*, 151–192.

Keltner, D., Young, R. C., Oemig, C., Heerey, E., & Monarch, N. D. (1998). Teasing in hierarchical and intimate relations. *Journal of Personality and Social Psychology, 75*, 1231–1247.

Kemeny, M. E., & Shestyuk, A. (2008). Emotions, the neuroendocrine and immune systems, and health. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 661–675). New York: Guilford Press.

Ketelaar, T. (2004). Ancestral Emotions, current decisions: Using evolutionary game theory to explore the role of emotions in decision-making. In Crawford, C. & Salmon, C. (Eds), *Evolutionary psychology, public policy and personal decisions*, (pp. 145–168). Mahwah, NJ: Erlbaum.

Kettunen, J., Ravaja, N., Naatanen, P., & Keltikangas-Jarvinen, L. (2000). The relationship of respiratory sinus arrhythmia to the co-activation of autonomic and facial responses during the Rorschach test. *Psychophysiology, 37*, 242–250.

Kitayama, S., Karasawa, M., & Mesquita, B. (2003). Collective and personal processes in regulating emotions: Emotion and self in Japan and the United States. In P. Philipott & R. S. Feldman (Eds.), *The regulation of emotion*. Hillsdale, NJ: Erlbaum.

Kitayama, S., Markus, H. R., & Kurokawa, M. (2000). Culture, emotions, and well-being: Good feelings in Japan and the United States. *Cognition and Emotion, 14*, 93–124.

Knutson, B. (1996). Facial expressions of emotion influence interpersonal trait inferences. *Journal of Nonverbal Behavior, 20*, 165–182.

Konner, M. (2003). *The tangled wing: Biological constraints on the human spirit*. New York: Holt.

Kosfeld, M., Heinrichs, M., Zak, P. J., Fishbacher, U., & Fehr, E. (2005). Oxytocin increases trust in humans. *Nature, 435*, 673–76.

Kövesces, Z. (2002). *Metaphor*. Oxford: Oxford University Press.

Kraut, R. E., & Johnson, R. E. (1979). Social and emotional messages of smiling: An ethological approach. *Journal of Personality and Social Psychology, 37*, 1539–1553.

Krebs, J. R., & Davies, N. B. (1993). *An introduction to behavioural ecology*. Oxford: Blackwell.

Kring, A. M. (2008). Emotion disturbances as transdiagnostic processes in psychopathology. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 691–705). New York: Guilford Press.

Kurzban, R. (2001). The social psychophysics of cooperation: Nonverbal communication in a public goods game. *Journal of Nonverbal Behavior, 25*, 241–259.

LaFrance, M., & Banaji, M. (1992). Towards a reconsideration of the gender–emotion relationship. In M. S. Clark (Ed.), *Emotion and social behavior: Review of personality and social psychology* (Vol. 14). Newbury Park, CA: Sage.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: Chicago University Press.

Lambie, J., & Marcel, A. J. (2002). Consciousness and emotion experience: A theoretical framework. *Psychological Review, 109*, 219–259.

Lang, P. J., Greenwald, M. K., Bradley, M. M., & Hamm, A. O. (1993). Looking at pictures: Affective, facial, visceral, and behavioral reactions. *Psychophysiology, 30*, 261–273.

Langner, C. A., & Keltner, D. (2008). Social power and emotional experience: Actor and partner effects within dyadic interactions. *Journal of Experimental Social Psychology, 44*, 848–856.

Larsen, J. T., Berntson, G. G., Poehlmann, K. M., Ito, T. A., & Cacioppo, J. T. (2008). The psychophysiology of emotion. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 180–195). New York: Guilford Press.

Larsen, J. T., McGraw, A. P., Mellers, B. A., & Cacioppo, J. T. (2004). The agony of victory and the thrill of defeat: Mixed emotional reactions to disappointing wins and relieving losses. *Psychological Science, 15*, 325–330.

Larsen, R. J., & Ketelaar, T. (1989). Extraversion, neuroticism, and susceptibility to positive and negative mood induction procedures. *Personality and Individual Differences, 10*(12), 1221–1228.

Lawler, K. A., Younger, J. W., Piferi, R. L., Billington, E., Jobe, R., Edmondson, K., & Jones, W. H. (2003). A change of heart: Cardiovascular correlates of forgiveness in response to interpersonal conflict. *Journal of Behavioral Medicine, 26*, 373–393.

Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.

Leary, M. R., Britt, T. W., Cutlip, W. D., II, & Templeton, J. L. (1992). Social blushing. *Psychological Bulletin, 112*, 446–460.

LeDoux, J. (1996). *The emotional brain*. New York: Simon & Schuster.

Lerner, J. S., Dahl, R. E., Hariri, A. R., & Taylor, S. E. (2007). Facial expressions of emotion reveal neuroendocrine and cardiovascular stress responses. *Biological Psychiatry, 61*, 253–260.

