

Models of Emotion

Nicolae Sfetcu

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Email: nicolae@sfetcu.com



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Emotion is a mental state induced by one or more internal or external stimuli, (Panksepp 2004) (A. R. Damasio 1998) (Ekman și Davidson 1994) which determines chemical bodily changes, behavioral responses and a certain state. (Cabanac 2002) (D. L. Schacter, Gilbert, și Wegner 2011) Emotion is in a permanent interdependence with the mood, temperament, personality, disposition and motivation of the person. (.about.com 2019) The meaning of the word emotion in everyday language is quite different from that in academic discourse. (Fehr și Russell 1984)

The term "*emotion*" was introduced in research to designate passions, feelings and affections. (Dixon 2003) The modern concept of emotion appeared around the 1830s. "No one felt emotions before about 1830. Instead they felt other things - "passions", "accidents of the soul", "moral sentiments" - and explained them very differently from how we understand emotions today." (Smith 2016) Emotions can be defined as a positive or negative experience associated with a particular pattern of physiological activity. The initial role of emotions was to motivate adaptive behaviors that in the past would have contributed to the transmission of genes through survival, reproduction and natural selection." (D. Schacter et al. 2011) (Pinker și Foster 2014) The Oxford Dictionary defines emotion as "A strong feeling deriving from one's circumstances, mood, or relationships with others." (Oxford 2019) Joseph LeDoux defined emotions as the result of a cognitive and conscious process that appears in response to stimuli that act on the body. (Emory 2018)

Emotions can be events or dispositions, of variable duration, (Scarantino și de Sousa 2018) with an intensity on a continuous scale according to psychotherapist Michael C. Graham. (Graham, Priddy, și Graham 2014) Emotional responses may be verbal, physiological, behavioral, and / or neural mechanisms. (Fox 2008) Emotions result in physical and psychological changes that

influence behavior. (D. L. Schacter, Gilbert, și Wegner 2011) They are often the driving force behind motivations. (Gaulin și McBurney 2003) Emotions are responses to significant internal and external events. (D. Schacter et al. 2011) Emotions facilitate adaptation to the environment, resulting from evolution. (Ekman 1992) Emotions allow communication in a community, (Fielding 2015) with positive or negative ethical value.

The classification of emotions is not universal, and depends on the cultural context, (Russell 1991) although some emotions have an intercultural character, they are universal. (Wierzbicka 1999) Graham differentiates emotions as functional or dysfunctional and argues that all functional emotions have benefits. Another way of classifying emotions is according to the possible target. (Hume 2011) Depending on the length of life, one can distinguish between emotional (short-term) episodes and emotional dispositions (comparable to character traits). Other specialists include emotions in a more general category of "affective states". (Schwarz 2012)

Paul Ekman argued that emotions are discrete, measurable and physiologically distinct, some being even universally recognizable, independent of culture, respectively anger, disgust, fear, happiness, sadness and surprise. (Handel 2011) Recent studies by Daniel Cordaro and Dacher Keltner have expanded the list of emotions. (Cordaro et al. 2016) (Cordaro et al. 2018) (Keltner, Oatley, și Jenkins 2013) Robert Plutchik developed the "wheel of emotions", suggesting eight primary emotions positively or negatively grouped: joy versus sadness; anger versus fear; trust versus disgust; and surprise versus anticipation. (Handel 2011) Complex emotions arise from the combination of basic emotions in a certain cultural context. (Plutchik 2001)

Models of emotion

Emotion may be different from other similar constructs, (Fox 2008) such as feelings (not all feelings include emotion; (Givens 2014) moods (they last much longer than emotions, are less

intense and often lack contextual stimulation (Hume 2011)), or affect (experience of feeling or emotion).

Plato, in *Republic*, proposes three basic components of the human mind: reasoning, desire and emotional parts. (Plato 2015) For Aristotle, emotions were important in the moral life, an essential component of virtue. (Aristotel 1566) The Stoics have emphasized the importance of emotions in judgment (in Stoic theories, emotions are considered a hindrance to reason, and therefore to virtue). In the Middle Ages the Aristotelian vision was developed by scholasticism, especially by Thomas Aquino. (Aquinas 2013) Avicenna (11th century) can be considered as a precursor to emotional intelligence, considering that emotions influence health and behaviors and suggesting the need to manage emotions. (Haque 2004) In ancient China, excessive emotions were considered harmful, including for vital organs. (Suchy 2011)

The theory of evolution, through Charles Darwin's 1872 book, *The Expression of the Emotions in Man and Animals*, influenced the perspective on emotions. (Darwin și Prodger 1998) Darwin argued that emotions evolved through the inheritance of acquired characters, (Sheldrake 2015) but that they do not serve now any evolutionary purpose for humans, neither in communication nor in survival. (Hess și Thibault 2009) From the study of non-verbal expressions, he concluded that some expressions have intercultural universality, exemplifying with homologous expressions of emotions that appear in animals. This aspect led to the neuronal study of emotions.

