

# PERCEPTION

## MODULE 2.3

### PERCEPTION

Perception can be defined as the **mental process of organizing sensations into meaningful patterns**. Perceptual organization is the way or style of organizing sensations into meaningful perceptions. The simplest organization involves grouping some sensations

#### 2.3.1: TOP-DOWN AND BOTTOM-UP PROCESSING

**In top-down processing, perception that is guided by higher-level knowledge, experience, expectations, and motivations.**

Ca- yo- re-d t-is -en-en-e, w-ic- ha- ev-ry -hi-d l-tt-r m-ss-ng? It probably won't take you too long to figure out that it says, "Can you read this sentence, which has every third letter missing?"

In top-down processing, perception is guided by higher-level knowledge, experience, expectations, and motivations. You were able to figure out the meaning of the sentence with the missing letters because of your prior reading experience and because written English contains redundancies. Not every letter of each word is necessary to decode its meaning. Moreover, your expectations played a role in your being able to read the sentence.

However, top-down processing cannot occur on its own. Even though top-down processing allows us to fill in the gaps in ambiguous and out-of-context stimuli, we would be unable to perceive the meaning of such stimuli without bottom-up processing.

**Bottom-up processing consists of the progression of recognizing and processing information from individual components of a stimuli and moving to the perception of the whole.**

Top-down and bottom-up processing occur simultaneously, and interact with each other, in our perception of the world around us. Bottom-up processing permits us to process the fundamental characteristics of stimuli, whereas top-down processing allows us to bring our experience to bear on perception.

### 2.3.2: PRINCIPLES OF PERCEPTION

Gestalt Psychologists studied about our tendency to perceive sensory patterns as well-organized wholes rather than as separate isolated parts. They proposed that the simplest organization is constructed by grouping some sensations into an object, or figure, that stands out on a plainer background (Goldstein, 2007). **Figure- ground organization is one’s tendency to divide the perceptual world into two distinct parts- discrete figures and the background against which they stand out.** In figure-ground organization, part of a stimulus appears to stand out as an object (figure) against a less prominent background (ground).



The Gestalt psychologists identified several other principles that bring some order to individual's perceptions. They are;

- **Principle of Nearness**

**Stimuli that are near each other tend to be constructed, or grouped, together.** Thus, if three people stand near each other and a fourth person stands 10 feet away, the adjacent three will be seen as a group and the distant person as an outsider.



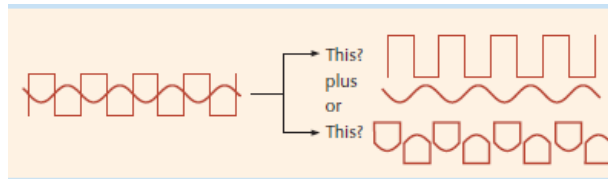
- **Principle of Similarity**

**Stimuli that are similar in size, shape, color, or form tend to be grouped together.** Imagine two bands marching side by side. If their uniforms are the same colors, the bands will be seen as one large group, not as two separate groups.



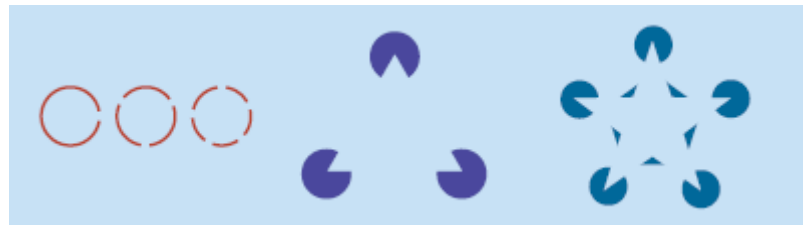
- **Principle of Continuity**

**Tendency to perceive stimuli as part of a continuous pattern.**



- **Principle of Closure**

**Closure refers to the tendency to complete a figure so that it has a consistent overall form.** In other words, it is the tendency to perceive objects as whole entities, despite the fact that some parts may be missing or obstructed from view.



- **Principle of Common Region**

**Stimuli that are found within a common region or area tend to be seen as a group.** Perhaps the principle of common region explains why we tend to mentally group together people from a particular country, state, province, or geographic region.



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- **Principle of Contiguity**

**Contiguity is often responsible for the perception that one thing has caused another.** It can be demonstrated by knocking on one's head with one hand while knocking on a wooden table (out of sight) with the other. The knocking sound

is perfectly timed with the movements of his visible hand. This leads to the irresistible perception that his head is made of wood.

### **2.3.3: PERCEPTUAL CONSTANCIES**

**Perceptual constancy can be defined as the phenomenon in which physical objects are perceived as unvarying and consistent despite changes in their appearance or in the physical environment.**

Perceptual constancy leads us to view objects as having an unvarying size, shape, color, and brightness, even if the image on our retina varies. For example, despite the varying images on the retina as an airplane approaches, flies overhead, and disappears, we do not perceive the airplane as changing shape (Garrigan & Kellman, 2008; Redding, 2002; Wickelgren, 2004).

