CHAPTER 1

Theories of Emotion and Emotional Development

Younger scholars may be surprised to learn that the ontological status of emotion as an independent entity has not always been recognized within the scientific community and, in fact, has shifted greatly over the years. Scientists have debated—and, indeed, some scientists continue to debate— whether emotion is really a "thing"! This chapter presents a brief history of emotion theory to illustrate this point, followed by consideration of prominent contemporary theories of both emotion and emotional development. Although these differ from each other in important ways (at least in the eyes of their creators), there is considerable agreement regarding some of the broader aspects of emotion and emotional development. For example, most theorists agree that emotion involves a process that includes elicitation of a set of constituent components that encompass expressive, neurophysiological, and behavioral responses. However, adult-oriented theories tend to differ among themselves in terms of what components of the emotion process receive the most attention and how those components are characterized. Developmental theories differ chiefly in their portrayal of the origins and emergence of distinct emotions. These differences are reflected in the organization of this chapter, in which theories are grouped accordingly. Still, readers should not be surprised to find considerable overlap among many of these theories.

THEORIES OF EMOTION

Early Days

Although emotion has long been a subject addressed by philosophers, artists, writers, and scholars from many disciplines, the James–Lange theory (James, 1884, 1890/1950; Lange, 1885/1992) is widely considered to be the most influential early theory of emotion within the field of psychology. According to this theory, emotion is the perception of bodily changes (most importantly, changes in the **autonomic nervous system [ANS]***) that themselves are a direct response to the experiences, thoughts, or memories that elicit the emotion. This theory is commonly exemplified by the statement: When I see a bear, I do not run because I am afraid; rather, I see the bear, I start to run, and then I know I am afraid.

Despite William James's personal prominence, the theory he advocated was soon subjected to a number of telling criticisms. In particular, the physiologist Walter Cannon (1927) suggested that ANS responses are too slow to account for the experience of emotion. In addition, Cannon pointed out that no emotion-specific patterns of ANS responding (i.e., different patterns of response among the several ANS-controlled organs) had been identified to distinguish among the different emotions. Furthermore, an increase in ANS activity did not always result in the experience of emotion at all. In contrast, Cannon argued that emotions originate in neural impulses that begin in the thalamus and are relayed to the cortex and various motor systems, resulting in both emotion feelings and emotional behaviors. As is discussed later in this chapter, the debate regarding the neurobiological underpinnings of emotion and their role as causal agents continues to this day.

During the early and middle 20th century, two other prominent figures included treatments of emotion in their theories of human psychology and behavior. John Watson, the father of behaviorism, demonstrated that emotion could be elicited in human infants through classical conditioning in a famous (or infamous) experiment involving "Little Albert" (Watson & Rayner, 1920). In this experiment, 11-month-old Albert was conditioned to fear a previously neutral stimulus (a white rat) by pairing its presentation with a loud, aversive noise. However, Watson's focus was on behavior rather than phenomenological experience (i.e., feelings), and thus he made no effort to develop a more comprehensive emotion theory.

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*Terms in **bold** appear in the Glossary at the end of the book.

A second prominent figure, Sigmund Freud, embedded emotion within his larger theory of motivation and the unconscious origins of psychopathology. According to Freud, emotions may arise when our id-based impulses come into conflict with our ego or superego. For example, fear and guilt may arise when our id-based sexual attraction to a parent conflicts with our ego- or superego-based standards of appropriate behavior (Freud, 1930). Although Freud's larger theory has fallen into disfavor, the idea that emotions may be elicited when one's goals are obstructed appears in most contemporary models of emotion.

With the advent of psychology's cognitive revolution in the late 1960s, a major change in the ontological status of emotion occurred. The most popular theory of emotion at that time actually considered emotion to be an epiphenomenon of cognition. According to the **Schachter–Singer theory** (Schachter & Singer, 1962), emotion was merely a particular set of cognitions that one attributes to a generalized state of physiological arousal experienced in the context of emotion-related situational cues. As exemplified in their most famous (or, again, infamous) experiment, undergraduate research participants who experienced arousal due to an injection of norepinephrine rated themselves as significantly angrier when seated in the company of confederates expressing anger than when seated in the company of confederates expressing positive high spirits. Schachter and Singer's epiphenomenal view of emotion was enshrined in the majority of psychology textbooks for many years.

Nonetheless, despite the dominance of this perspective, in the middle and late 1960s, some researchers began to revive an earlier Darwinian view of emotion as presented in his 1872 volume, *The Expression of the Emotions in Man and Animals* (Darwin, 1872/1998). Darwin had argued that human emotions evolved from our nonhuman ancestors and are universally expressed primarily via configurations of facial movements (i.e., facial expressions) but also through vocalizations and other behaviors. Darwin's principal purpose was to provide further support for his proposal regarding man's evolutionary origins. Although earlier scholars had been familiar with Darwin's work (e.g., James, 1884; Dewey, 1894/1971; see Garrison, 2003), they had largely diverged from his evolutionary focus. However, in the late 1960s, his work inspired Silvan Tomkins (1962) to generate an emotion theory largely consistent with Darwin's views. In turn, Tomkins (as well as Darwin) inspired a set of systematic studies on emotion **recognition** using facial configurations similar to those that had been described by Darwin (e.g., Ekman, Sorenson, & Friesen, 1969; Izard, 1971; see Figure 1.1 for examples). This research

culminated in a landmark investigation by Ekman and Friesen (1971) that reported significant recognition of these facial expressions in a number of literate and preliterate cultures.

These cross-cultural studies launched a new era of emotion theorizing and research that continues to this day. Literally thousands of studies have been conducted using the configurations of facial movements proposed by Ekman and by Izard to be prototypical emotional facial expressions. However, at the same time, new questions are being raised that challenge the status of these configurations as unique and universal expressions of emotion (e.g., Barrett, Adolphs, Marsella, Martinez, & Pollak, 2019; Fernández-Dols & Crivelli, 2013; Fernández-Dols & Russell, 2017). Accordingly, readers should note that this book uses the term **prototypic emotional facial expressions** to refer to these configurations only because they are commonly so designated in the literature; however, no commitment to their status as
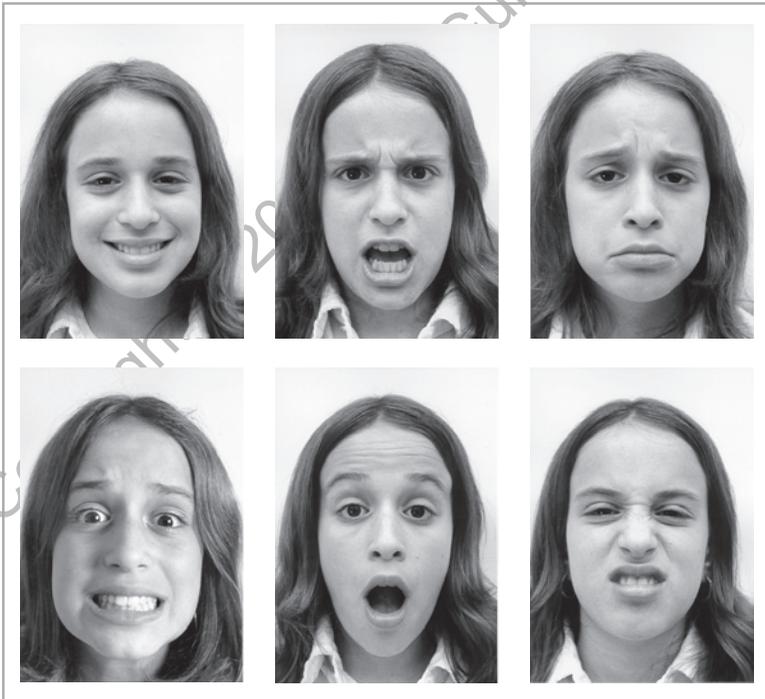
FIGURE 1.1. Prototypic emotional facial expressions. Top row from left: happiness, anger, sadness. Bottom row from left: fear, surprise, disgust.

uniquely emotional should be inferred. In addition to new views of facial expression, new theories, models, and perspectives on emotion itself are being proposed in the adult literature. In the following section, several prominent examples are briefly reviewed.