In the early modern era, emotions were addressed in the works of philosophers, such as René Descartes, Niccolò Machiavelli, Baruch Spinoza, (A. Damasio 2003) Thomas Hobbes (Hobbes 1651) and David Hume. Emotions were considered adaptive and, in sec. 18, have been studied mainly from an empirical psychiatric perspective. An emotion model developed by

Descartes and supported by many contemporary psychologists takes into consideration a few basic emotions from which all other emotions are composed. Hobbes has assimilated "passions" with specific attractions or aversions. Hume considered that reason is the slave of passions, and for Spinoza emotions make the difference between the best and the worst life, influencing the power of the soul. Kant saw emotions as essentially connotative phenomena.

There are alternative models, which are based on the evaluation of certain properties, based on physiology or evolutionary psychology. (Panksepp 2004) (Tooby și Cosmides 2008) Classical philosophers have addressed emotions as responses to certain types of events that are related to a subject, causing bodily and behavioral changes. In the last century emotions were neglected, being considered a disturbing factor. Lately, emotions have returned to the attention of philosophers and psychologists, corroborating them with other disciplines such as psychology, neurology, evolutionary biology and even economics.

William James argued in 1884 (James 1884) that feelings and emotions are secondary to physiological phenomena, considering that the perception of "exciting facts" directly determines physiological responses ("emotions") (Carlson 2012) According to him, stimuli trigger activity in the autonomic nervous system, which thus producing an emotional experience in the brain. He started from the idea that emotions are a class of feelings, different from sensations and perceptions by their experienced quality, developing together with Carl G. Lange the "James-Lange theory" of emotion. (James 1884) According to this theory emotions are specific feelings caused by changes in physiological conditions related to autonomic and motor functions. James stated that "we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble, because we are sorry, angry, or fearful". (James 1884, 190) Thus, a stimulus that evokes emotion triggers a pattern of physiological response that is interpreted as a particular

emotion, an interpretation supported by experiments. (Laird 2007) However, this theory does not distinguish between emotions, according to Walter Cannon. (Cannon 1929a) According to James, what distinguishes emotions is that each involves the perception of a unique set of bodily changes. The James-Lange theory is disputed in terms of causality (body states that provoke emotions and are *a priori*), (Reisenzein, Meyer, și Schützwohl 1995) but most contemporary neurologists use the components of the theory. (Dalglish 2004) The main contribution of the theory is the emphasis on embodying emotions, the fact that changes in bodily correspondences of emotions can change the experienced intensity. (Dalglish 2004, 583)

Walter Bradford Cannon has argued that physiological responses are too slow and often imperceptible, and thus could not represent the relatively rapid and intense subjective awareness of emotion, (Carlson 2012) resulting in rather undifferentiated responses. (Cannon 1929b) (Cannon 1987) An event that evokes emotion simultaneously triggers both a physiological response and a conscious experience of an emotion. Phillip Bard developed this theory, known as the Cannon-Bard theory. Following Bard's studies, Cannon argued that emotional stimuli trigger both physiological and experiential aspects of emotion simultaneously. (Cannon 1929b)

Taylor believes that emotions are closely related to the reasons that give rise to them. (Taylor 1975) Although the basic psychological processes depend on socio-cultural practices and meanings, (Triandis 2000) the concept of emotion being relatively new did not convincingly approach the intercultural aspect, (Sharma et al. 2009) culture influencing essentially understanding and expressing emotions. (Lewis, Haviland-Jones, și Barrett 2008) Psychologists use methods such as factor analysis to limit emotions to measurable and at the same time differentiable dimensions. (Scherer et al. 2013) Based on these dimensions, coordinate maps are

constructed (Osgood, Suci, și Tannenbaum 1957) to highlight an important component of emotion, the affect of the nucleus. (D. L. Schacter, Gilbert, și Wegner 2011) (Russell și Lisa Feldman 1999)

Contemporary views have focused on motivating, by emotions, adaptive behaviors in the ancestral environment. (Gaulin și McBurney 2003) Emotions are thus viewed as influencing decisions. (Lerner et al. 2015) Somatic theories from the 19th century, especially through William James, support the paramount importance of bodily responses to emotions. The theory lost ground in the 20th century, but has recently been resumed in the neurological studies (Pace-Schott et al. 2019) of theorists such as John Cacioppo, (Cacioppo 1998) António Damásio, (Aziz-Zadeh și Damasio 2008) Joseph E. LeDoux (LeDoux 1996) and Robert Zajonc. (Emerick 1997)