Lerner, J. S., Goldberg, J. H., & Tetlock, P. E. (1998). Sober second thoughts: The effects of accountability, anger, and authoritarianism on attributions of responsibility. *Personality and Social Psychology Bulletin, 24*, 563–574.

Lerner, J. S., Gonzalez, R. M., Small, D. A., & Fischoff, B. (2003). Effects of fear and anger on perceived risks of terrorism: A national field experiment. *Psychological Science, 14*, 144–150.

Lerner, J. S., & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgment and choice. *Cognition and Emotion, 14*, 473–493.

Lerner, J. S., & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology, 81*(1), 146–159.

Lerner, J. S., Small, D. A., & Loewenstein, G. (2004). Heart strings and purse strings: Carry-over effects of emotions on economic transactions. *Psychological Science, 15*, 337–341.

Lerner, J. S., & Tiedens, L. Z. (2006). Portrait of the angry decision maker: How appraisal tendencies shape anger's influence on cognition. *Journal of Behavioral Decision Making, 19*, 115–137.

Levenson, R. W. (1992). Autonomic nervous system differences among emotions. *Psychological Science, 3*, 23–27.

Levenson, R. W. (1999). The intrapersonal functions of emotion. *Cognition and Emotion, 13*(5), 481–504.

Levenson, R. W. (2003). Autonomic specificity and emotion. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 212–224). New York: Oxford University Press.

Levenson, R. W., Ekman, P., & Friesen, W. V. (1990). Voluntary facial activity generates emotion-specific autonomic nervous system activity. *Psychophysiology, 27*, 363–384.

Levesque, J., Eugene, F., Joanette, U., Paquette, V., Mensour, B., Beaudoin, G., Leroux, J. M., Bourgouin, P., & Beauregard, M. (2003). Neural circuitry underlying voluntary suppression of sadness. *Biological Psychiatry, 53*, 502–510.

Levine, L., & Pizarro, D. (2004). Emotion and memory research: A grumpy overview. *Social Cognition, 22*, 530–554.

Levine, L. J., & Safer, M. A. (2002). Sources of bias in memory for emotions. *Current Directions in Psychological Science, 11*, 169–173.

Li, J., Wang, L., & Fischer, K. W. (2004). The organization of Chinese shame concepts. *Cognition and Emotion, 18*(6), 767–797.

Link, B. G., Lennon, M. C., & Dohrenwend, B. P. (1993). Sociometric status and depression: The role of occupations involving direction, control, and planning. *American Journal of Sociology, 98*, 1351–1387.

Loewenstein, G., & Lerner, J. S. (2003). The role of affect in decision making. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 619–642). New York: Oxford University Press.

Lucas, R. E., & Diener, E. (2008). Subjective well-being. In. M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 471–484). New York: Guilford Press.

Lutz, C. A. (1988). *Unnatural emotions: Everyday sentiments on a Micronesian atoll and their challenge to Western theory*. Chicago: University of Chicago Press.

Lutz, C. (1990). Engendered emotion: Gender, power, and the rhetoric of emotional control in American discourse. In C. A. Lutz & L. Abu-Lughod (Eds.), *Language and the politics of emotion* (pp. 69–91). New York: Cambridge University Press.

Lutz, C., & White, G. M. (1986). The anthropology of emotions. *Annual Review of Anthropology, 15*, 405–436.

Lyubomirsky, S. (2007). *The how of happiness*. New York: Penguin Press.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin, 131*, 803–855.

Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology, 69*, 176–190.

Mackie, D. M., Devos, T., & Smith, E. R. (2000). Intergroup emotions: Explaining offensive action tendencies in an intergroup context. *Journal of Personality and Social Psychology, 79*, 602–616.

Mackie, D. M., Silver, L. A., & Smith, E. R. (2004). Intergroup emotions: Emotion as an intergroup phenomenon. In L. Z. Tiedens & C. W. Leach (Eds.), *The social life of emotions* (pp. 227–246). New York: Cambridge University Press.

Malatesta, C. Z. (1990). The role of emotions in the development and organization of personality. In R. A. Thompson (Ed.), *Nebraska symposium on motivation: Vol. 36. Socioemotional development* (pp. 1–56). Lincoln: University of Nebraska Press.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253.

Markus, H. R., & Kitayama, S. (1994). The cultural construction of self and emotion: Implications for social behavior. In S. Kitayama & H. R. Markus (Eds.), *Emotion and culture: Empirical studies of mutual influence* (pp. 89–130). Washington, DC: American Psychological Association.

Martin, L. L. (2000). Moods do not convey information: Moods in context do. In J. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition* (pp. 153–177). New York: Cambridge University Press.

Mathews, A. (1993). Biases in emotional processing. *The Psychologist: Bulletin of the British Psychological Society, 6*, 493–499.

Mathews, A., & Klug, F. (1993). Emotionality and interference with color-naming in anxiety. *Behavior Research and Therapy, 29*, 147–160.