A Note on Theories

A scientific theory is commonly understood to consist of a set of broad organizing principles proposed to account for a larger set of observations. In addition, theories should be falsifiable (or at least refinable) via a process of testing hypotheses (i.e., specific predictions) that are based on the theory. Within the fields of emotion and emotional development, many scholars have been hesitant to formally confer upon their views the status of a theory. Instead, they may use the terms *model*, *perspective*, or *approach*. However, because many of these approaches, perspectives, and models have greatly contributed to our current understanding of emotion and have inspired both thinking and research, they are presented in this first chapter.

Current Adult-Oriented Theories of Emotion

Emotion theorists widely agree that the process of experiencing emotion involves a number of components, including elicitation by internal or external objects or events (e.g., memories, encounters with other persons), expressive behaviors (e.g., facial expressions, vocalizations), **instrumental actions** or action tendencies (e.g., fighting or fleeing), neurobiological reactions (e.g., ANS responses), and subjective experiences (i.e., feelings). To illustrate, a person might see a bear (i.e., an elicitor), gasp and widen his eyes (i.e., display expressive responses), run with a racing heart (i.e., produce instrumental and neurobiological reactions), while at the same time feeling afraid. However, any general consensus regarding the characteristic components of emotion quickly breaks down when questions about whether these components are unique, necessary, or sufficient constituents of the emotion are considered.

In their brief review of the scientific literature, Gross and Barrett (2011) identified 30 different explicit theories or general perspectives on emotion going back to William James (1884). To compare these perspectives, the authors organized them into four general categories: **basic emotion theories, appraisal theories**, **psychological construction theories**, and **social construction theories**. These categories provide a useful framework for

discussing the current landscape. However, as will be shown, theories from different categories often share some key features, although they differ in their relative emphasis on these features or in the detail with which they are described (e.g., the role of **appraisal** in the generation of emotion). Because extensive review of all 30 theories is beyond the scope of this volume, the following sections focus on some prominent exemplars.

Basic (or Discrete) Emotion Theories

Following their groundbreaking studies of expression recognition across cultures, Ekman and Izard each offered a theory of emotion intended to both account for their findings and embed them within a more general theorical framework. Following Darwin and also consistent with then-current views of neurobiology, they proposed that humans have evolved a set of brain-based **affect programs** (Ekman, 1971; Izard, 1977) that are distinct for different basic emotions. When these programs are activated, they are presumed to automatically generate a distinct emotion-specific set of physiological responses, expressive behaviors, and subjective experiences. Both theorists proposed a relatively restricted set of basic emotions based on their evaluation of the evidence for cross-cultural universality in the recognition of their corresponding facial expressions. However, interestingly, the number of basic emotions identified by each differed slightly and has changed over the years (see Ekman, 1971; Ekman & Cordaro, 2011; Izard, 1977, 1991). Still, both theorists consistently included happiness, surprise, anger, fear, sadness, and disgust in their set of basic emotions (herein referred to as the **Big Six**). In addition, both theorists agree that basic emotions are products of evolution that have important short-term motivational functions and long-term survival value. According to both theorists, these motivational functions can be enacted via a variety of instrumental behaviors depending on the situational context and personal characteristics of the person experiencing the emotion. However, only Izard explicitly considered emotional development in his theory (see further details below).

Ekman's and Izard's affect program theories were met with fierce resistance by sociologists and anthropologists who objected on principle to accounts that emphasized any innate determinants of human behavior (e.g., Birdwhistell, 1970; Mead, 1975). With particular respect to facial expressions, anthropologists highlighted the cultural variability they had observed in expressive behavior (e.g., cultures whose members smiled and acted happy at funerals). In response to this challenge, basic emotion theorists readily

acknowledged that the automatic (involuntary) expressive responses generated by an affect program may sometimes be overridden by a voluntary control system that could suppress or mask the response in the service of cultural norms (i.e., **display rules**; Ekman, 1971; Ekman & Friesen, 1969). Still, current cultural psychologists have continued to argue that basic emotion theories fail to adequately capture the role of culture in emotion generation (Mesquita, De Leersnyder, & Boiger, 2016).

Appraisal Theories

In yet another experiment that probably could not be conducted today, Richard Lazarus and colleagues (Speisman, Lazarus, Mordkoff, & Davison, 1964) showed undergraduate research participants a documentary movie depicting young adolescent boys from a non-Western culture undergoing a coming-of-age circumcision ceremony. In one condition, the accompanying narrative emphasized the boys' pain and suffering, whereas in a second condition, the narrative emphasized the happiness and pride experienced by the boys at the conclusion of the ceremony. Lazarus found that viewers' emotional responses differed across the two conditions; not surprisingly, those who heard the pain-and-suffering narrative reported significantly more stress than those who heard the happiness-and-pride narrative.

Lazarus's experiment set the stage for modern appraisal theories of emotion (e.g., Lazarus, 1991; Roseman, 2013; Scherer, 1984; Scherer & Moors, 2019; Smith & Ellsworth, 1985—but see Magda Arnold, 1960, for an even earlier version). Appraisal theories share the assumption that emotional responses depend on one's interpretation (i.e., appraisal) of the emotion elicitor rather than the elicitor itself. For example, an appraisal theorist would emphasize that a bear will only elicit fear if one appraises it as dangerous. In point of fact, most contemporary theories of emotion have come to acknowledge the importance of appraisal in the elicitation of emotion. However, self-identified appraisal theories have the particular goal of carefully delineating the nature of the appraisal process and the appraisal features that are related to each emotion.

In considering the landscape of appraisal theories, Agnes Moors (2014) identified two general categories: those that start with a set of emotions and those that start with a set of appraisal components. Lazarus's cognitive–motivational–relational theory (Lazarus, 1991) falls into the first category. Beginning with a set of familiar emotions, Lazarus sought to identify each one's corresponding appraisal pattern characterized in terms of six

components and a relational theme. The appraisal components were (1) perception of the eliciting event as goal relevant, (2) perception of the event as goal congruent or incongruent, (3) type of ego involvement (i.e., perception of its relevance to one's self-concept), (4) credit or blame (i.e., assignment of responsibility to oneself, another, or circumstance), (5) coping potential (i.e., perception of one's ability to manage the event), and (6) future expectancy as to whether the situation will become better or worse depending on how one acts. To illustrate, the emotion of anger is characterized by the appraisal of an event as goal relevant, goal incongruent, potentially threatening one's ego identity, caused by another rather than the self, remediable by removing the goal impediment, and likely to improve if that takes place. To provide a hypothetical example, if a child has her favorite toy grabbed away by a peer, the child might interpret (i.e., appraise) that event as both relevant and incongruent with her goal of playing with the toy and as threatening her self-concept as the toy's rightful possessor. If the child also believes that remediation is possible, she would become angry and attempt to regain possession.

