Basic Emotions

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Basic Emotions

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Synonyms

Core emotions; Discrete emotions; First-order emotions; Fundamental emotions; Primal emotions; Primary emotions; Primary-process emotions; Universal emotions

Definition

Basic emotions are hypothesized to be a special class of emotions out of which all other emotions are compounded. According to most theorists, they are innate, universal, and distinct affective states which evolved to serve adaptive functions.

Introduction

The idea that there exists a small set of "basic emotions" dates back to the works of Descartes (1649/1988) who was first to suggest that all emotional states can be derived from six fundamental "passions" (joy, sadness, love, desire, hatred, and wonder). However, the real debate on "emotional basicness" begun with the publication of Darwin's (1872/1998) book entitled *The Expression of the Emotions in Man and Animals*. Darwin argued that emotions are crucial for survival and thus they have distinctive expressions that should be accurately recognized by all humans. This suggestion led many theorists to believe that at least some emotions require no learning and thus are hardwired in the brain and universal.

Which Emotions Are Basic?

Although the view that some emotions are more "basic" than others is widely accepted by emotion theorists, there is little agreement on which emotions should be included in the list of the basic ones. Their number varies depending on the theory (for a review, see Ortony and Turner 1990). The most popular list, sometimes referred to as "The Big Six," was used by Ekman et al. (1969) in their research on universal recognition of emotion from facial expression. The list included happiness, sadness, fear, surprise, anger, and disgust, which are still the most commonly accepted candidates for basic emotions (see Table 1). Over the years some theorists, including Ekman, have shortened or expanded the list. For instance, Plutchnik (1980) added acceptance and anticipation, Ekman (1999; Ekman and Cordaro 2011) added contempt, and Levenson (2011) added interest, relief, and love. More recently, other

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candidates for basic emotions have been proposed, e.g., love or jealousy (Sabini and Silver 2005). Some authors have also used their own terminology. For instance, Panksepp (2007; Panksepp and Watt 2011) listed play, panic/grief, rage, seeking, fear, lust, and care as the basic ("primary-process") emotions.

Criteria for Emotional Basicness

The decision whether a particular emotion qualifies as basic is based on a set of criteria. Although these criteria vary across theories, many authors agree that a basic emotion should be associated with distinctive universal nonverbal expression, distinctive neural and physiological components, distinctive subjective experience, and distinctive regulatory and motivational properties (Izard 2007; Ekman and Cordaro 2011; Levenson 2011). Importantly, all of these elements should be correlated in intensity and coordinated in time because they are thought to be based on the same emotion-specific central mechanism (i.e., *affect program*; Ekman and Cordaro 2011; cf. Barrett 2006).

The Universality of Emotional Expression

Darwin's (1872/1998) suggestion that emotions evolved to serve a communicative function and thus are expressed and recognized in the same way in every culture has inspired a number of cross-cultural studies on the universality of emotional expression. For instance, Ekman and colleagues (Ekman et al. 1969; Ekman and Friesen 1971) demonstrated that facial displays of "The Big Six" are accurately recognized across cultures, both literate and preliterate, regardless of who expresses them – a member of one's own culture or a member of a foreign culture. This, along with the studies on similarities in expression between humans and other primates, provided solid evidence for the evolutionary basis of these six emotions (Ekman 1999). Ekman's findings have been replicated in a number of studies (for a review, see Elfenbein and Ambady 2002). Moreover, similar evidence has been found for vocal expression (Sauter et al. 2009). The universality of emotional expression has been also supported by studies on the spontaneous expressive behavior of congenitally blind individuals (Matsumoto and Willingham 2009). In general, these studies show that emotions considered basic are universally expressed and recognized, which – according to basic emotion theorists – suggests that their nonverbal expression is genetically coded.

Neural Networks Associated with Basic Emotions

Many theorists propose that basic emotions have consistent and specific brain activation profiles (Ekman and Cordaro 2011; Izard 2011; Levenson 2011; Panksepp and Watt 2011). A recent meta-analytic review of neuroimaging studies supports this view by indicating that happiness, sadness, anger, fear, and disgust may be associated with unique patterns of neural activation (Vytal and Hamann 2010). For instance, fear is linked to increased activation of the amygdala and insula, whereas happiness activates the rostral anterior cingulate cortex and right superior temporal gyrus. Importantly, these discrete patterns of neural activation clearly distinguish one basic emotion from another. Further evidence that basic emotions are associated with specific neural networks comes from neuropsychological lesion studies (e.g., Adolphs et al. 1994) and studies on subcortical substrates of emotions in nonhuman mammals (e.g., Panksepp 2011). Taken together, these findings indicate that basic emotions are associated with specific neural correlates, although there is lack of consensus over their precise location (i.e., only some theorist argue that neural networks associated with basic emotions should be located in *subcortical* brain structures; Panksepp and Watt 2011).

