

CHAPTER TWO

SENSATION AND PERCEPTION

- Before anything else, psychological life begins with the activity of knowing what is happening around.
- *Sensation and perception* are the first important dimensions of this intelligent life.
- That is, they are *starting points* for all of your other psychological processes.
- They supply the data you use for-
 - learning and remembering,
 - thinking and problem solving,
 - communicating with others, and experiencing emotions and
 - for being aware of yourself.
- Without access to the environment through sensation and perception, you would be like a person in a coma devoid of any thoughts or feelings.

2.1.The meanings of sensation and perception

- Sensation is the process whereby stimulation of receptor cells in the eyes, ears, nose, mouth, and surface of the skin sends nerve impulses to the brain.
- Sensations are closely tied to what is happening in the sensory systems themselves.
- Color, brightness, the pitch of tone or a bitter taste are examples of sensations.

- The starting point of sensations is a *stimulus*.
- A form of energy (such as light waves or sound waves) that can affect sensory organs (such as the eye or the ear).
- Sensation is therefore the process that detects the stimulus from one's body or from the environment.

How different is sensation from perception?

- Perception is the process that organizes sensations into meaningful patterns.
- It is the process whereby the brain interprets sensations, giving them order and meaning.
- Thus, hearing sounds and seeing colors is largely a sensory process,
- But forming a melody and detecting patterns and shapes is largely a perceptual process.

Why do we say “largely” in the above expression?

- We say largely because in everyday life, it is almost *impossible to separate* sensation from perception.
- As soon as the brain receives sensations, it automatically interprets or perceives them. and
- Without sensations of some kind perception could not occur.

2.2.The sensory laws: Sensory thresholds and sensory adaption.

- There are certain sensory laws that explain how sensation works.
- *Sensory threshold and sensory adaptation* are the two general laws of sensation.

1. Sensory threshold is the *minimum point* of intensity a sound can be detected.

- There are two laws of sensory threshold:
- The law of absolute threshold and
- The law of difference threshold.

A. The absolute threshold

- The minimum amount of stimulation a person can detect.
- Psychologists operationally define the absolute threshold as *the minimum level of stimulation* that can be detected *50 percent* of the time when a stimulus is presented over and over again.
- The smallest (weakest) amount of energy that we can detect or a sense will respond.

Factors affecting the absolute threshold

- The intensity/strength /amount of the stimulus
- The physical and psychological state of the individual.
- One of the most important psychological factors is *the response bias-how* ready the person is to report the presence of a particular stimulus.
- Imagine that you are waking down a street at night. Your predisposition to detect a sound depends, in part, on your estimate of the probability of being mugged, so you would be more likely to perceive the sound of footsteps on a neighborhood you believe to be dangerous than in a neighborhood you believe to be safe.

- The absolute threshold is therefore the point at which a stimulus goes from *undetectable to detectable* to our senses.
- Example:
- **Hearing**: sound of a clock that tick from 20 feet away at quite condition.
- **Vision**: a candle flame seen at 30 miles in a dark, clear night.
- **Taste**: one teaspoon of sugar dissolved in 2 gallons of water.
- **Smell**: one drop of perfume diffused throughout 3 rooms.
- **Touch**: the wing of bee falling on your cheek from a distance of 1cm.

B. The difference threshold

- Detecting changes in the intensity of a stimulus.
- The minimum amount of change that can be detected is called difference threshold.
- For example, a cup of coffee would require a certain amount of additional sugar before you could detect an increase in its sweetness.
- Similarly, you would have to increase the intensity of the sound from your tape recorder a certain amount before you could detect a change in its volume.
- The smallest difference between two stimuli that can be detected or discriminated.

- Like the absolute threshold, the difference threshold for a particular sensory experience varies from person to person and from occasion to occasion.
- Therefore, psychologists formally define the difference threshold as the minimum change in stimulation that can be detected *50 percent* of the time by a given person.
- This difference in threshold is called the just noticeable difference (jnd).

- The amount of change in intensity of stimulation needed to produce a jnd is *a constant fraction of the original stimulus*.
- This became known as *Weber's law*.
- For example, the difference between two similar oranges.

2. Sensory Adaptation

- It is an adjustment in sensory capacity following *long period of exposure* to stimuli.
- It is the tendency of receptor cells in the sense organs to respond less and less to a constant stimulus.
- Adaptation occurs as a result of prolonged exposure to stimuli, a change in the attitude and expectation of the individual.
- E.g. Once we adapt to the perfume or to the ticking of the clock, we stop recognizing it.