Relational themes are brief statements representing the abstraction of a prototypical event for that emotion. For example, the relational theme for anger is "a demeaning offense against me or mine" (Lazarus, 1991, p. 122) that is deliberate or at least inconsiderate. The theme for sadness is "an irrevocable loss." One important feature of Lazarus's theory is the requirement that the object or event is deemed significant (i.e., goal relevant) by the experiencer. Thus not every irrevocable loss will elicit sadness, but only a loss that is also appraised as significant.

Appraisal theories falling into Moors's (2014) second category have shifted their focus away from explaining a preset list of emotions and instead attempt to understand appraisal as it more generally operates to mediate between objective reality and human experience. Sometimes the appraisal process may generate a state corresponding to one of those identified as a basic emotion, but this is not necessarily the case. Sometimes it may generate a more diffuse affective response (e.g., pleasant or unpleasant feelings) or something that may not be considered emotional at all (e.g., feeling powerful).

Currently, the most active researcher to adopt this latter perspective is Klaus Scherer. Like Lazarus, Scherer (2001) proposes that humans continually scan and appraise their environment. For Scherer, this process involves implicitly going through a list of appraisal checks to determine how they apply to the object or event being encountered. This list includes a check for novelty–expectedness, goal relevance, **valence** (pleasantness–unpleasantness), agency, intentionality, control, power, and fairness (Scherer

& Moors, 2019). Scherer proposes that specific appraisals will influence specific physiological and expressive responses and specific action tendencies. These may coalesce such that the emerging state will be considered an emotion (basic or otherwise). However, this will not necessarily be the case; emotions are only one subset of states that can result from the appraisal process.

Psychological Construction Theories

In some sense, all current theories of emotion can be considered to be constructivist theories. That is, as indicated earlier, all consider emotion to have various components that come together in an emotion episode (e.g., expressive responses, neurobiological underpinnings, **instrumental actions** or action tendencies). However, those theories that are identified as constructivist (see Gross & Barrett, 2011) are characterized by their radical abandonment of the idea that emotion responses are controlled by an innately provided emotion-specific affect program or neural network. Instead, constructivist theories (e.g., Russell, 2003) propose that emotions emerge from domain-general processes that sometimes produce a set of co-occurring responses that may be categorized as an emotion (basic or otherwise).

Historically, one of the most popular psychological construction approaches was the Schachter–Singer theory noted above—that is, that emotions were constructed by overlaying an emotion label (i.e., emotion name) on a physiological state of arousal in a cognitive act of interpretation. More recently, James Russell and Lisa Barrett (Russell & Barrett, 1999) developed a similar approach that added *valence* as a second factor. **Valence** is a dimension of feeling running from high positivity to high negativity (i.e., pleasantness to unpleasantness). Their model of **core affect** proposes that both arousal and valence may vary in intensity and that humans thus experience differing combinations of these two experiential dimensions. Some of these affective experiences may be labeled as emotional depending upon the circumstances under which they take place. For example, a state of high negative arousal that occurs before receiving an inoculation may be interpreted as fear or merely anticipation, depending on whether the procedure is undergone voluntarily or involuntarily. Readers should note that Russell and Barrett use the term *core affect* in a very specific way that differs from how others often use the word *affect.* In this book, the term *core affect* is used when referring to feeling states as conceptualized by these authors, that is, in terms of the dimensions of both arousal and valence. Otherwise, the term **affect** (alone) will be used in conformity to various authors' own usage. Most often, the term is used to refer to a wide range of positive and negative

feeling states that may include but also go beyond what are considered classic discrete emotions (e.g., strong, inspired, and determined; Watson, Clark, & Tellegen, 1988).

BARRETT'S THEORY OF CONSTRUCTED EMOTION

In separate work, Lisa Barrett has developed what she currently calls the **theory of constructed emotion** (Barrett, 2017a, 2017b). This theory goes beyond pure psychological constructivism in that it embeds emotion within a larger model of brain functioning. More specifically, Barrett adopts a predictive processing model that views the brain as responding to the world in a way that maximizes growth, survival, and reproduction through a process of **allostasis**, that is, the body's "regulating of the internal milieu by anticipating physiological needs and preparing to meet them before they arise" (Barrett 2017b, p. 6; see also Hutchinson & Barrett, 2019; Köster, Kayhan, Langeloh, & Hoehl, 2020). In the service of allostasis, the brain generates embodied models of the events it encounters (i.e., neural representations and bodily states that include core affect) and compares them with past experiences (similarly represented). In a Bayesian fashion, the previous models are updated, are instantiated in the organism's current mental and behavioral activity, and at the same time serve to predict future experiences (that will themselves lead to further updating). For example, you may start your day of hiking expecting a relaxing encounter with the beauties of nature. Instead, you encounter a grizzly bear. This causes you to update your currently functioning model of the world and produce a set of neurobiological reactions consistent with a flight response. Because you are experiencing these neurobiological reactions in a context involving perceived danger, you may assign the emotion label of "fear" to your experience.

According to Barrett, "emotion" consists of those mind–body experiences that come to be conceptualized as emotion through a process of socialization that emphasizes the linguistic labeling of children's experiences over the course of development (see the next section for further details of her proposal regarding development). That is, emotions are actually abstract concepts that we develop in order to provide an organizational structure for our experiences that allows us to predict and respond (i.e., understand and behave) in an adaptive manner. Similar to other abstract concepts (e.g., justice, honor, and patriotism), specific events that exemplify emotion concepts may share little in the way of concrete features. For example, elicitors of anger may involve insults or physical attacks, and anger responses may involve counterattacks or simmering plots of revenge.

Social Construction Theories

Social construction theories may be considered a type of constructivist approach that places culture in the forefront. However, not all culturally oriented researchers adhere to a strictly constructivist point of view. For example, some scholars retain the concept of innate basic emotion programs and focus on how culture may dictate the specific objects and events that activate them or the display rules that govern their expression (e.g., Matsumoto & Hwang, 2012). Some appraisal theorists may reject the idea of innate programs but still posit that links between particular appraisals and particular emotions are consistent across different cultures (Scherer & Fontaine, 2019). True social constructivists, however, hold a more radical point of view. For example, Mesquita et al. (2016) assert that relationships between appraisals and emotions are themselves socially constructed and may differ across cultures. For example, anger in Western cultures might typically involve blaming others (as exemplified by Lazarus's relational theme for anger, as described above). However, in Japan, anger might more often involve self-blame (e.g., when one forgets to show proper respect to an elder). Most recently, Mesquita and her colleagues have adopted a population-based approach that seeks to empirically identify sets of appraisals and action tendencies that are associated with different emotions in different cultures (Boiger et al., 2018). At the same time, appraisal–action relationships may differ among individuals within a culture and also between cultures. This approach is particularly compatible with Barrett's view of emotion construction as rooted in an individual's particular set of experiences.