The two-factor theory of Stanley Schachter is based on the studies of a Spanish doctor, Gregorio Marañón, according to which physiological reactions contribute to the emotional experience, facilitating a focused cognitive evaluation of a given physiological excited event, and this assessment is what defines the subjective emotional experience . Emotions are thus a result of the process in two stages: general physiological arousal and experience of emotion. (D. L. Schacter, Gilbert, și Wegner 2010) The experiments on which this theory is based have been criticized by Jesse Prinz. (Prinz 2004)

Subsequently, several cognitive theories were developed that considered the cognitive activity required for an emotion to occur. Richard Lazarus, for example, argued that emotions must have a certain cognitive intent. Emotion would thus be a disturbance arising from a cognitive appraisal followed by physiological changes that cause an action. The quality and intensity of emotions would thus be controlled by cognitive processes. Another example is Robert C. Solomon, (Solomon 1993) who argues that emotions are judgements. His objection to cognitivism is that it can occur with or without emotion, so judgment cannot be identified with emotion.

Perceptual theories use perceptions to reach emotions, (Goldie 2007) being hybrid theories of somatic and cognitive theories. Such a theory argues that both bodily responses and the meaning of emotions are important to emotions, according to cognitive theories. According to this theory it follows that cognition on a conceptual basis is not necessary, as bodily changes causally include the significant content of the emotion, providing information about the relationship between the subject and the world. The theory was supported by philosopher Jesse Prinz in his book *Gut Reactions* (Prinz 2004) and psychologist James Laird in the book *Feelings*. (Laird 2007)

The theory of affective events was developed by Howard M. Weiss and Russell Cropanzano in the context of lucrative activities. (Weiss și Cropanzano 1996) They consider that emotions are influenced and caused by events that in turn influence attitudes and behaviors. The theory was used by researchers to better understand emotion from a communicative perspective, being reviewed by Howard M. Weiss and Daniel J. Beal. (Weiss și Beal 2005)

A situated perspective on emotion, developed by Paul E. Griffiths and Andrea Scarantino, addresses situationalism in psychology, (Griffiths 2004) focusing on external factors in the emotional process considered purely internal, the environment being only a stimulus of emotion. In contrast, the situationist perspective sees emotion as the product of an organism that is influenced by its environment and the responses of other organisms. Emotion thus becomes an active factor in social relationships.

Emotions being a motivating factor in social interactions and relationships, are directly related to basic physiology. Emotional phenotype temperament affects social connections in complex social systems, (Kotrschal 2013) due to genes, through information encoded in DNA sequences and natural selection of hereditary traits.

The neurobiological theory explains the emotion as an organized mental state in the limbic system of the brain, as patterns of general vertebral arousal with intensity depending on neurochemicals (dopamine, noradrenaline, serotonin, ...), mediated by pheromones and resulting in bodily changes. (Givens 2014) Emotions are related to certain brain activities that direct our attention, motivate our behavior and determine the significance of what is happening around us. Paul Broca, (Broca 1878) James Papez, (Papez 1995) and Paul D. MacLean (Maclean 1952) concluded that emotion is linked to the limbic system in the brain's center.

Other theories are based on the idea of the left prefrontal cortex activated by stimuli that provoke a positive approach. (Kringelbach et al. 2003) Selective activation of the specific region of the brain causes a positive stimulus. The theory was later expanded to include negative stimuli. (Merckelbach și Van Oppen 1989) Following verification of several neurobiological models of emotion in the prefrontal cortex, the so-called "directional" model was accepted, which made better predictions. (Harmon-Jones et al. 2004)

A neurological approach by Bud Craig in 2003 distinguishes two classes of emotions: "classical" (evoked by environmental stimuli) and "homeostatic" (which requires attention, evoked by the states of the body) that motivate the behavior and maintain the internal environment of the body in his ideal state. (Craig 2003) Derek Denton regards homeostatic emotions as "primordial emotions", defining them as "the subjective element of the instincts, which are the genetically programmed behavior patterns which contrive homeostasis. They include thirst, hunger for air, hunger for food, pain and hunger for specific minerals etc. There are two constituents of a primordial emotion--the specific sensation which when severe may be imperious, and the compelling intention for gratification by a consummatory act." (Denton et al. 2009)

Joseph LeDoux states that the amygdala can release hormones through a trigger (such as a reaction), but "then we elaborate it through cognitive and conscious processes." (Emory 2018)

Lisa Feldman Barrett highlights the differences in emotions between different cultures in the theory of constructed emotion, and states that emotions "are not triggered; you create them. They emerge as a combination of the physical properties of your body, a flexible brain that wires itself to whatever environment it develops in, and your culture and upbringing, which provide that environment." (Barrett 2017)

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