


Psychology of Sensation and Perception

BY

PROF. HOSAM KHALIFA

PROFESSOR OF PSYCHIATRY


Learning objectives :

- 1-Understanding the difference between sensation and perception.
 - 2-Identify the effect of sensory adaptation ,attention and motivation on perception.
 - 3-Understanding the Gestalt principles of perception.
 - 4- Identifying the disorders of perception.
- 

Sensation:

The processes by which sense organs receive information from the environment.


In addition to the well known five senses ,vision, hearing (audition) ,smell (olfaction), taste (gustation) and touch (somatosensation),we have also sensory systems, that provide information about balance(vestibular sense) ,body position and movement (proprioception and kinesthesia), pain (nociception)and temperature (thermoception) .



Perception:

The processes of organizing , interpretation, analysis ,and integration of stimuli involving sense organs and the brain.


In simple words, sensation is an initial response to the stimulus (a physical phenomena) ,while perception is what our mind make of that stimulus (a psychological phenomena) .



Factors that affect sensation and perception:


1)Sensory adaptation:

Although our perceptions are built from sensations ,not all sensations result in perception. In fact we often don't perceive stimuli that remain relatively constant as a decrease in sensitivity occur with repeated exposure. This is known as **sensory adaptation**.



Example: -Upon entering a lecture , with a big clock ticking on the wall, first upon entering the room you hear ticking of the clock ,as you begin to engage with the professor you no longer perceive the sound ,although sensory information (hearing),still affect sensory receptors of the auditory system.

-Jumping in cold water might be temporarily unpleasant, but eventually a person will get used to the temperature.



2)Attention:

Attention plays an important role in determining what is sensed and what is perceived .

Example: You are in a bus station and you met an old friend ,and were involved in an interesting conversation, and you tune out all the background noise and scenes ,If someone interrupted to ask you if the bus has already left the station , you probably , would be unable to answer the question.

Failure to notice something that is completely visible because of lack of attention, is called **inattentional blindness**.

3)Motivation:

Motivation to detect a meaningful stimulus ,can shift our ability to discriminate between a true sensory stimulus and a background noise.

Example: expecting a visit from a friend ,you think the door bell is ringing ,only to discover it is not.

The ability to identify a stimulus when it is embedded in a distracting environment is called **signal detection theory**.

Example: The mother is awakened by a very low cry of her baby ,but not by other sounds while she is asleep.

Other factors : Our perception ,can be also affected by our beliefs, values ,prejudices, expectations and life experiences.

Although the sensory information remains the same , your interpretation vary .



Gestalt principles of perception:

The word gestalt literally means a pattern or a form .

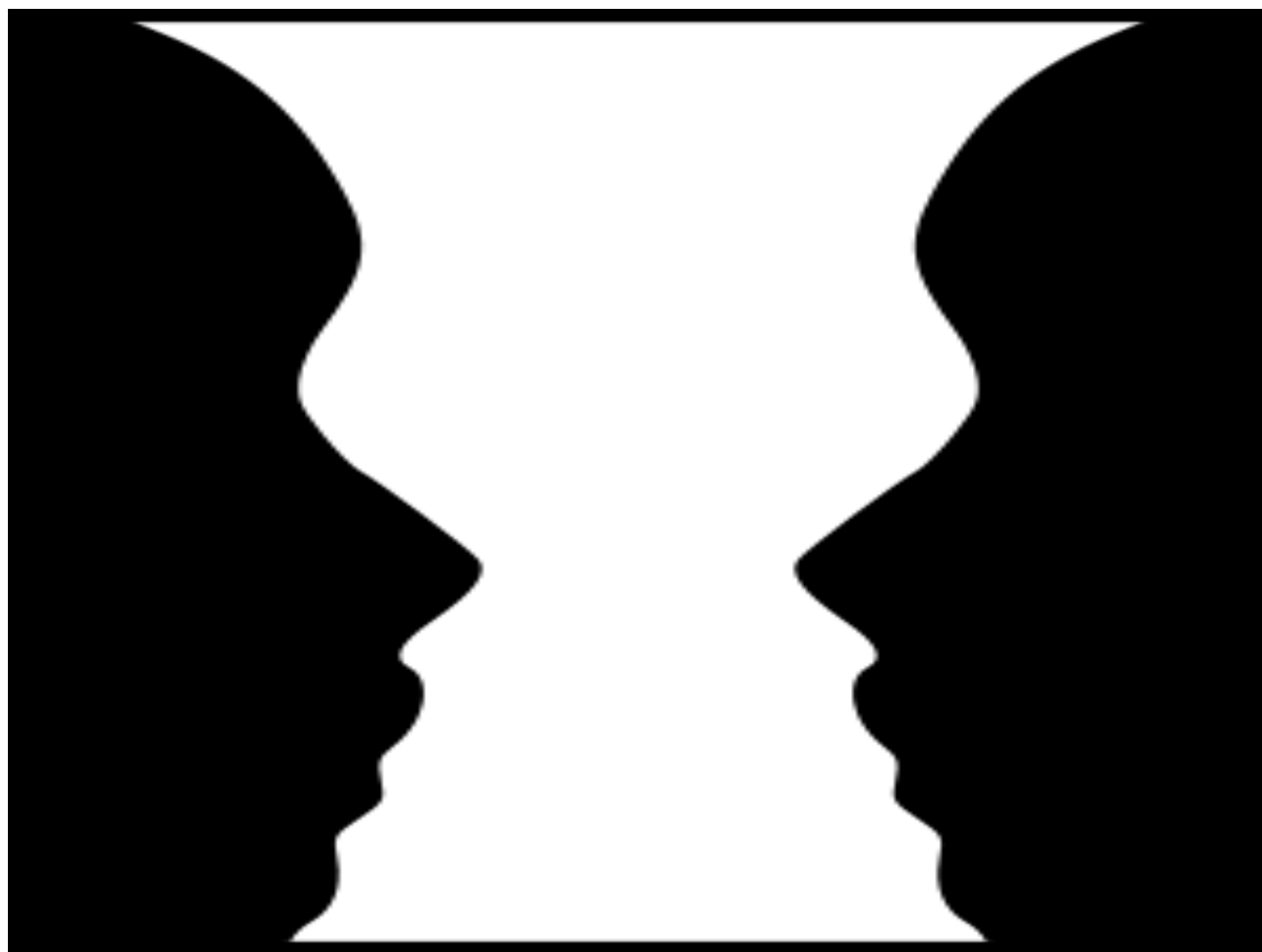
A group of German psychologists in the early 1900s set forth a series of principles that describe how we organize bits and pieces of information into meaningful wholes.