THEORIES OF EMOTIONAL DEVELOPMENT

To some extent, adult-oriented emotion scholars and those focusing on emotional development have proceeded on relatively separate tracks. Compared with adult-oriented scholars, debates about the nature of emotion have concerned developmentalists to a lesser extent, especially in recent years. At the same time, questions of development have been neglected within many (but not all) adult-oriented theories. In addition, fewer competing theories of emotional development have been proposed in comparison with adult-oriented theories. Therefore, a more comprehensive review of both early and contemporary developmental theories, models, approaches, and perspectives can be presented. As is shown in this section, these sometimes differ from each other in emphasis and sometimes in substance.

Early Days

As previously noted, both Freud and Watson touched upon emotion in their work, although emotion was not the primary focus of either theory. Similarly, Piaget only briefly considered affect as it related to his cognitive-developmental theory. Still, some implications for development and behavior could be discerned in all three cases. For example, Piaget viewed affect as an energizing force underlying the development and operation of one's cognitive structures (Inhelder & Piaget, 1958). Both Freud's and Watson's theories implied that individual differences in emotion responding will emerge due to an individual's experiential history (i.e., conditioning experiences according to Watson, family influences according to Freud). Development was virtually ignored within William James's physiological feedback proposal and also the proposals of his critics. However, the relationship between physiology and emotion was considered by one of the earliest explicitly developmental theorists of emotion, Katherine Bridges.

In the early 1930s, Bridges (1930, 1932) conducted extensive observations of expressive and behavioral responses of infants and preschool children. Bridges was one of the first to argue that the same observable physiological response (e.g., increased respiration) can occur with different emotions and that different visceral changes can occur in different episodes of the same emotion. Regarding development, Bridges proposed a process of differentiation and integration through which emotional responses gradually become more distinct over time. As described by Bridges, newborn infants express (and presumably experience) only diffuse excitement, but this quickly differentiates such that expressions of distress and enjoyment are also observed. By 24 months, Bridges identified 11 different emotions in infants (e.g., affection, anger, disgust, fear, jealousy) and noted that additional emotions emerge during childhood and adolescence. Bridges also emphasized that even the early-emerging emotions change in form as development proceeds such that they involve the integration of increasingly complex and organized behaviors (e.g., instrumental behaviors as well as expressive responses). To illustrate, she described anger in a 3-month-old as involving screaming and diffuse vigorous leg thrusts, whereas an 18-month-old showed more targeted behavior, that is, hitting and pulling the anger-eliciting impediment (Bridges, 1932). Bridges also noted that at least some emotion-related behaviors will vary across individuals because of "constitutional and environmental differences" (Bridges, 1930, p. 499). As will be seen, many of these ideas also appear in contemporary theories of emotional development.

Current Developmental Theories

Perhaps because fewer exist, contemporary theories of emotional development are not typically assigned to more general categories. In fact, all developmental theories share one important (albeit obvious) feature: They all agree that emotion changes with age. Still, an important distinction can be made between theories that propose the existence of at least some basic discrete emotions at birth and those proposing that infants initially experience only broad distinctions in affective or behavioral states (e.g., positive vs. negative affect) that serve as precursors of true emotions. Because most developmental theories can be placed into one of two categories based on this distinction, it will be used to frame much of the discussion of developmental emotion theories presented herein. At the same time, one important theory eschews taking a stand on the question of whether basic emotions or precursors to true emotions exist in early development. Inspired by Dewey's (1894/1971) earlier functional approach, Campos and Barrett's (1985) theory focuses on the interpersonal functions of emotions rather than the intrapersonal mechanisms (i.e., internal constituents) of emotion. Beyond these considerations, all extant developmental theories acknowledge that both cognitive and social factors are drivers of emotional development. However, as is discussed later in the chapter, they may also differ greatly in their depiction of the cognitive and/or social factors that are key to development and their relative emphasis on one or the other.

Basic (or Discrete) Emotions as Foundations of Development

CARROLL IZARD'S DIFFERENTIAL EMOTIONS THEORY (DET)

As noted above, Carroll Izard provided an elaborate treatment of basic emotions as foundations of development. Izard (Izard & Malatesta, 1987) proposed that "preadapted genetic programs" (p. 507) for distinct emotions emerge during infancy and early childhood via a biologically determined process of maturation. As also noted earlier, Izard asserted that these programs involve distinct emotion-specific neurobiological networks and generate a coordinated set of responses that include emotion-specific facial and vocal expressions and subjective experiences (i.e., feelings). According to Izard (2009), feelings are elemental qualia (i.e., subjective experiences) that "arise from the integration of concurrent activity in brain structures and circuits that may involve the brain stem, amygdala, insula, anterior cingulate, and orbito-frontal cortices" (p. 5). Feelings may not always reach conscious awareness, but they always retain their motivational force.

With respect to the emergence of emotions, Izard originally asserted that an emotion can be assumed to have emerged when its corresponding facial expression can be observed (Izard & Malatesta, 1987). Thus a newborn infant who smiles while sleeping would be considered to be experiencing happiness. However, in later years, he acknowledged that the invariant links between facial expressions and other emotion components may not exist in **neonates** (Izard, 1997). Irrespective of this, Izard recognized that emotions undergo profound changes during the course of development in terms of what elicits them and how they are expressed. These changes rest in part on changes that occur in infants' and children's cognitive abilities and skills. Still, for Izard, cognitive status is not a requirement for experiencing emotion, as it is in some developmental theories (described later in the chapter). Rather, it is the presumed activation of an emotion system that exists independent of cognition and may sometimes be activated by perceptual input (rather than cognitive appraisal) early in life (Izard, 2011). For example, according to **differential emotions theory (DET),** fear in infants might be directly evoked by a sudden loud noise rather than by an appraisal that the noise is dangerous.

Regarding further development, Izard proposed that basic emotions become components of **emotion schemas**, that is, mental structures involving interactions among emotion feelings and higher order cognition that may include images, thoughts, strategies, and goals (Izard, 1977, 2007, 2011). These links are presumably formed based on associations experienced by the person. For example, one of an infant's earliest emotion schemas might involve the association between feelings of joy and viewing mother's face (Izard, 2007). Later in development, language plays an important role in establishing links between emotion feelings and behaviors, events, objects, intentions, and goals. For example, a fear-of-dogs schema might be formed if a child is frequently told that dogs can cause them harm. Although emotion schemas are largely adaptive, maladaptive schemas may arise when the person is exposed to adverse environments, and these may lead to behavior problems or psychopathology (Izard, Youngstrom, Fine, Mostow, & Trentacosta, 2006). For example, children who are exposed to household violence may themselves become prone to anger and aggression. Personality characteristics are also viewed as involving emotion schemas that arise in the context of an individual's own personal experiences (Abe, 2015; Izard, 2007; Izard, Libero, Putnam, & Haynes, 1993). For example, some children may have a greater propensity to react happily during social interactions, and this propensity would contribute to their developing extraverted personalities.

Conceptualizing emotional development as involving emotion–cognition interactions provided Izard with the means to account for other important phenomena. For example, some emotions that do not appear until later in infancy (e.g., shame) are linked to the development of their associated cognitive components (Izard, 2007, 2011). In addition, Izard's view of emotion–cognition relationships can account for the plethora of nonbasic emotions that emerge even later, some of which may be recognized across many cultures (e.g., love) and some of which may be culture specific (e.g., *schadenfreude, amae*). According to Izard, nonbasic emotions are emotion schemas that link specific basic emotions to particular classes of events as they are conceptualized within a particular culture or by a particular individual (Izard, 2011). Note that by emphasizing the crucial importance of emotion schemas (i.e., cognition–emotion interactions), Izard includes a constructivist element in his theory.

