MODULE 17

Introduction to Sensation and Perception

Module Preview

Sensation is concerned with how the outside world gets represented inside our heads, and we are exquisitely sensitive to some of the stimuli around us. Perception involves the ways in which we interpret those stimuli. Research reveals that we process some information from subliminal stimuli, but only under certain restricted conditions. We also are selective about the stimuli we attend to and notice.

Module Guide

Introducing Sensation and Perception

- ➤ Introductory Exercise: Fact or Falsehood?
- ➤ Lectures: Sensation Versus Perception; Top-Down Processing
- ➤ Exercises: A Scale to Assess Sensory-Processing Sensitivity; Human Senses Demonstration Kits
- ➤ Videos: Program 10 of *Moving Images: Exploring Psychology Through Film: Sensation Without Perception: Visual Prosopagnosia;* Module 8 of *Psychology: The Human Experience: Introducing Sensation and Perception; Discovering Psychology, Updated Edition: Introducing Sensation and Perception*
- ➤ Instructor Video Tool Kit: *The Man Who Cannot Recognize Faces*

17-1. *Contrast sensation and perception, and explain the difference between bottom-up and top-down processing.*

Sensation is the process by which our sensory receptors and nervous system receive and represent stimulus energies from our environment. ***Bottom-up processing*** is analysis that begins with the sense receptors and works up to the brain's integration of sensory information. ***Perception*** is the process of organizing and interpreting sensory information, enabling us to recognize meaningful objects and events. ***Top-down processing*** is information processing guided by our experience and expectations.

Thresholds

- ➤ Lectures: Gustav Fechner and Psychophysics; Subliminal Smells; Subliminal Persuasion; Applying Weber's Law
- ➤ Projects: The Variability of the Absolute Threshold; Understanding Weber's Law
- ➤ Video: Module 9 of *The Mind* series, 2nd ed.: *Studying the Effects of Subliminal Stimulation on the Mind*

17-2. *Distinguish between absolute and difference thresholds, and discuss whether we can sense and be affected by stimuli below our absolute threshold.*

In studying the relationship between physical energy and psychological experience, researchers in ***psychophysics*** identified an ***absolute threshold*** as the minimum stimulation needed to detect a particular stimulus 50 percent of the time. ***Signal detection theory*** predicts how and when we detect the presence of a faint stimulus, assuming that our individual absolute thresholds vary with our experiences, expectations, motivation, and alertness.

The ***priming*** effect, as shown in experiments, reveals that we *can* process some information from stimuli too weak to recognize, indicating that much of our information processing occurs automatically, unconsciously. But the effect is too fleeting to enable advertisers to exploit us with ***subliminal*** messages.

A ***difference threshold*** is the minimum difference between two stimuli that a person can detect 50 percent of the time. In humans, difference thresholds (experienced as a *just noticeable difference* [*jnd*]) increase in proportion to the size of the stimulus—a principle known as ***Weber's law***.

Sensory Adaptation

➤ Exercise: Eye Movements
➤ Project: Sensory Adaptation

17-3. *Describe sensory adaptation, and explain how we benefit from being unaware of unchanging stimuli.*

Sensory adaptation refers to diminished sensitivity as a consequence of constant stimulation. Constant, unchanging images on the eye's inner surface fade and then reappear. The phenomenon of sensory adaptation enables us to focus our attention on informative changes in our environment without being distracted by uninformative background stimulation.