Mathews, A., & MacLeod, C. (1994). Cognitive approaches to emotion and emotional disorders. *Annual Review of Psychology, 45*, 25–50.

Matsumoto, D. (1987). The role of facial response in the experience of emotion: More methodological problems and a meta-analysis. *Journal of Personality & Social Psychology, 52*(4), 769–774.

Matsumoto, D. (1989). Cultural influences on the perception of emotion. *Journal of Cross-Cultural Psychology, 20*(1), 92–105.

Matsumoto, D. (1990). Cultural similarities and differences in display rules. *Motivation & Emotion, 14*(3), 195–214.

Matsumoto, D., Keltner, D., Shiota, M. N., O'Sullivan, & Frank, M. (2008). Facial expressions of emotion. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 211–234). New York: Guilford Press.

Matsumoto, D., & Willingham, B. (2006). The thrill of victory and the agony of defeat: Spontaneous expressions of medal winners of the 2004 Athens Olympic Games. *Journal of Personality and Social Psychology, 91* (3), 568–581.

Matsumoto, D., Hee Yoo, S., Nakagawa, S., & 27 members of the multinational study of cultural display rules (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psycholo, 94*, 925–927.*y*.

Mauro, R., Sato, K., & Tucker, J. (1992). The role of appraisal in human emotions: A cross-cultural study. *Journal of Personality and Social Psychology, 62*(2), 301–317.

Mauss, I. B., Levenson, R. W., McCarter, L., Wilhelm, F. H., & Gross, J. J. (2005). The tie that binds? Coherence among emotional experience, behavior, and autonomic physiology. *Emotion, 5*, 175–190.

McCullough, M. E., Emmons, R. A., & Tsang, J.-A. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology, 82*, 112–127.

McCullough, M. E., Kilpatrick, S. D., Emmons, R. A., & Larson, D. B. (2001). Is gratitude a moral affect? *Psychological Bulletin, 127*, 249–266.

McFarland, C., & Ross, M. (1987). The relation between current impressions and memories of self and dating partners. *Personality and Social Psychology Bulletin, 13*, 228–238.

McMahin, D. M. (2006). *Happiness: A history*. New York: Grove Press, 2006.

Mesquita, B. (2001). Culture and emotion: Different approaches to the question. In T. J. Mayne & G. A. Bonanno (Eds.), *Emotions: Current issues and future directions. Emotions and social behavior*. (pp. 214– 250).New York: Guilford.

Mesquita, B. (2003). Emotions as dynamic cultural phenomena. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 871–890). New York: Oxford University Press.

Mesquita, B., & Ellsworth, P. C. (2001). The role of culture in appraisal. In K. R. Scherer & A. Schorr (Eds.), *Appraisal processes in emotion: Theory, methods, research*. New York: Oxford University Press.

Mesquita, B., & Frijda, N. (1992). Cultural variations in emotions: A review. *Psychological Bulletin, 112*, 179–204.

Miller, R. S. (1987). Empathic embarrassment: Situational and personal determinants of reactions to the embarrassment of another. *Journal of Personality and Social Psychology, 53*, 1061–1069.

Miller, R. S. (1992). The nature and severity of self-reported embarrassing circumstances. *Personality and Social Psychology Bulletin, 18*, 190–198.

Miller, R. S. (1995). On the nature of embarrassability: Shyness, social-evaluation, and social skill. *Journal of Personality, 63*, 315–339.

Miller, R. S. (1996). *Embarrassment: Poise and peril in everyday life*. New York: The Guilford Press.

Miller, R. S. (2004). Emotion as adaptive interpersonal communication: The case of embarrassment. In L. Z. Tiedens & C. W. Leach (Eds.), *The social life of emotions* (pp. 87–104). New York: Cambridge University Press.

Miller, R. S., & Leary, M. R. (1992). Social sources and interactive functions of embarrassment. In M. Clark (Ed.), *Emotion and social behavior* (pp. 322–339). New York: Sage.

Miller, R. S., & Tangney, J. P. (1994). Differentiating embarrassment from shame. *Journal of Social and Clinical Psychology, 13*, 273–287.

Mineka, S., Rafaeli, E., & Yovel, I. (2003). Cognitive biases in emotional disorders: Information processing and social-cognitive perspectives. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 976–1009). New York: Oxford University Press.

Mineka, S., & Sutton, S. K. (1992). Cognitive biases and the emotional disorders. *Psychological Science, 3*, 65–69.

Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structures. *Psychological Review, 102*, 246–268.

Morberg, K. U. (2003). *The oxytocin factor*. Cambridge, MA: De Capo, 2003.

Morris, M. W., & Peng, K. (1994). Culture and cause: American and Chinese attributions for social and physical events. *Journal of Personality and Social Psychology, 67*, 949–971.

Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology, 58*, 519–527.

Moskowitz, D. S. (1994). Cross-situational generality and the interpersonal circumplex. *Journal of Personality and Social Psychology, 66*, 921–933.