MANFRED HOLODYNSKI'S SOCIOCULTURAL INTERNALIZATION MODEL

Although his model emphasizes the role of sociocultural factors in emotional development, Holodynski and his collaborators align themselves with traditional basic emotion views (e.g., Izard's DET) by asserting that neonates start with a set of biologically given emotions (Holodynski & Friedlmeier, 2006; Holodynski & Seeger, 2019). However, Holodynski differs from Izard by proposing that the infant facial expressions corresponding to these emotions are shaped by caregivers rather than emerging on their own via a process of biological maturation. Holodynski acknowledges this disagreement and also notes that considerable controversy exists regarding the timeline for and mechanisms underlying emergence of the emotions themselves (Holodynski & Seeger, 2019). Still, drawing upon the literature (albeit somewhat selectively), he proposes that distress, disgust, interest, pleasure, and fright are present in neonates, as indicated by their facial and nonfacial reactions in situational contexts presumed to evoke these emotions. Following Michael Lewis (see discussion later in the chapter), Holodynski asserts that **self-conscious emotions** (e.g., embarrassment, shame, guilt, pride) emerge during the first years. However, in addition, he emphasizes the existence of culturally specific forms of emotion that develop in the course of cultural socialization (e.g., *tahotsy,* an indigenous form of fear observed among the Bara people of Madagascar that is related to being punished for wrong behavior; Holodynski & Seeger, 2019).

Holodynski proposes three broad phases in the development of emotion. In the first phase (*acquisition of sign-mediated emotions*), infant emotions

are initially enacted in the form of rather diffuse expressions and overt behaviors. For example, young infants simply cry when they are either angry, sad, or afraid. However, infants' expressive behavior is gradually shaped into distinct culturally appropriate forms during the course of social interactions with caregivers (and others). Using contextual cues, caregivers may infer which specific emotion is being experienced, and their emotion-appropriate response to the infant may include a demonstration of the emotion-appropriate facial expression. For example, mothers may show a sad facial expression when picking up a crying infant whom they believe is experiencing sadness rather than fear or anger. During this first phase, infants' overt expressive behavior (in combination with contextual cues) serves as a signal to others, communicating the needs and desires of the infant. This is similar to Vygotsky's depiction of verbal language arising in children as a means of social communication rather than an instrument of thought (as was proposed by Piaget).

In the second phase (*emergence of self-regulation*; starting around 3 years of age), children begin to use emotional expression to guide their own behavior as well as to communicate to others. That is, the feelings associated with the child's emotional expression provide the child with information about his or her own goals and may be used to guide his or her own behavior. For example, an infant who is frustrated by an impediment (e.g., the cellophane wrapper tightly enveloping her new toy) might simply cry, whereas a 3-year-old child would show an anger expression and attempt to pull off the wrapper. Holodynski considers this emotional self-guidance phenomenon to be equivalent to Lev Vygotsky's (Vygotsky, Rieber, & Carton, 1934/1987) depiction of **egocentric language** (i.e., self-talk) that is often used by children (and sometimes by adults) to focus their attention and guide their behavior while engaging in a difficult task.

Finally, in the third phase (*internalization of expression signs in self-regulation*; starting around 6 years of age), Holodynski proposes that expressive signals are internalized and that their associated feelings may now guide behavior without being overtly manifested; that is, the subjective feelings associated with the expressions are still experienced, but no overt expressive behavior need be shown. This is equivalent to Vygotsky's proposal that children's language becomes internalized in the form of inner speech at around the same age.

As acknowledged by Holodynski, one important aspect of emotional development is learning to recognize others' emotions. Emotion recognition contributes to one's ability to communicate effectively with others, for example, to understand and sometimes predict their behavior. In addition,

emotion recognition is involved in emotion socialization—that is, children learn how to appraise and respond to objects and events in the environment by observing others' emotional reactions. According to Holodynski, infants have no innate understanding of the expressive behaviors that correspond to emotion feelings. Instead, they must learn to recognize these expressive signals (in their culturally appropriate forms), and this learning takes place primarily in the context of social interaction with other persons. Holodynski identifies four processes that are involved in emotion socialization: (1) context selection, in which adults determine the type of experiences to which infants and children are exposed; (2) affect mirroring/modeling, in which adults respond to infants' relatively diffuse signals (e.g., crying) by showing (in somewhat exaggerated form) the appropriate emotion-specific expression; (3) **social referencing**, in which the infant or child looks to another person for information about how to interpret an emotionally ambiguous situation; and (4) acting as if the emotion has already occurred, in which adults interpret the child's ambiguous behavior as reflecting a particular emotion and reinforce that emotion by labeling it, praising it, and/or responding in an emotion-appropriate manner. Exemplifying this fourth process, a parent might see her child momentarily hesitate when approaching an unfamiliar dog and then spontaneously tell the child that she is right to be afraid. According to Holodynski, an important feature of many socializing interactions (particularly during infancy) is coregulation, in which the caregiver helps the infant or child regulate his emotions by responding to the **appeal function** of his emotional expression, for example, by comforting a sad child or teaching an angry child how to effectively cope with the source of frustration.

Theories Proposing Affective and/or Cognitive Pre-Emotion Precursors

L. ALAN SROUFE'S ORGANIZATIONAL PERSPECTIVE

Although he is perhaps more widely known for his attachment research (see Chapter 2), Sroufe (1996) also articulated a model of emotional development focusing particularly on infancy and toddlerhood. After considering how emotion is conceptualized by other researchers, Sroufe (1996) provides a tentative definition of emotion as "a subjective reaction to a salient event, characterized by physiological, experiential, and overt behavioral change" and as a "complex reaction . . . which includes cognitive, affective, physiological and other behavioral components" (p. 15). Sroufe uses the term *affect* to refer to "both the feeling component of emotion and the facial and postural expressive components of emotion" (pp. 15–16).

Sroufe designates his approach as *organizational* so as to emphasize that behaviors become hierarchically organized in more complex ways as development proceeds. Reflecting the influence of cognitive-developmental theories, he is particularly concerned with identifying links between emotional development and cognitive development and how both emotions and cognitions play a role in accomplishing the normative tasks of socioemotional development that are salient at different ages (e.g., developing attachments, mastery, autonomy, and a sense of self; Sroufe, 1979). Regarding development, Sroufe maintains that affect is present from birth, as indicated by infants' expressive reactions (e.g., crying). However, as previously indicated, Sroufe also requires a particular degree of cognitive development before he is willing to assign the term *emotion* to infants' affective reactions. This emphasis on the interrelatedness of cognitive and emotional development is reflected in Sroufe's description of the process through which emotions emerge.

Infant emotional development proceeds through a series of three presumably universal phases. In the first developmental phase (*pre-emotion reactions*), neonates respond reflexively with smiling or distress to dynamic quantitative features of stimuli (e.g., distress in response to a sudden high-intensity stimulus such as a loud noise; smiling in response to stimuli having low but variable intensity, such as gentle rocking). However, because their cognitive abilities are minimal, neonates are unable to ascribe meaning to a stimulus, which Sroufe considers a necessary qualification for the presence of an emotion. In the second phase (*precursor emotions*), post-neonatal infants up to approximately 6 months of age can experience pleasure, wariness, and frustration. These result from simple cognitive processes relating a stimulus to past experience. Thus pleasure results from stimulus recognition (e.g., seeing mother's face), wariness from recognition failure (e.g., encountering a stranger), and frustration from one's inability to execute a familiar (i.e., recognized) behavioral routine (e.g., inability to grasp a familiar toy that has now been placed out of reach). In the third phase (*basic emotions*), Sroufe considers mature emotions to be present in that infants are capable of making more cognitively sophisticated ascriptions of meaning to the encountered stimulus (e.g., an appraisal of danger for fear). This phase begins at around 18 months.