They discovered a number of important principles that are valid for visual as well as auditory stimuli.

Their principles reflect the idea that the whole is different from the sum of its parts i.e. the brain creates a perception that is more than simply the sum of the available sensory information.

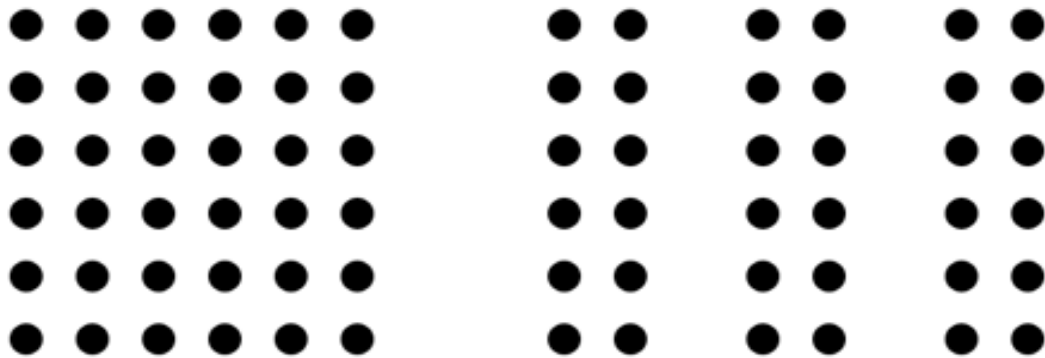
1-Figure ground relationship:

According to this principle we tend to segment our visual world into figure and ground .The figure is the object or person in focus. The ground is the background.



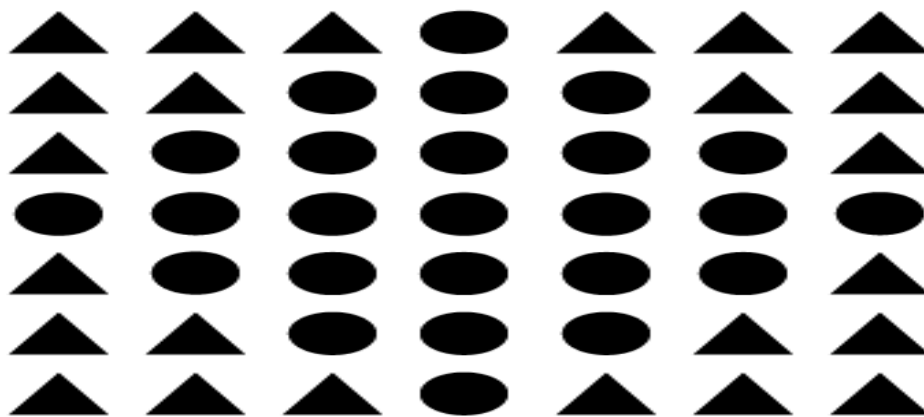
2-Proximity:

This principle suggest that elements that are closer together are grouped together.



