1. May, 2016

Neuroscientific Perspectives of Emotion

The fourth chapter of the Oxford Handbook of Affective Computing is written by Andrew H. Kemp, Jonathan Krygier, and Eddie Harmon-Jones. Kemp et al. are all members of their respective School of Psychology at their University. Kemp is an Honorary Associate Professor at the University of Sydney, Krygier is a Ph.D. Student at the University of Sydney, and Harmon-Jones is a Professor at the University of New South Wales.

The authors discuss the neuroscience of emotion and specifically references a debate about emotion "between the psychological constructionists and the basic emotion theorists. (pg. 38)" In other words, the debate regards emotive systems as either constructed based on experiences or natural and inherent (pg. 39). Due to differing methods used to reach both positions, "a multimodal approach to affective neuroscience may help to resolve the debate. (pg. 39)" I hypothesize, that emotive systems are similar to any other system; which by an initial basic setting, that system is hardwired. In the case of affecti driven systems, only then might future experiences be constructed emergently via a kind of stigmergy.

There are many key areas of the brain that process emotion. The prefrontal cortex, amygdala, anterior cingulate, and insula are responsible for, respectively, regulating emotion, "stimulat[ing] salience and motivational significance, (pg. 39)" selecting stimuli, and "feelings and consciousness. (pg. 39)" Furthermore, "[e]motion is often defined as a multicomponent response to a significant stimulus characterized by brain and bodily arousal and a subjective feeling state that elicits a tendency toward motivated action. (pg. 39)" Whereas these processes occur in specific regions, there is not a scientific consensus about whether this phenomenon is *discovered* or *created* by the human mind (pg. 42).

Moreover, as LeDoux (2012) finds, the idea of 'emotion' is poorly defined in the neuroscientific community (pg. 42). Finally, affective computing research that utilizes "facial expressions, brain electrical activity, sweat response, heart rate, and respiration" and many other sources of objective information from the brain and body will likely resolve ambiguities in understanding emotion (pg. 50).

Other topics:

Psychology
Constructivism (pg. 38)
Basic Emotions Theory (pg. 38)
Facial Expressions - Ekman & Friesen (pg. 48-49)

Neuroscience
Polyvagal Theory (pg. 38)
Somatic Marker Hypothesis (pg. 38)
Detecting the specifics of emotions - Calvo & D'Mello (2010), Fairclough (2009) (pg. 39)
Hardwired emotions - Pankseep & Watt (2011), Vytal & Hamann (2010) (pg. 42)
Valence and arousal - Barrett (2006, 2012), Lindquist et al. (2012) (pg. 42)