Importantly, Sroufe does not rely exclusively on expressive signaling to identify a particular emotional response in the infant. Rather than relying on the presence of specific emotion-related behaviors (e.g., prototypic facial expressions), Sroufe asserts that the presence of an emotion must be inferred by interpreting the meaning of the individual's behavior within the context

in which it occurs. For example, in the second phase, he distinguishes wariness and frustration according to the nature of the stimulus and notes that the infant's expressive response in both cases may be the same, that is, crying. Similarly, in the third phase, anger may be inferred based on an infant's negative reaction to an obstacle, whereas fear may be inferred based on her reaction to a presumed threat.

One key feature of Sroufe's model is his emphasis on the role of tension in eliciting emotion (Sroufe, 1982, 1996). Tension may involve physiological arousal produced by physical stimulation (in young infants) and/or cognitive arousal produced by the need to respond to an encountered object or event (at older ages). The emotion that is engendered depends on the dynamics of arousal in young infants and how the older infant or child appraises the emotion-eliciting event. Also important is the older infant's or child's ability to manage the experience of tension (and sometimes modulate it). Thus the development of **emotion regulation** is an important aspect of emotional development.

MICHAEL LEWIS'S THEORY OF EMOTION AND CONSCIOUSNESS

Like Sroufe, Michael Lewis (2014, 2016a) does not believe that all of the defining features of an emotion are present in young infants. According to Lewis (2014), emotion involves a precipitating event, the bodily changes associated with that event, and, importantly, the conscious experience of the bodily changes. As described further below, the developmental emergence of conscious experience is evidenced by infants' demonstration of **objective self-awareness** (i.e., awareness of the self as a potential object of others' attention). This level of self-awareness is not seen until the middle of the second year of life (Lewis & Ramsay, 2004).

Before the advent of objective self-awareness, Lewis observes emotion-relevant behaviors in younger infants that he originally referred to as primary emotions. Although he continues to use this label, more recently Lewis has emphasized that these are contextually embedded *innate action patterns* rather than emotions per se (Lewis, 2014, 2016a). These action patterns may consist of facial and body movements, vocalizations, and physiological processes. Their function is to enable infants to begin to engage with their environment in an adaptive manner. For example, when given a drop of sour-tasting liquid, even newborn infants produce a facial expression that adults interpret as indicating disgust and that might serve to expel the unwanted fluid. When presented with a human face, 2- to 3-month-old infants will gaze and smile at the person and thus attract his or her attention. Infants

will even smile at nonhuman objects (e.g., stuffed animals) that are depicted with a face. These action patterns are innate automatic responses, but they prepare the way for the subsequent development of true emotions.

Lewis proposes a developmental sequence for the emergence of emotion-related action patterns. Following the thinking of some prominent early scholars (e.g., Schneirla, 1959), Lewis (2014, 2016a) proposes that infants initially have two basic action patterns: approach and withdrawal. However, by 2–3 months, these differentiate into patterns related to more specific emotions. That is, the general approach pattern differentiates into joy-, anger-, and interest-related patterns, and the withdrawal pattern differentiates into disgust and sadness. A fear-related pattern also emerges that represents a combination of approach and avoidance. One interesting feature of this developmental scheme is that it is not based on valence (i.e., positivity vs. negativity). For example, two action patterns related to negative emotions are derived from the initial withdrawal pattern (disgust and sadness), but one negative pattern (anger) derives from the approach pattern and one negative pattern (fear) derives from both initial action tendencies. Anger is considered an approach emotion because it may be associated with attack. According to Lewis (2014, 2016a), fear may be related to interest and also an impulse to flee.

To investigate infant action patterns related to anger and sadness, Lewis and his colleagues have used a creative *contingency-learning procedure*. In the first step of this procedure, infants learn to produce a desirable result (i.e., the appearance of an attractive picture) by waving their arms. After the infant learns the contingency between arm waving and the appearance of the picture, the procedure may be modified in a number of ways, for example, by removing the picture altogether or by removing the contingency so that the picture still appears but is no longer controlled by the infant's arm waving. Across a number of studies, Lewis and his colleagues (e.g., Lewis, Alessandri, & Sullivan, 1990; Lewis, Ramsay, & Sullivan, 2006; Lewis, Sullivan, Ramsay, & Alessandri, 1992) have found that vigorous arm waving is typically (though not always) accompanied by a facial configuration proposed as an unique expression of anger according to Izard's DET (see Izard, Dougherty, & Hembree, 1983); lower levels of arm waving are associated with a facial configuration proposed to express sadness. According to Lewis, these facial-plus-arm action patterns may be considered early instantiations of these two emotions. However, although this may be the case within the context of Lewis's contingency studies, it should also be noted that the presumptive anger facial expression itself occurs in many other negative emotional contexts (see Camras, 2019, for a review). Thus, as will be emphasized

later, inferences regarding the presence of a discrete emotion may require more than just observing a particular facial expression.

Although initial action patterns are presumed to be innate, Lewis (2014, 2016a) also emphasizes that infants may differ in their propensity to produce these responses. At first, these individual differences derive from differences in **temperament** (i.e., behavioral and emotional dispositions that are biologically based yet modifiable over the course of development; see Chapter 2). However, infants' action patterns soon come to be shaped by their social and nonsocial environments (e.g., caregivers' reactions to the infants' smiles). Environmental influences—particularly social influences—continue to shape emotion responses throughout development. For example, children learn what they should consider disgusting, and their set of learned disgust elicitors typically goes well beyond the sour or bitter tastes and smells that initially evoke disgust expressions.

As noted above, Lewis believes that consciousness (including objective self-awareness) emerges sometime in the middle of the second year. The emergence of consciousness is considered to be a biologically determined maturational event and marks a critical transition in the development of emotion. According to Lewis (2014, 2016a), at this point infants can be said to have true emotional experiences (i.e., to be aware of their own emotions). In addition, a new set of **self-conscious emotions** emerge (i.e., emotions that require self-awareness). The development of these new emotions is described more fully in Chapter 8. However, in brief, the first self-conscious emotions include embarrassment, **empathy**, and jealousy. Sometime between 2 and 3 years of age, additional self-conscious emotions develop as children become aware of social **standards, rules, and goals (SRGs)** to which they may or may not successfully conform (Lewis, 2016b). Lewis refers to these as *self-conscious evaluative emotions*, and they include pride, shame, and guilt. Lewis believes that a child's particular social environment plays a crucial role in his or her development of SRGs related to self-conscious evaluative emotions. For example, depending on how they are raised, some 3-year-old children will experience shame or guilt when they get their clothing dirty, whereas other children will not.