Murphy, M. R., Seckl, J. R., Burton, S., Checkley, S. A., & Lightman, S. L. (1987). Changes in oxytocin and vasopressin secretion during sexual activity in men. *Journal of Clinical Endocrinology and Metabolism, 65*(4), 738–742.

Murphy, S. T., & Zajonc, R. B. (1993). Affect, cognition, and awareness: Affective priming with optimal and suboptimal stimulus exposures. *Journal of Personality and Social Psychology, 64*, 723–739.

Nelson, E. E., & Panksepp, J. (1996). Oxytocin mediates acquisition of maternally associated odor preferences in pre-weaning rat pups. *Behavioral Neuroscience, 110*(3), 583–592.

Nesse, R. M. (1990). Evolutionary explanation of emotions. *Human Nature, 1*(3), 261–289.

Niedenthal, P. M. (2008). Emotion concepts. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 587–600). New York: Guilford Press.

Niedenthal, P. M., Barsalou, L. W., Winkielman, P., Krauth-Gruber, S., & Ric, F. (2005). Embodiment in attitudes, social perception, and emotion. *Personality and Social Psychology Review, 9*, 184–211.

Niedenthal, P. M., & Halberstadt, J. H. (2000). Grounding categories in emotional response. In J. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition* (pp. 357–386). New York: Cambridge University Press.

Niedenthal, P. M., & Setterlund, M. B. (1994). Emotion congruence in perception. *Personality and Social Psychology Bulletin, 20*, 401–411.

Nussbaum, M. (1996). Compassion: The basic social emotion. *Social Philosophy and Policy, 13*, 27–58.

Nussbaum, M. (2001). *Upheavals of thought: The intelligence of emotions*. New York: Cambridge University Press.

Oatley, K. (1993). Social construction in emotion. In M. Lewis & J. Haviland (Eds.), *Handbook of emotions* (pp. 342–352). New York: Guilford Press.

Oatley, K. (2003). Creative expression and communication of emotions in the visual and narrative arts. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 481–502). New York: Oxford University Press.

Oatley, K. (2004). *Emotions: A brief history*. Malden, MA: Blackwell.

Oatley, K., & Jenkins, J. M. (1992). Human emotions: Function and dysfunction. *Annual Review of Psychology, 43*, 55–85.

Oatley, K., & Johnson-Laird, P. N. (1987). Towards a cognitive theory of emotions. *Cognition and Emotion, 1*, 29–50.

Oatley, K., & Johnson-Laird, P. N. (1996). The communicative theory of emotions: empirical tests, mental models, and implications for social interaction. In L. L. Martin & A. Tesser (Eds.), *Striving and feeling: Interactions among goals, affect, and self-regulation* (pp. 363–393). Mahwah, NJ: Erlbaum.

Oatley, K., Keltner, D., & Jenkins, J. M. (2006). *Understanding emotions* (2nd ed.). Oxford: Blackwell.

Ochsner, K. N. (2008). The social–emotional processing stream: Five core constructs and their translational potential for schizophrenia and beyond. *Biological Psychiatry, 64*(1), 48–61.

Öhman, A. (1986). Face the beast and fear the face: Animal and social fears as prototypes for evolutionary analysis of emotions. *Psychophysiology, 23*, 123–145.

Öhman, A., & Dimberg, U. (1978). Facial expressions as conditioned stimuli for electrodermal responses: A case of "preparedness?" *Journal of Personality and Social Psychology, 36*, 1251–1258.

Öhman, A., & Soares, J. J. F. (1994). "Unconscious anxiety": Phobic responses to masked stimuli. *Journal of Abnormal Psychology, 103*, 231–240.

Ortony, A., Clore, G., & Collins, A. (1988). *The cognitive structure of emotions*. New York: Cambridge University Press.

Ortony, A., & Turner, T. J. (1990). What's basic about basic emotions? *Psychological Review, 74*, 431–461.

Oveis, C., Cohen, A. B., Gruber, J., Shiota, M. N., Haidt, J., & Keltner, D. (2009). Respiratory sinus arrhythmia is associated with tonic but not phasic positive emotionality. *Emotion, 9*, 265–270.

Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*. New York: Oxford University Press.

Parkinson, B., & Manstead, A. S. R. (1992). Appraisal as a cause of emotion. In M. S. Clark (Ed.), *Emotion*. Newbury Park, CA: Sage.

Parr, L. (2003). The discrimination of faces and their emotional content by chimpanzees (pan troglodytes). In P. Ekman, J. J. Campos, R. J. Davidson, & F. B. M. De Waal (Eds.), *Emotions inside out: 130 years after Darwin's "The expression of the emotions in man and animals"* (pp. 56–78). New York: New York Academy of Science.

Parrott, W. G., & Smith, S. F. (1991). Embarrassment: Actual vs. typical cases and classical vs. prototypical representations. *Cognition and Emotion, 5*, 467–488.

Pennebaker, J. W. (1989). Confession, inhibition, and disease. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 22, pp. 211–244). San Diego: Academic Press.