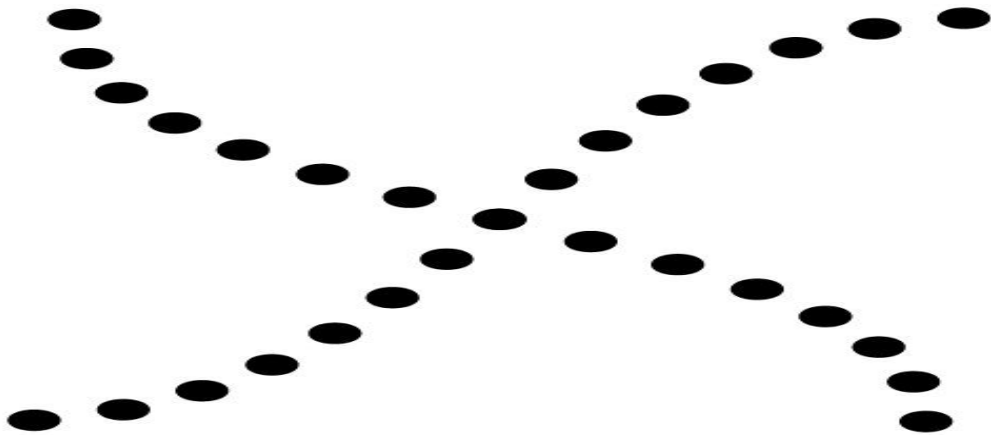
3-Similarity:

This principle suggests that elements that are similar in appearance are grouped together.



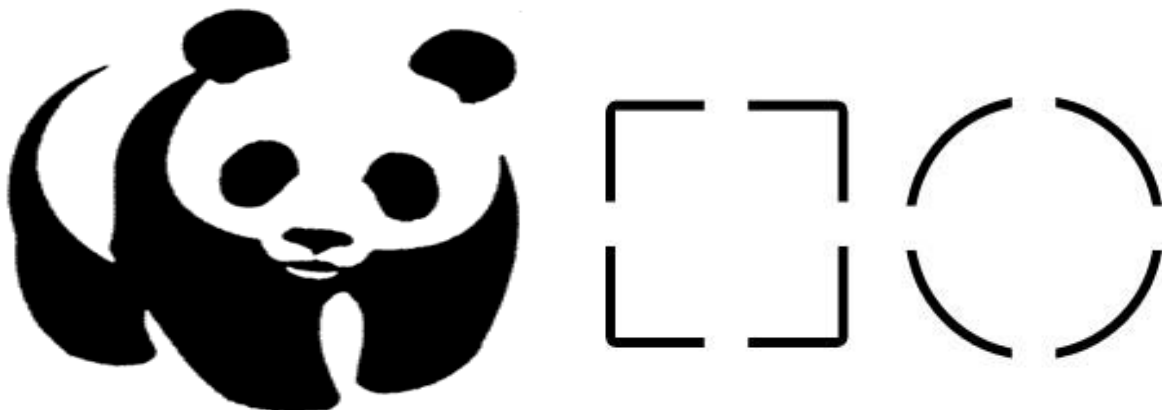
4-Continuity :

The principle of continuity suggests that we tend to perceive ,continuous smooth flowing lines ,rather than jagged ,broken lines.



5-Closure:

This principle suggests that groupings are usually made in terms of enclosed or complete figures ,rather than open ones.



(3) Disorders of Perception

I- Sensory Distortion:

- *Change in Intensity* e.g. hyperaesthesia, hypoaesthesia, hyperacusis and hypoacusis.
- *Change in Quality* e.g. Xanthopsia and erythropsia.
- *Change in Form* e.g. micropsia and macropsia.

II- Sensory Deception:

- **Illusion:** false perception of existing objects. Occurs in normal persons and in delirium.
- **Pseudohallucination:** is a type of mental images that occurs in the inner subjective space. It is known to be not real perceptions coming from within, not from outside.
- **Hallucination:** perception without a stimulus. It has the full force and impact of a real perception, cannot be readily controlled by the patient and is usually intrusive.

Differences between hallucination and pseudohallucination

Item	Hallucination	Pseudohallucination
<i>Experience</i>	concrete, objective, real	mental image
<i>Location</i>	Outer objective space	Inner subjective space
<i>Insight</i>	Has quality of perception	Has quality of idea

Types of hallucinations:

- Auditory hallucinations*
- Visual hallucinations*
- Tactile hallucinations*
- Olfactory*
- Gustatory hallucinations*

Causes of hallucinations:

- *Intense emotions*
- *Suggestion*
- *Disorders of sense organs.*
- *Sensory deprivation*
- *Disorders of CNS*
- *Schizophrenia*
- *Hypnagogic and hypnapompic*