LISA BARRETT'S THEORY OF CONSTRUCTED EMOTION

As noted earlier, Lisa Barrett views emotions as abstract concepts rather than innate biologically based mental modules or emotion programs. She and her colleagues (e.g., Hoemann, Xu, & Barrett, 2019) propose that children construct their emotion concepts using the same processes that are

used to construct other abstract categories. These processes include: (1) constructive-thinking mechanisms (e.g., seeking explanations, perceiving analogies, experimenting via mental imagery), (2) Bayesian inductive learning (e.g., updating one's initial interpretations and expectations based on new input), and, most importantly, (3) linguistic labeling (e.g., using others' emotion-related language to anchor a set of experiences that may differ in their physical features and immediate situation-specific goals). In recent years, constructive-thinking mechanisms and Bayesian learning have received increasing attention by investigators of infants' and children's (non-emotion-related) concept development (e.g., Gopnick & Wellman, 2012; Xu & Kushnir, 2013). In addition, studies of language and concept development have suggested that infants can form a novel category for objects that differ greatly in appearance (e.g., dinosaurs) if they hear each exemplar labeled with the same word (Fulkerson & Waxman, 2007).

Barrett and her colleagues consider studies of the latter type to be particularly relevant to the learning of emotion categories; that is, they propose that children develop emotion concepts on the basis of how they hear other persons talk about the world. More specifically, children observe (or participate in) various events that are given the same verbal emotion labels by those around them (e.g., *angry*, *yucky*, or *scary*), and these labeled instances of experience become exemplars for their model (or concept) of each emotion. Of importance, common emotion labeling provides the basis for the child's considering the various exemplars to be members of an abstract emotion category (e.g., anger), despite the fact that the exemplars of each category may share virtually no behavioral features. Using constructive-thinking mechanisms (e.g., making analogies), children may come to perceive a common, higher order goal-based function for at least some exemplars of an emotion (e.g., removing an obstacle for anger). To provide a hypothetical example, a toddler might drop a cookie in the dirt and find that his mother takes it away and calls it "yucky." Mother similarly interferes when the child reaches for a piece of candy found on the playground but does not object when the child picks up a discarded toy. In this way, the child gradually learns an ever-expanding set of "yuck" elicitors and may draw some general inferences based on these experiences (e.g., dropped food items are yucky but other things may not be). Thus, when the child next drops a lollipop in the dirt, she herself may call it "yucky," look to her mother for confirmation, and then throw the lollipop away.

As acknowledged by Hoemann et al. (2019), little empirical research has yet been conducted to evaluate these proposals regarding emotional development. However, their thought-provoking nature and parallels in the

cognitive and language literature suggest them as fruitful targets for future investigation.

A DYNAMICAL SYSTEMS PERSPECTIVE

Another type of constructivist approach to emotional development is the **dynamical systems (DS) perspective**. This perspective was first developed in the fields of physics, chemistry, and biology to explain the emergence and functioning of complex systems of various sorts (Haken, 1983; Kelso, 1995). Applications within the area of biological motion attracted the attention of Esther Thelen and Alan Fogel, who themselves applied DS principles to both motor development and some aspects of emotional development (e.g., Fogel et al., 1992; Thelen & Smith, 2006). Subsequently, other developmentalists have applied the concepts and principles of DS to emotional development in somewhat different ways (e.g., Hollenstein & Lanteigne, 2018; M. D. Lewis, 2005; Lewis & Granic, 2000).

As applied to human behavior, the DS perspective rejects the notion that complex behavioral patterns (including emotions) are dictated by affect programs in the brain (i.e., basic or discrete emotion programs). Instead, emotions are the result of the self-organization of behavioral components partly via synergistic links among the components themselves and partly in response to the demands of the particular environmental circumstances in which the behavior is produced. To illustrate, smiling may be intrinsically linked to happy feelings—but this synergistic relationship can be overwhelmed by contextual circumstances. If a child smiles to disguise his fear while being confronted by a bully, happy feelings are unlikely to follow. One key feature of a dynamical system is that qualitative shifts from one pattern of responses to another pattern (termed *phase shifts*) will occur when some *control variable* reaches a particular threshold. Drawing a clear example from the realm of the physical sciences, a phase shift occurs when water turns to ice as the temperature drops below 32 degrees Fahrenheit. As applied to human emotion, one might consider a phase shift to occur when some powerful emotion elicitor (i.e., a trigger) evokes a sudden overwhelming emotional response (e.g., being overcome by grief when learning about a loved one's death). Another key feature of the DS perspective is the principle of **heterochronic development** (Fogel & Thelen, 1987; Thelen & Smith, 2006). This means that elements of a system may emerge at different times and only later become coordinated with others into a (relatively) stable pattern (i.e., an "attractor"). As applied to emotional development, this might explain the dissociations between emotional facial expressions and other components

of the emotion process in the early development of young infants and children (as described in Chapters 2 and 3).

Elsewhere, I have provided a more detailed proposal that casts emotional development into a DS framework (Camras, 2011). This proposal also incorporates a number of ideas that have been advanced within some of the other theoretical perspectives reviewed above. To briefly summarize, the proposal asserts that components of the emotion process emerge heterochronically (i.e., at different times) during the course of development but eventually become loosely organized into emotion systems (i.e., conceptualized as DS attractors). Consistent with Russell and Barrett's (1999) construct of core affect, infants' emotion-related responses initially are distinguished primarily in terms of arousal and valence (positive or negative). However, as development proceeds, the set of responses available to serve as components of the emotion process grows larger. Using anger as an example, children's appraisal abilities, facial expressions, and motor behaviors develop independently but may eventually become linked in an anger episode, as children recruit their motor capabilities (e.g., hitting) in the service of an appraisal-related goal associated with that particular emotion (e.g., retrieving a toy when it is taken by another child without permission).

Like each of the other theoretical approaches described above, the DS perspective has challenges. However, some advantages can also be highlighted. In particular, the DS perspective acknowledges multiple influences on the development of emotion systems, some of which have not been considered within most other theories (e.g., synergistic relations among components). In addition, it potentially provides an alternative explanation for partial coherences among emotion components observed both early and later in development (i.e., the principle of self-organization). However, empirical research that applies a DS perspective to normative age-related changes in emotion is lacking. In particular, determining whether normative developmental changes can be properly characterized as qualitative phase shifts remains an open question.

CAMPOS AND BARRETT'S FUNCTIONALIST/RELATIONAL PERSPECTIVE

One of the first (and most influential) alternatives to Izard's DET was the **functionalist/relational perspective** proposed by Joseph Campos and his colleague Karen Barrett (Barrett & Campos, 1987; Campos, Barrett, Lamb, Goldsmith, & Stenberg, 1983). While acknowledging the evolutionary roots of emotion, Barrett and Campos (1987) pointed out that human behavior is highly flexible, certainly more so than the behavior of many species whose

rigid response patterns seemingly provided the model for proponents of basic emotion theories. Campos and Barrett further emphasized that emotional responding occurs in the context of the emoter's interactions with the environment, often—but not always—with other persons. Therefore, emotion is defined as a relational process, that is, a "bidirectional process of establishing, maintaining, and/or disrupting significant relationships between an organism and the (external or internal) environment" (Barrett & Campos, 1987, p. 558). This definition of emotion is still widely used in the developmental literature, and this relational and functionalist view is identified as the theoretical framework in which many recent empirical studies are situated.