Three major types of perceptual constancies are:

**Size constancy:** The perceived size of an object remains constant, despite changes in its retinal image.

**Shape constancy:** The perceived shape of an object is unaffected by changes in its retinal image.

**Brightness constancy:** The apparent (or relative) brightness of objects remains the same as long as they are illuminated by the same amount of light.

### **2.3.4: PERCEPTUAL ILLUSIONS**

In some cases, though, our application of perceptual constancy can mislead us. One good example of this involves the rising moon. When the moon first appears at night, close to the horizon, it seems to be huge—much larger than when it is high in the sky later in the evening. You may have thought that the apparent change in the size of the moon was caused by the moon's being physically closer to the earth when it first appears. In fact, though, this is not the case at all: the actual image of the moon on our retina is the same, whether it is low or high in the sky.

There are several explanations for the moon illusion. One suggests that the moon appears to be larger when it is close to the horizon primarily because of perceptual constancy. When the moon is near the horizon, the perceptual cues of intervening terrain and objects such as trees on the horizon produce a misleading sense of distance, leading us to misperceive the moon as relatively large. In contrast, when the moon is high in the sky, we see it by itself, and

we don't try to compensate for its distance from us. In this case, then, perceptual constancy leads us to perceive it as relatively small.

### **2.3.5: DEPTH PERCEPTION**

**Depth Perception can be defined as the ability to see three-dimensional space and to accurately judge distances.**

A person would be unable to drive a car or ride a bicycle, play catch, shoot baskets, thread a needle, or simply navigate around a room without depth perception. Some psychologists (nativists) hold that depth perception is inborn. Others (the empiricists) view it as learned. Most likely, depth perception is partly learned and partly innate (Witherington et al., 2005).

We learn to construct our perception of three-dimensional space by using a variety of depth cues. Depth cues are features of the environment and messages from the body that supply information about distance and space. Some cues require two eyes (**binocular depth cues**), whereas others will work with just one eye (**monocular depth cues**).

Depth cues are the **perceptual features that impart information about distance and three-dimensional space.**

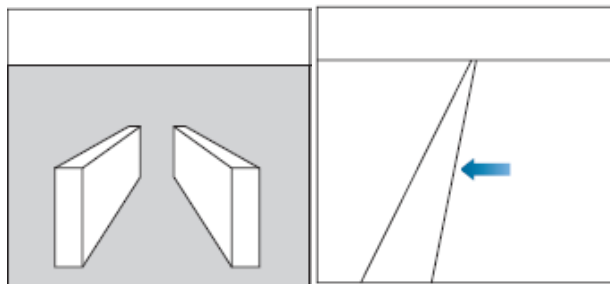
#### **2.3.5.1: Monocular Cues**

**Monocular cues can be defined as the perceptual features that impart information about distance and three-dimensional space that require just one eye.**

As their name implies, monocular depth cues can be used to construct a three-dimensional perception with information received from just one eye (Sekuler & Blake, 2006). One such cue is **accommodation**, the bending of the lens to focus on nearby objects. Sensations from muscles attached to each lens flow back to the brain. Changes in these sensations help us judge distances within about 4 feet of the eyes.

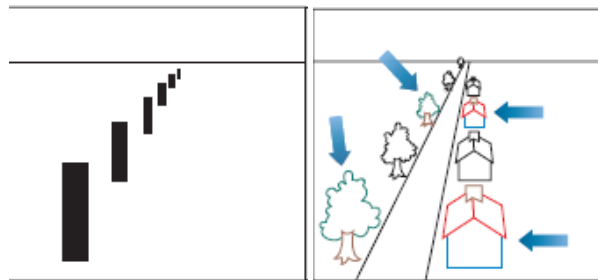
Other monocular depth cues are also referred to as pictorial depth cues. **Pictorial depth cues** are monocular cues found in paintings, drawings, and photographs that impart information about space, depth, and distance. They are;

- **Linear perspective**



**Parallel lines appear to converge in the distance. The greater this effect, the farther away the object appears to be.** If one person stand between two railroad tracks, they appear to meet near the horizon, even though they actually remain parallel. Because he/she know they are parallel, their convergence implies great distance

- **Relative size**

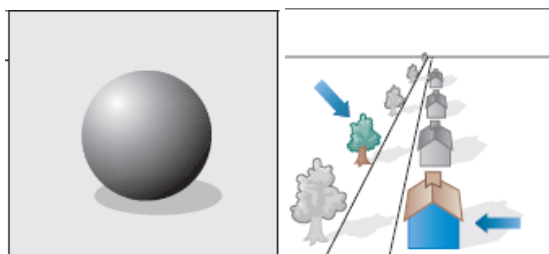


**The larger the image of an object on the retina, the larger it is judged to be. In addition, if an object is larger than other objects, it is often perceived as closer.** If an artist wishes to depict two objects of the same size at different distances, the artist makes the more distant object smaller

