Introduction to Emotion

Module Preview

Emotions are psychological responses that involve an interplay among (1) physiological arousal, (2) expressive behavior, and (3) conscious experience.

James and Lange argued that we feel emotion after we notice our bodily responses. Cannon and Bard contended that we feel emotion when our body responds. Schachter and Singer’s two-factor theory states that to experience emotion, we must be aroused and cognitively label the emotion.

Although the physical arousal that occurs with the different emotions is for the most part indistinguishable, researchers have discovered subtle differences in brain circuits, finger temperatures, and hormones. In using physiological indicators to detect lies, the polygraph does better than chance but not nearly well enough to justify its widespread use.

Some emotional responses are immediate, as sensory input bypasses the cortex, triggering a rapid reaction outside our conscious awareness. Others, especially responses to complex emotions, require interpretation.

Module Guide

- Introductory Exercise: Fact or Falsehood?
- Exercise: Need for Affect Scale
- Lecture: Would You Like Never to Be Sad Again, Etc.?
- Videos: Discovering Psychology, Updated Edition: Motivation and Emotion; Module 21 of The Brain series, 2nd ed.: Emotions, Stress, and Health

Theories of Emotion

- Exercises: Facial Feedback and the James-Lange Theory of Emotion; A Process Model of Emotion Regulation
- Instructor Video Tool Kit: Emotion = Arousal Plus Interpretation

40-1. Identify the three components of emotion, and contrast the James-Lange, Cannon-Bard, and two-factor theories of emotion.

An emotion is a response of the whole organism that involves an interplay among (1) physiological arousal, (2) expressive behaviors, and (3) conscious experience.

The James-Lange theory states that our experience of an emotion is a consequence of our physiological response to a stimulus; we are afraid because our heart pounds. The Cannon-Bard theory, on the other hand, proposes that the physiological response and our emotional experience occur simultaneously—one does not cause the other. Schachter and Singer’s two-factor theory focuses on the interplay of thinking and feeling, not on the timing of feelings. This theory states that to experience emotion, one must (1) be physically aroused and (2) cognitively label the arousal.
Embodied Emotion

- Exercise: Sensation-Seeking Scale
- Videos: Program 18 of Moving Images: Exploring Psychology Through Film: Sensation-Seeking: The Biology of Personality; Module 20 of Psychology: The Human Experience: The Physiology of Emotions

40-2. Describe the physiological changes that occur during emotional arousal, and discuss the relationship between arousal and performance.

The autonomic nervous system (ANS) controls arousal. In an emergency, the sympathetic nervous system automatically mobilizes the body for fight or flight, directing the adrenal glands to release hormones that increase heart rate, blood pressure, and blood sugar level. Other physical changes include tensed muscles, dry mouth, dilated pupils, slowed digestion, and increased sweating. The parasympathetic nervous system calms the body after a crisis has passed, although arousal diminishes gradually.

In many situations, arousal is adaptive. For example, when taking an exam, moderate arousal is best. In general, too little arousal can be disruptive; too much can tax the body.

Similar physiological arousal occurs during fear, anger, and sexual arousal. Nonetheless, these emotions feel different. Despite similar arousal, sometimes our facial expressions differ during these three states. For example, people may appear “paralyzed” with fear.

- Exercise: Estimating the Effects of Test Error
- Lectures: Oxytocin and Trust; The Brain and Emotion; Government Confidence in the Polygraph; Interviewing for Integrity
- Project: Assessing Brain Asymmetry
- Instructor Video Tool Kit: Brain Fingerprinting: Memory, Recognition, and Lie Detection

40-3. Describe the relationship between physiological states and specific emotions, and discuss the effectiveness of the polygraph in detecting lies.

Fear and rage are sometimes accompanied by differing finger temperatures and hormone secretions. Emotions may also stimulate different facial muscles. During fear, brow muscles tense. During joy, muscles in the cheek and under the eye pull into a smile. Emotions differ much more in the brain circuits they use. For example, brain scans show increased activity in the amygdala during fear. Finally, emotions activate different areas of the brain’s cortex. The right prefrontal cortex becomes more electrically active as people experience negative emotions, such as disgust. The left frontal lobe shows more activity with positive emotions.

The polygraph measures several physiological indicators of emotion—for example, changes in breathing, cardiovascular activity, and perspiration. Research suggests it errs about one-third of the time, too often to justify its widespread use in business and government. It more often labels the innocent guilty than the guilty innocent. A more effective approach is the guilty knowledge test. Several research teams are exploring new ways to detect deception.

- Lectures: Cognitive Appraisals and Emotion; Public and Private Self-Consciousness

40-4. Explain the role of cognition in emotion, and discuss how neurological processes may enable us to experience some emotions prior to conscious thought.

The spillover effect occurs when arousal from one event affects our response to other events. Dozens of experiments show that a stirred-up state can be experienced as different emotions depending on how we interpret and label it. Arousal fuels emotion and cognition channels it.

Sometimes we experience unlabeled emotion. Sensory input can follow a pathway that leads via the thalamus to the amygdala, bypassing the cortex and triggering a rapid reaction that is outside our conscious awareness. Other, more complex emotions, including hatred and love, require interpretation and are routed along the slower route to the cortex for analysis. Automatic emotion and the importance of conscious thinking in emotion illustrate our two-track minds.