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8*, 162–166.

Pennebaker, J. W., Mehl, M. R., & Niederhoffer, K. G. (2003). Psychological aspects of natural language use: Our words, our selves. *Annual Review of Psychology, 54*, 547–577.

Pennebaker, J. W., & Seagal, J. D. (1999). Forming a story: The health benefits of narrative. *Journal of Clinical Psychology, 55*, 1243–1254.

Phan, K. L., Wager, T. D., Taylor, S. F., & Liberzon, I. (2004). Functional neuroimaging studies of human emotions. *CNS Spectrum, 9*(4), 258–266.

Phelps, E. (2006). Emotion and cognition: Insights from studies of the human amygdala. *Annual Review of Psychology, 56*, 27–53.

Plant, A., Hyde, J. S., Keltner, D., & Devine, P. D. (2000). The gender stereotyping of emotions. *Psychology of Women Quarterly, 24*, 80–91.

Porges, S. (1998). Love: An emergent property of the mammalian autonomic nervous system. *Psychoendocrinology, 23*, 837–861.

Preuschoft, S. (1992). "Laughter" and "smile" in Barbary macaques *(Macaca sylvanus). Ethology, 91*, 220–236.

Provine, R. R. (1992). Contagious laughter: Laughter is a sufficient stimulus for laughs and smiles. *Bulletin of the Psychonomic Society, 30*, 1–4.

Quigley, B., & Tedeschi, J. (1996). Mediating effects of blame attributions on feelings of anger. *Personality and Social Psychology Bulletin, 22*, 1280–1288.

Raghunathan, R., & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior & Human Decision Processes, 79*, 56–77.

Reeve, J. (1989). The interest–enjoyment distinction in intrinsic motivation. *Motivation and Emotion, 13*, 83–103.

Reisenzein, R. (1983). The Schachter theory of emotion: Two decades later. *Psychological Bulletin, 94,* 239–264.

Rimé, B., Finkenauer, C., Luminet, O., Zech, E., & Philippot, P. (1998). Social sharing of emotion: New evidence and new questions. *European Review of Social Psychology, 9,* 145–189.

Rimé, B., Mesquita, B., Philippot, P., & Boca, S. (1991). Beyond the emotional event: Six studies on the social sharing of emotions. *Cognition and Emotion, 5,* 435–465.

Roberts, T. A., & Pennebaker, J. W. (1995). Gender differences in perceiving internal state: Toward a his-and-hers model of perceptual cue use. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 27, pp. 143–176). New York: Academic Press.

Rodriguez Mosquera, P. M., Fischer, A. H., & Manstead, A. S. R. (2000). The role of honor-related values in the elicitation, experience, and communication of pride, shame, and anger: Spain and the Netherlands compared. *Personality and Social Psychology Bulletin, 26,* 833–844.

Rodriguez Mosquera, P. M., Fischer, A. H., & Manstead, A. S. R. (2004). Inside the heart of emotion: On culture and relational concerns. In L. Z. Tiedens & C. W. Leach, *The social life of emotions* (pp. 187–202). New York: Cambridge University Press.

Rolls, E. T. (2000). The orbitofrontal cortex and reward. *Cerebral Cortex, 10,* 284–294.

Romney, A. K., Moore, C. C., & Rusch, C. D. (1997). Cultural universals: Measuring the semantic structure of emotion terms in English and Japanese. *Proceedings of the National Academy of Sciences, 94,* 5489–5494.

Rosch, E. H. (1973). Natural categories. *Cognitive Psychology, 4,* 328–350.

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* (Vol. 5, pp. 11–36). Beverly Hills, CA: Sage.

Roseman, I. J. (1991). Appraisal determinants of discrete emotions. *Cognition and Emotion, 5,* 161–200.

Roseman, I. J., Spindel, M. S., & Jose, P. E. (1990). Appraisals of emotion-eliciting events: Testing a theory of discrete emotions. *Journal of Personality and Social Psychology, 59,* 899–915.

Roseman, I. J., Wiest, C., & Swartz, T. (1994). Phenomenology, behaviors, and goals differentiate discrete emotions. *Journal of Personality and Social Psychology, 67,* 206–221.

Rosenberg, E. L. (1998). Levels of analysis and the organization of affect. *Review of General Psychology, 2,* 247–270.

Rottenberg, J., & Johnson, S. L. (Eds.). (2007). *Emotion and psychopathology: Bridging affective and clinical science.* Washington, DC: American Psychological Association.

Rozin, P. (1996). Towards a psychology of food and eating: From motivation to module to model to marker, morality, meaning, and metaphor. *Current Directions in Psychological Science, 5,* 18–24.

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

Rozin, P., Haidt, J., & McCauley, C. R. (2000). Disgust. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (2nd ed., pp. 637–653). New York: Guilford Press.