Emotion-Specific Autonomic Responding

A number of theorists state that basic emotions can be distinguished by unique patterns of autonomic nervous system activity (e.g., Ekman 1999; Ekman and Cordaro 2011; Levenson 2011). Although early research failed to support this view (for a review, see Larsen et al. 2008), more recent findings have provided evidence that happiness, sadness, anger, fear, and disgust can be associated with specific patterns of autonomic

responding. These patterns, however, might differ across subtypes of emotions. For instance, the physiological response of crying sadness is characterized by increased cardiovascular activity, whereas the physiological response of noncrying sadness is characterized by decreased cardiovascular activity. Corresponding findings have been reported for cardiovascular, respiratory, and electrodermal correlates of other emotions, e.g., anger directed toward others versus anger directed toward the self, contamination-related disgust versus mutilation-related disgust (for a review, see Kreibig 2010). This suggests that autonomic system response might be the basis for distinguishing only the subforms of basic emotions. Importantly, for some emotions that are often considered basic (e.g., surprise), no unique autonomic response patterns have been reported yet. Furthermore, certain "nonbasic" emotions (e.g., pleasure) can also be identified by unique autonomic reactions (Kreibig 2010). On the whole, although there is some evidence for emotion-specific autonomic nervous system activity, future research is needed to explore this issue more thoroughly (Levenson 2014).

Distinctive Subjective Experience

The idea that basic emotions might be characterized by specific feeling components originates from peripheral theories of emotion according to which subjective emotional experience derives from bodily sensations such as changes in heart rate, breathing, or facial muscle activity (James 1884; but see Barrett 2006). Accordingly, anger, sadness, or disgust *feel differently* because they are associated with different patterns of interoceptive and proprioceptive signals. As these patterns are believed to be emotion-specific, they should give rise to distinct subjective emotional experience. This proposition has been supported by research showing coherence between experiential, behavioral, and – to a lesser extent – physiological responses to emotion-eliciting stimuli (Ekman 1999; Izard 2007; Levenson 2014). Importantly, the capacity for experiencing emotional feelings, similarly to the capacity for expressing basic emotions, cannot be learnt (Izard 2011). For instance, it is impossible to teach someone how it feels to be happy or angry. This suggests that the feeling component of a basic emotion, similarly to its expressive, neurobiological, and physiological components, is a product of evolution (Izard 2011; Levenson 2014).

Motivational and Regulatory Functions

Many emotional theorists assume that basic emotions evolved to serve crucial biological and social functions and thus they are characterized by distinct motivational and regulatory characteristics (e.g., Ekman 1999; Izard 2011; Levenson 2011). According to this view, basic-emotion feeling states have power to uniquely motivate and regulate behavioral and cognitive responses to a wide range of environmental and social challenges and opportunities. For example, fear is associated with actions and thoughts aimed at escaping the source of threat and maximizing safety, while anger promotes actions and thoughts concentrated on removing obstacles (Izard 1992). Importantly, after the early childhood period, such stereotypical, rapid, emotion-specific reactions may be perceived as inappropriate, and thus they are activated only in response to highly intense and ecologically-valid stimuli. Accordingly, fear increases the likelihood of escape, but typically does not lead to escape, because in ordinary life situations, actions and thoughts are multiply determined (Izard 2011; Levenson 2011).

"Nonbasic" Emotions

Emotions which do not meet the criteria for emotional "basicness" are considered "nonbasic" or secondary. According to most theorists, they cannot be characterized by distinct expressions or specific patterns of physiological response because they are not preprogrammed by evolution (Ekman 1999; Levenson 2011; Panksepp and Watt 2011). In contrast to basic emotions, "nonbasic" emotions differ across individuals because they are thought to be largely shaped by sociocultural factors. For instance, the activation of embarrassment or guilt is determined by the development of cognitive abilities associated with self-other distinctions or social comparisons (Izard 2011). "Nonbasic" emotions are commonly believed to be formed out of

basic emotions. For example, according to a multidimensional model of emotions (Plutchnik 1980), the blending of fear and surprise produces a mixed emotion of awe, while the blending of sadness and disgust produces a mixed emotion of remorse. Although most theorists agree that primary emotions might serve as "building blocks" for more complex emotional states (Ekman 1999; Izard 2011; Levenson 2011; Panksepp and Watt 2011), the mechanisms involved in this process have not yet been fully elucidated.