As embodied in the definition provided above, Barrett and Campos propose that emotional behavior is directed toward achieving a relational goal. Basic emotions are redefined in these terms rather than in terms of a rigid emotion program within the brain. For example, fear is a process related to avoiding harm, whereas anger is a process related to removing an obstacle to one's goal (Campos & Barrett, 1985). Although emotions may often be associated with particular responses (e.g., characteristic actions, facial expressions, physiological patterning), these are not mandatory but are instead subservient to the context-dependent selection of responses designed to achieve the individual's emotion goals.

With respect to development, Barrett and Campos concur with appraisal theorists in emphasizing that emotional responses are dependent on how the individual interprets the events and objects they encounter in the environment in relation to their own goals. In some cases, that relationship may be obvious even to an infant, but in many instances, there is ambiguity in the environmental event. Campos's well-known experiments with the "visual cliff" illustrate this point (e.g., Sorce, Emde, Campos, & Klinnert, 1985). When placed at the edge of a virtual cliff that appears to have a very deep drop-off, 1-year-old infants typically will avoid going beyond the edge, presumably interpreting it as potentially harmful. However, when confronted with a moderate drop-off, the infant's response will depend upon the emotional signals provided by the mother, typically crossing when the mother expresses happiness but not when she expresses fear. Thus infants' appraisals are guided by emotional information provided by social partners.

Regarding development, Barrett and Campos (1987) highlighted the role of changing goals and increasing skills and abilities that support the achievement and maintenance of goals. These include: (1) understanding how conditions in the environment relate to one's goals (e.g., that being called a "sissy" damages one's newly acquired goal of maintaining his or

her reputation), (2) advances in motor development enabling the activities required to achieve one's goals (e.g., fighting), (3) advances in cognitive and language development that serve a similar function (e.g. to produce counter-insults), and (4) the development of strategies to regulate (i.e., reorganize) one's initial response (e.g., disguise one's distress at being insulted).

Campos's approach does not directly address the feeling component of emotion nor the question of whether emotions need always reach conscious awareness. In contrast, he argues that excessive (perhaps even obsessive) concern with these issues has diverted scholars from focusing on the more important relational nature of emotion and its functional role in guiding persons' interactions with social and nonsocial objects and events.

SUMMARY AND FINAL THOUGHTS

Emotion theorizing has come a long way from its sad neglect in the middle of the last century. For one thing, no current theory considers emotion to be an epiphenomenon having no causal effect on other psychological processes or behaviors. Furthermore, there is considerable agreement regarding some of the broader aspects of emotion and emotional development. For example, most adult-oriented emotion theorists agree that emotion involves a process that includes elicitation of a set of response components that encompass expressive, neurophysiological, and behavioral responses. Adult-oriented theorists also agree that emotion is typically elicited through some process of appraisal. However, beyond these points of general agreement are many disputative devils lurking in the details.

Consistent with contemporary views of neurobiology, most current adult-oriented theorists (save the basic emotion theorists) have abandoned the notion of dedicated emotion programs located in specific areas of the brain or even emotion-specific neural networks (i.e., neural networks whose distributed components are exclusively dedicated to particular emotions). However, abandoning this type of approach has its disadvantages. Basic emotion theories provided a straightforward mechanism-based definition of emotion (i.e., the emotion programs and the responses that they generated). Abandoning this conceptualization now opens the question of how emotion should be defined and measured.

One solution has been to seek a functional rather than a mechanistic definition. In that way, elicitor-response processes that serve goals having especially important adaptive functions would be designated as emotions. Those elicitor-response processes identified similarly in many cultures might

be considered universal or basic emotions. At the same time, processes that may have adaptive significance in some particular cultures but not others might be recognized as culture-specific emotions. In fact, most appraisal, psychological construction, and social constructivist theorists appear implicitly willing to sign onto this type of functionally oriented conceptualization of emotion. Still, this conceptualization raises its own question, that is, what should be the criteria for determining which elicitation-response processes should be considered to have sufficient adaptive significance (either within or across cultures) so as to be legitimately categorized as emotions? This question has rarely been explicitly considered. However, implicit consensus has apparently been reached to use people's everyday language as the basis for identifying emotions within a particular cultural environment or across cultural environments. That is, emotions are whatever people say they are. This solution is most explicitly adopted by constructivists such as Lisa Barrett but also seems to be tacitly accepted in other theories. Of course, one problem with this solution is that people (including psychologists) do not always agree even within a particular culture. Is surprise an emotion or a cognitive evaluation? What about gratitude, jealousy, or even interest? Still, to their credit, investigators have boldly moved beyond these ambiguities to produce an important body of knowledge regarding emotion as we struggle to understand it. Representing that knowledge is the purpose of this book.

Regarding development, contemporary theorists agree that not all emotions are present at birth. Even those adhering to basic emotion theory (such as Izard) or some of its premises (e.g., Holodynski) propose that several of the emotion-defining neural programs do not become operational until later in development (e.g., those involved in the self-conscious emotions). Disagreements among other theorists revolve around both their definitions of emotion and their depiction of the pre-emotional states that precede it. Several developmental theorists (e.g., Sroufe, L. Barrett) require some level of cognitive development to take place before they are willing to ascribe emotion to infants. Still, they differ in the type of cognition that is required (i.e., "meaningful" appraisal of the elicitor for Sroufe; concept development for Barrett). Michael Lewis requires the development of objective self-awareness and consciousness. Campos requires evidence that infants are acting to achieve emotion-related functional goals. The DS perspective would require the emergence of attractors, that is, context-dependent configurations involving several of the responses considered characteristic of an emotion.

Developmentalists may also differ regarding the nature of the preemotional states that eventually evolve into mature emotions. Similar to Bridges's earlier differentiation and integration model, several current

theorists propose a smaller number of initial states that differentiate to produce a larger set of emotions. These include Sroufe's precursor emotions, Lewis's approach and withdrawal action patterns, and Barrett's core affect. However, despite these theoretical disagreements, much research on emotional development has proceeded without requiring an investigator to explicitly commit to one or another theoretical position.

Beyond their disagreements, scholars generally do agree that emotional development does not take place in a vacuum but is embedded within social interactions and relationships with persons and objects in one's environment. As such, emotional development is inextricably entwined with developments in other conceptual domains that are typically considered (by convention) to be independent research areas, such as the areas of temperament and attachment. For example, some key temperamental constructs are emotional in nature (e.g., fearfulness). Likewise, some key distinctions among different types of attachment relations are characterized by differences in the individual's emotional interactions with attachment figures. Understanding how emotion functions within these domains is necessary in order to comprehend the full scope of emotional life and development. In addition (and reflecting the bidirectional integrated nature of development), individual differences (and sometimes cultural differences) in temperament and attachment importantly influence emotional development itself, for example, the development of emotion regulation. Thus, in order to provide a broader picture of the role of emotion in persons' overall development and functioning, research on temperament and attachment (as well as other emotion-related domains such as personality) are included in this volume. In addition, reflecting psychologists' increasing interest in the neurobiological underpinnings of human behavior, emotion-related functioning of the brain, autonomic nervous system, and **hypothalamic–pituitary–adrenal (HPA) system** are also covered.

In conclusion, students of emotional development today find themselves in a similar position as do students of cognitive development—that is, no dominant theory exists to provide a unified framework encompassing different investigators' research agendas. Whether this state of affairs should be considered anarchistic or liberating might depend on one's own emotional inclinations. Still, working under the DS assertion that order can eventually emerge out of chaos, this book carries forth under the assumption that the many different paths of research pursued by different emotion psychologists can each make a worthwhile contribution to our thinking about emotion and emotional development.