Rozin, P., Lowery, L., Imada, S., & Haidt, J. (1999). The CAD triad hypothesis: A mapping between three moral emotions (contempt, anger, disgust) and three moral codes (community, autonomy, divinity). *Journal of Personality and Social Psychology, 76,* 574–586.

Rozin, P., & Singh, L. (1999). The moralization of cigarette smoking in America. *Journal of Consumer Behavior, 8,* 321–337.

Ruch, W. (1993). Exhilaration and humor. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 605–616). New York: Guilford Publications.

Ruch, W. (1995). Will the real relationship between facial expression and affective experience stand up: The case of exhilaration. *Cognition & Emotion, 9,* 33–58.

Rudolph, U., Roesch, S. C., Greitemeyer, T., & Weiner, B. (2004). A meta-analytic review of help giving and aggression from an attributional perspective: Contributions to a general theory of motivation. *Cognition & Emotion, 18,* 815–848.

Russell, J. A. (1991). Culture and the categorization of emotions. *Psychological Bulletin, 110,* 426–450.

Russell, J. A. (1994). Is there universal recognition of emotion from facial expression? A review of methods and studies. *Psychological Bulletin, 115,* 102–141.

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

Safer, M. A., Bonanno, G. A., & Field, N. P. (2001). It was never that bad: Biased recall of grief and long-term adjustment to the death of a spouse. *Memory, 9,* 195–204.

Salovey, P. (1991). *The psychology of jealousy and envy.* New York: Guilford.

Sartre, J. P. (1957). *Existentialism and human emotions.*

Sauter, D. A., & Scott, S. K. (2007). More than one kind of happiness: Can we recognize vocal expressions of different positive states? *Motivation and Emotion, 31,* 192–199.

Schachter, S., & Singer, J. (1962). Cognitive, social and physiological determinants of emotional state. *Psychological Review, 69,* 379–399.

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

Scherer, K. R. (1997). The role of culture in emotion antecedent appraisal. *Journal of Personality and Social Psychology, 73,* 902–922.

Scherer, K. R., Johnstone, T., & Klasmeyer, G. (2003). Vocal expression of emotion. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective science* (pp. 433–456). New York: Oxford University Press.

Scherer, K. R., & Wallbott, H. B. (1994). Evidence for universality and cultural variation of differential emotion response patterning. *Journal of Personality and Social Psychology, 66,* 310–328.

Schimmack, U., Oishi, S., & Diener, E. (2002). Cultural influences on the relation between pleasant emotions and unpleasant emotions: Asian dialectic philosophies or individualism–collectivism? *Cognition and Emotion, 16,* 705–719.

Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 527–561). New York: Guilford Press.

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45,* 513–523.

Sedikides, C., & Skowronski, J. J. (1997). The symbolic self in evolutionary context. *Personality and Social Psychology Review, 1,* 80–102.

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

Shearn, D., Bergman, E., Hill, K., Abel, A., & Hinds, L. (1990). Facial coloration and temperature responses in blushing. *Psychophysiology, 27,* 687–693.

Shearn, D., Bergman, E., Hill, K., Abel, A., & Hinds, L. (1992). Blushing as a function of audience size. *Psychophysiology, 29,* 431–436.

Shields, S. A. (1991). Gender in the psychology of emotion: A selective research review. In K. T. Strongman (Ed.), *International review of studies in emotion* (Vol. 1, pp. 227–245). Chichester, England: Wiley.

Shiota, M. N., Keltner, D., & John, O. P. (2006). Positive emotion dispositions differentially associated with Big Five personality and attachment style. *Journal of Positive Psychology, 1*, 61–71.

Shweder, R. A., & Haidt, J. (2000). The cultural psychology of the emotions: Ancient and new. In M. Lewis & J. Haviland-Jones (Eds.), *Handbook of emotions* (2nd ed., pp. 397–414). New York: Guilford.

Shweder, R. A., Much, N. C., Mahapatra, M., & Park, L. (1997). The "big three" of morality (autonomy, community, divinity), and the "big three" explanations of suffering. In A. Brandt & P. Rozin (Eds.), *Morality and health* (pp. 119–169). New York: Routledge.

Silvia, P. J. (2005). What is interesting? Exploring the appraisal structure of interest. *Emotion, 5*, 89–102.

Simon, H. A. (1967). Motivational and emotional controls of cognition. *Psychological Review, 74*, 29–39.

Simpson, J. A., & Kenrick, D. T. (1998). *Evolutionary social psychology*. Hillsdale, NJ: Lawrence Erlbaum.

Skinner, B. F. (1948). *Walden two*. Englewood Cliffs, NJ: Prentice Hall.

Small, D. A., Lerner, J. S., & Fischoff, B. (2006). Emotion priming and spontaneous attributions for terrorism: Americans' reactions in a national field experiment. *Political Psychology, 27*, 289–298.

Small, D. A., & Lerner, J. S. (2008). Emotional policy: Personal sadness and anger shape judgments about a welfare case. *Political Psychology, 29*, 149–168.