- **Height in the picture plane**

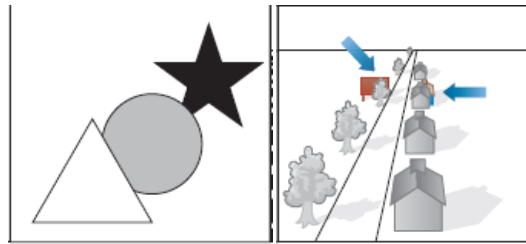
**Objects that are placed higher (closer to the horizon line) in a drawing tend to be perceived as more distant.**

- **Light and shadow**



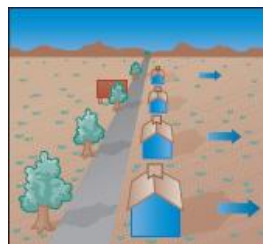
Most objects are lighted in ways that create clear patterns of light and shadow. Copying such patterns of light and shadow can give a two-dimensional design a three-dimensional appearance

- **Overlap**



Overlap (or interposition) occurs when one object partially blocks another object. **If one object overlaps another, it is seen as being closer than the one it covers.**

- **Texture gradients**



Changes in texture also contribute to depth perception. **The texture of a surface appears smoother as distance increases.**

- **Aerial perspective**

Smog, fog, dust, and haze add to the apparent distance of an object. Because of aerial perspective, **distant objects tend to be hazy, washed out in color, and lacking in detail.**

- **Relative motion**

Relative motion, also known as motion parallax. When we travel in a vehicle, objects far away appear to move in the same direction as the observer, where as close objects move in the opposite direction. Objects at different distances appear to move at different velocities.

### **2.3.5.2: Binocular Cues**

**Binocular cues can be defined as the perceptual features that impart information about distance and three-dimensional space that require two eyes.**

Binocular cues for depth perception stem from two primary sources:

- **Convergence**

In order to see close objects, our eyes turn toward one another. The greater this movement, the closer such objects appear to be.



- **Retinal Disparity**

Our two eyes observe objects from slightly different positions in space; the difference between these two images is interpreted by our brain to provide another cue to depth.

The most basic source of depth perception is retinal disparity (a discrepancy in the images that reach the right and left eyes). Retinal disparity, which is a binocular cue, is based on the fact that the eyes are about 2.5 inches apart. Because of this, each eye receives a slightly different view of the world. However, when the two different images are fused into one overall image, three dimensional sights (stereoscopic vision) occurs. The result is a powerful sensation of depth

### **2.3.6: EXTRA SENSORY PERCEPTION**

**The purported ability to perceive events in ways that cannot be explained by known capacities of the sensory organs.**

ESP and other paranormal events are treated as accepted facts in many movies and television programs. But most psychologists are skeptical about the existence of psi for several reasons.

The first, and perhaps the most important, reason for doubting its existence is the repeated failure to replicate (repeat) instances of psi; that is, certain procedures yield evidence for psi at one time but not at others. Indeed, one survey failed to uncover a single instance of paranormal phenomena that could be reliably produced after ruling out alternative explanations such as fraud, methodological flaws, and normal sensory functioning.

Second, present-day scientific understanding states that all aspects of our behavior must ultimately stem from biochemical events, yet it is not clear what physical mechanism could account for psi. In fact, the existence of such a mechanism would require restructuring our view of the physical world.

Third, much of the support for psi has been obtained by persons already deeply convinced of its existence. Thus, while studies suggesting that psi exists may represent a small sample of all research conducted on this topic, perhaps only the few experiments yielding positive results find their way into print; perhaps the many “failures” are simply not reported.

**Parapsychology is the subfield of Psychology which study about extra normal psychological events, such as extrasensory perception.** Parapsychologists mainly deal with

## **Extra Sensory Perception and Psi Phenomenon (Events that seem to lie outside the realm of accepted scientific laws.)**

The most identified basic forms of ESP are;

### **2.3.6.1: Telepathy**

The purported ability to communicate directly with another person's mind. When the other person is dead, the communications are called mediumship.

### **2.3.6.2: Clairvoyance**

The purported ability to perceive events or gain information in ways that appear unaffected by distance or normal physical barriers.

### **2.3.6.3: Precognition**

The purported ability to perceive or accurately predict future events. Precognition may take the form of prophetic dreams that foretell the future.

### **2.3.6.4: Psychokinesis**

The purported ability to exert influence over inanimate objects by willpower. People who bend spoons or move objects with their mind or perform feats of levitation (making objects rise into the air) claim to have powers of psychokinesis.

## **2.3.7: REFERENCES**

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