Controversies Over the Idea of Basic Emotion

Over the years, the notion of a "basic emotion" has been subjected to a detailed critique (e.g., Barrett 2006; Ortony and Turner 1990; Russell 1994; Turner and Ortony 1992). Several critics have commented on the lack of consensus on what emotional basicness is. For instance, Ortony and Turner (1990) distinguished three different levels at which an emotion may be basic – the conceptual level, the biological level, and the psychological level – and pointed out that although some emotions may be considered basic at one of these levels, they are nonbasic at other levels. This, according to Ortony and Turner, makes it difficult to decide which emotions are basic and thus challenges the utility of the concept of basic emotions. The methods used by basic emotion researchers have also met with criticism. For instance, Russell (1994) argued that the use of forced-choice response format, preselected, posed facial expressions, within-subject design, and lack of contextual information might have limited the validity of the findings. Basic emotions theorists have also been criticized for neglecting the social aspects of emotions. Psychological constructionists, for instance, have pointed out that conceptualizing basic emotions as biologically based cannot be supported by empirical data because, contrary to basic emotion theories, the coordination between expressive, neurobiological, physiological, experiential, behavioral, and cognitive responses to emotion-eliciting stimuli is low. For example, emotional signals – both vocal and facial – may not convey precise and reliable information about the expresser's feeling state because emotional expression is largely influenced by social context (e.g., smiling or laughing is not always associated with *being* happy but may also indicate confusion or embarrassment). This, according to the critics, suggests that basic emotions cannot be identified by a set of distinctive, coordinated characteristics based on emotion-specific central mechanisms (e.g., Barrett 2006). The core idea of a basic emotion theory – that certain emotions are innate – has also been called into question. For example, the fact that young children do not have the ability to differentiate between various emotion categories indicates that emotions may not be hardwired into the brain at birth. Psychological constructionists thus challenge the view that some emotions can be organized into discrete categories that are imposed by nature. Instead, they propose that mental states called basic emotions are, in fact, "classification schemes that people impose on their world during perception" (Barrett 2006, p. 46).

Conclusion

Although the concept of basic emotions has been highly popular in psychology, there is no generally acceptable list of basic emotions or generally acceptable criteria for their "basicness." Moreover, basic emotion researchers do not agree about the prevalence of basic emotions in ordinary life. While most of them state that "pure" basic emotions are rarely experienced by adults (because they interact with higher order cognitive processes to produce more complex emotional states; e.g., Izard 2011; Levenson 2011; Panksepp and Watt 2011), some authors suggest that basic emotions are more common (Ekman and Cordaro 2011). Thus, as it has been recently noted (Russell et al. 2011), the popular phrase *basic emotion theory* does not refer to a single model but to a set of overlapping and ever-changing theories. Yet, despite some noticeable differences between these theories, over the years several areas of agreement have been identified. First, most researchers agree that the number of basic

Basic Emotions, Table 1 Selected lists of basic emotions

Reference	Basic emotions						
	"The Big Six"						
	Happiness (joy, enjoyment, play)	Sadness (grief)	Anger (rage)	Disgust	Fear/ anxiety	Surprise	Other
Plutchnik (1980)	✓	✓	✓	✓	✓	✓	Acceptance, anticipation
Oatley and Johnson-Laird (1987)	✓	✓	✓	✓	✓	✗	–
Ekman and Cordaro (2011)	✓	✓	✓	✓	✓	✓	Contempt
Izard (2011)	✓	✓	✓	✗	✓	✗	Interest
Levenson (2011)	✓	✓	✓	✓	✓	✓	Interest[a], relief[a], love[a]
Panksepp and Watt (2011)	✓	✓	✓	✗	✓	✗	Seeking, lust, care

[a]An emotion included in the list, but according to the author(s), the evidence for its inclusion is insufficient

emotions is limited. Second, even though the lists of basic emotions differ, happiness, sadness, anger, and fear appear in most of them (see Table 1). Third, there is some overlap with regard to the "basicness criteria" which, according to many theorists, are the universality of emotional expression, unique physiological correlates, distinct subjective experience, and characteristic adaptive functions. Overall, despite some differences, the theories of basic emotions show significant similarities and thus offer a conceptual framework for future research in the field.

Cross-References

- ▶ Anger
- ▶ Darwin, Charles
- ▶ Disgust
- ▶ Ekman, Paul
- ▶ Emotional Networks in the Brain
- ▶ Evolutionary Psychology and the Emotions
- ▶ Facial Expressions and Emotion
- ▶ Fear
- ▶ Happiness
- ▶ Interest
- ▶ Izard, Carroll E.
- ▶ Panksepp, Jaak
- ▶ Plutchik, Robert
- ▶ Psychoevolutionary Theory of Emotion (Plutchik)
- ▶ Sadness
- ▶ Surprise

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