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

Smoski, M. J., & Bachorowski, J.-A. (2003). Antiphonal laughter between friends and strangers. *Cognition and Emotion, 17*, 327–340.

Snibbe, A. C., & Markus, H. R. (2005). You can't always get what you want: Educational attainment, agency, and choice. *Journal of Personality and Social Psychology, 88*, 703–720.

Snowdon, C. T. (2003). Expression of emotion in nonhuman animals. In R. Davidson, K. Scherer, & H. Goldsmith (Eds.), *Handbook of affective science* (pp. 457–480). London England, Oxford University Press.

Solomon, R. C. (1976). *The passions*. New York: Anchor Press/Doubleday.

Spielberger, C. D. (1983). *State–trait anxiety inventory for adults*. Palo Alto, CA: Mind Garden.

Spielberger, C. D. (1996). *Manual for the state–trait anger expression inventory (STAXI)*. Odessa, FL: Psychological Assessment Resources.

Stemmler, D. G. (1989). The autonomic differentiation of emotions revisited: Convergent and discriminant validation. *Psychophysiology, 26*, 617–632.

Tangney, J. P. (1990). Assessing individual differences in proneness to shame and guilt: Development of the self-conscious affect and attribution inventory. *Journal of Personality and Social Psychology, 59*(1), 102–111.

Tangney, J. P. (1991). Moral affect: The good, the bad, and the ugly. *Journal of Personality and Social Psychology, 61*, 598–607.

Tangney, J. P. (1992). Situational determinants of shame and guilt in young adulthood. *Personality and Social Psychology Bulletin, 18*, 199–206.

Tangney, J. P., & Fischer, K. W. (1995). *Self-conscious emotions: The psychology of shame, guilt, embarrassment, and pride*. New York: Guilford Press.

Tangney, J. P., Miller, R. S., Flicker, L., & Barlow, D. H. (1996). Are shame, guilt, and embarrassment distinct emotions? *Journal of Personality and Social Psychology, 70*, 1256–1264.

Tapias, M., Glaser, J., Vasquez, K. V., Keltner, D., & Wickens, T. (2007). Emotion and prejudice: Specific emotions toward outgroups. *Group Processes and InterGroup Relations, 10*, 27–41.

Taylor, S. E. (2002). *The tending instinct*. New York: Henry Holt.

Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review, 107*, 411–429.

Tiedens, L. Z., Ellsworth, P. C., & Mesquita, B. (2000). Stereotypes about sentiments and status: Emotional expectations for high- and low-status group members. *Personality and Social Psychology Bulletin, 26*(5), 560–574.

Tiedens, L. Z., & Leach, C. W. (2004). *The social life of emotions*. New York: Cambridge University Press.

Tiedens, L. Z., & Linton, S. (2001). Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality and Social Psychology, 81*, 973–988.

Tomkins, S. S. (1984). Affect theory. In K. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 163–195). Hillsdale, NJ: Erlbaum.

Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environments. *Ethology and Sociobiology, 11*, 375–424.

Tracy, J. L., & Matsumoto, D. (2008). The spontaneous display of pride and shame: Evidence for biologically innate nonverbal displays. *Proceedings of the National Academy of Sciences, 105*, 11655–11660.

Tracy, J. L., & Robins, R. W. (2004). Show your pride: Evidence for a discrete emotion expression. *Psychological Science, 15*, 94–97.

Tracy, J. L., & Robins, R. W. (2007). Emerging insights into the nature and function of pride. *Current Directions in Psychological Science, 16*, 147–150.

Tracy, J. L., Robins, R. W., & Tangney, J. P. (2007). *The Self-conscious emotions: Theory and research*. New York: Guilford.

Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology, 46*, 35–57.

Tsai, J. L. (2007). Ideal affect: Cultural causes and behavioral consequences. *Perspectives on Psychological Science, 2*, 242–259.

Tsai, J. L., Chentsova-Dutton, Y., Friere-Bebeau, L. H., & Przymus, D. (2002). Emotional expression and physiology in European Americans and Hmong Americans. *Emotion, 2*, 380–397.

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology, 90*, 288–307.

Tsai, J. L., & Levenson, R. W. (1997). Cultural influences on emotional responding: Chinese American and European American dating couples during interpersonal conflict. *Journal of Cross-Cultural Psychology, 28*, 600–625.

Tsai, J. L., Levenson, R. W., & Carstensen, L. L. (2000). Autonomic, expressive, and subjective responses to emotional films in older and younger Chinese American and European American adults. *Psychology and Aging, 15*, 684–693.

Tsai, J. L., Levenson, R. W., & McCoy, K. (2006). Cultural and temperamental variation in emotional response. *Emotion, 6*, 484–497.

Tsai, J. L., Louie, J., Chen, E. E., & Uchida, Y. (2007). Learning what feelings to desire: Socialization of ideal affect through children's storybooks. *Personality and Social Psychology Bulletin, 33*, 17–30.

