Perception

Perception is a process that involves organizing, identifying, and interpreting sensory inputs for the purpose of representation and understanding of the environment. When a sensory organ is stimulated, the receptors send signals to the nervous system for perception to take place.

Components of Perception

There are three components of perception according to Alan Saks and Gary Johns (2011):

1. **The Perceiver.** This refers to a person whose awareness is focused on the stimulus, and thus begins to perceive it. There are many factors that may influence the perceptions of the perceiver. The three major factors include motivational state, emotional state, and experience. All of these factors, especially motivation and emotion, greatly contribute to how the person perceives a situation. Oftentimes, he or she may employ the so-called "perceptual defense", which means that the person only perceives what he wants to perceive, even though the stimulus acts on his or her senses.

2. **The Target.** This includes the object of perception. It is something or someone who is being perceived. The amount of information gathered by the sensory organs of the perceiver affects the interpretation and understanding about the target.

3. **The Situation.** The environmental factors, timing, and degree of stimulation also affect the process of perception. These factors may render a single stimulus to be left as merely a stimulus, not a percept that is subject for brain interpretation. However, ambiguous stimulus may sometimes be transduced into one or more percepts. When this occurs, a process called "multistable perception" occurs.

Weber-Fechner Law

The oldest quantitative law of perception and in the entire branch of psychology is the Weber-Fechner Law [1]. The law was proposed by Ernst Heinrich Weber (1795–1878), one of the first researchers that were able to describe physical stimulus in quantitative terms, and Gustav Theodor Fechner (1801–1887), a German experimental psychologist. The law is actually a combination of the Weber law and the Fechner law. The Weber states that the just-noticeable difference (i.e., the smallest measurable discrepancy between a primary and secondary level of a stimulus) is proportional to the magnitude of the stimulus. In mathematical terms, the equation for the Weber law is:

$$k = \frac{\Delta I}{I}$$

Where: $k$ = a constant

$I$ = the background intensity
The difference between the intensity of the JND stimulus and background intensity. Meanwhile, the Fechner theory holds that subjective sensation is proportional to the logarithm of the intensity of the stimulus. It is expressed as:

\[ S = k \log I \]

Where: \( S \) = the allocation of the stimulus to the psychological or discriminual continuum  
\( I \) = the stimulus magnitude

Thus, this combined law presents the relationship between the intensity or degree of physical stimulus and its perceptual effects in quantifiable terms. For instance, the law can be used to calculate how much the volume of a radio should be decreased before the perceiver notices.

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