Van Boven, L., & Ashworth, L (2007). Looking forward, looking backward: Anticipation is more evocative than retrospection. *Journal of Experimental Psychology, General, 136*, 289–300.

Van de Ven, P., Bornholt, L., & Bailey, M. (1996). Measuring cognitive, affective, and behavioral components of homophobic reaction. *Archives of Sexual Behavior, 25*, 155–179.

van Hooff, J. A. R. A. M. (1972). A comparative approach to the phylogeny of laughter and smiling. In R. A. Hinde (Ed.), *Nonverbal communication*. Cambridge, England: Cambridge University Press.

Van Kleef, G. A., De Dreu, C. K. W., Pietroni, D., & Manstead, A. S. R. (2006). Power and emotion in negotiation: Power moderates the

interpersonal effects of anger and happiness on concession making. *European Journal of Social Psychology: Special Issue on Social Power, 36*, 557–581.

Van Kleef, G. A., Oveis, C., van der Löwe, I., LuoKogan, A., Goetz, J., & Keltner, D. (2008). Power, distress, and compassion: Turning a blind eye to the suffering of others. *Psychological Science, 19*, 1315–1322.

Vanman, E. J., Paul, B. Y., Ito, T. A., & Miller, N. (1997). The modern face of prejudice and structural features that moderate the effect of cooperation on affect. *Journal of Personality and Social Psychology, 73*, 941–959.

Vanman, E. J., Saltz, J. L., Nathan, L. R., & Warren, J. A. (2004). Racial discrimination by low-prejudiced Whites: Facial movements as implicit measures of attitudes related to behavior. *Psychological Science, 15*, 711–714.

Vasquez, K., Keltner, D., Ebenbach, D. H., & Banaszynski, T. L. (2001). Cultural variation and similarity in moral rhetorics: Voices from the Philippines and United States. *Journal of Cross-Cultural Psychology, 32*, 93–120.

Watson, D., & Clark, L. A. (1992). On traits and temperament: General and specific factors of emotional experience and their relation to the five-factor model. *Journal of Personality, 60*, 441–476.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070.

Watson, D., & Tellegen, A. (1985). Towards a consensual structure of mood. *Psychological Bulletin, 98*, 219–235.

Waugh, C. E., & Fredrickson, B. L. (2006). Nice to know you: Positive emotions, self-other overlap, and complex understanding in the formation of a new relationship. *Journal of Positive Psychology, 1*, 93–106.

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

Weiner, B., Graham, S., & Reyna, C. (1997). An attributional examination of retributive versus utilitarian philosophies of punishment. *Social Justice Research, 10*, 431–452.

Wheatley, T., & Haidt, J. (2005). Hypnotic disgust makes moral judgments more severe. *Psychological Science, 16*, 780–785.

Williams, J. R., Insel, T. R., Harbaugh, C. R., & Carter, C. S. (1994). Oxytocin administered centrally facilitates formation of a partner preference in female prairie voles *(Microtus ochrogaster). Journal of Neuroendocrinology, 6*, 247–250.

Willis, F. N., & Hamm, H. K. (1980). The use of interpersonal touch in securing compliance. *Journal of Nonverbal Behavior, 5*(1), 49–55.

Wilson, T., & Brekke, N. (1994). Mental contamination and mental correction: Unwanted influences on judgments and evaluations. *Psychological Bulletin, 116*, 117–142.

Wilson, T., Centerbar, D., & Brekke, N. (2002). Mental contamination and the debiasing problem. In T. Gilovich, D. W. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 185–200). New York: Cambridge University Press.

Wilson, T. D., & Gilbert, D. T. (2008). Explaining why: A model of affective adaptation. *Perspectives in Psychological Science, 3*, 372–388.

Wilson, T. D., Wheatley, T., Meyers, J. M., Gilbert, D. T., & Axson, D. (2000). Focalism: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology, 78*, 821–836.

Winkielman, P., Knutson, B., Paulus, M. P., & Trujillo, J. T. (2007). Affective influence on decisions: Moving towards the core mechanisms. *Review of General Psychology, 11*, 179–192.

Winkielman, P., Zajonc, R., & Schwartz, N. (1997). Subliminal affective priming resists attributional intervention. *Cognition and Emotion, 11*, 433–465.

Witt, D. M., Carter, C., & Walton, C. (1990). Central and peripheral effects of oxytocin administration. *Physiology and Behavior, 37*, 63–69.

Wood, J. V., Heimpel, S. A., & Michaela, J. L. (2003). Savoring versus dampening: Self-esteem differences in regulating positive affect. *Journal of Personality and Social Psychology, 85*, 566–580.

Woodruff, P. (2002). *Reverence: Renewing a forgotten virtue*. New York: Oxford University Press.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35*, 151–175.

Zajonc, R. B. (1998). Emotions. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (Vol. 6, pp. 591–634). New York: McGraw Hill.

Zald, D. H. (2003). The human amygdala and the emotional evaluation of sensory stimuli. *Brain Research Reviews, 41*, 88–123.