

Unit-5

Sensation, Attention and Perception

After reading this chapter, you will be able to:

- Understand the meaning of sensation
- Understand sensory receptors and sensory limen
- Understand Attention and its determinants
- Understand the meaning of perception and laws of perceptual organization
- Interpret the factors affecting perception
- Understand illusion

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Introduction

We get knowledge about external world through sensation received from sense organs. A person finds meaning in the sensation received and interprets it. It is a continuous and immediate process. In this chapter, we will study sensation, sensory receptors, minimum amount of sensation that is sensory limen, attention, perception and factors affecting attention and perception.

Many types of stimuli are found in our surroundings. We have specific sense organ to respond to these different stimuli. Human beings have seven sense organs. These sense organs are also known as sensory receptors as they receive information from different sources for e.g. light sensations through eye, auditory sensations through ears, touch sensations through skin, taste sensation through tongue and olfactory sensations through nose are received. Apart from these five sense organs, we have two more internal sense organs – kinesthetic and vestibular. They give information about our body's position and relative movements of different organs. With the help of these sense organs, we can find out the characteristics of different stimuli for e.g. what is the colour of an object, whether the voice is of more or less intensity, pleasing or distracting.

Meaning of Sensation

The initial experience of a stimulus or object through our specialized sensory organs is called sensation. It is a process through which we come to know about physical stimuli. The information received through our sense organs forms the basis of our knowledge. Our knowledge about surroundings depends on these three processes: sensation, attention and perception. These processes are highly interdependent hence we

study them as different parts of cognition.

Sensory Limen

Some stimuli are so weak or of less intensity that one cannot detect them. This means that our sense organs work in some limits. For example our ears cannot hear very low voice. Same thing applies on other sense organs too. Humans can detect stimuli which are in certain limits of intensity. The branch of Psychology that studies relationship between stimuli and the sensation they produce in a person is called Psychophysics.

Absolute Limen

A stimulus must have a minimum intensity for it to be detected by sense organs. This minimum amount of stimulus intensity required for that stimulus to be detected by sense organs is called absolute limen or absolute threshold. If the intensity of stimuli is more than this absolute limit then only a person will detect that stimulus. Similarly, if the intensity of stimuli is less than this absolute limit then a person will not detect that stimulus. Let us understand this by an example.

If you add one granule of sugar in the water, you will not sense sweetness in water. If you add one more granule, you may still not sense sweetness. But if you keep adding sugar granule by granule, then at one point of time, you can sense sweetness of water. Here the minimum number of granules that results into sensing sweetness is the absolute limen of sweetness. Here, it is important to note that absolute limen is not a fixed point; it can be changed from time to time depending on the organic and motivational state of that person. That is why we must determine absolute limen by doing so many trials on one person. Then the minimum number of sugar granules required for sensing sweetness in 50% of the trials will

be absolute limen. Similarly, absolute limen can differ from person to person. Individuals differ in their sensitivity. It is also possible that one person detects sweetness faster than another person.

Difference Limen

As it is not possible for us to detect every stimulus, similarly it is not possible for us to always differentiate between the stimuli. This minimum amount of difference that is necessary for finding out the difference between these stimuli is called difference limen or difference threshold. We repeat here the same sugar-water experiment to understand this. As we noted that water is sensed as sweet after adding some minimum number of sugar granules in it. Let us remember that sweetness. Then the next question arises. How many sugar granules are needed more now so that the person can sense more sweetness in comparison to his previous sweetness experience? Let us add some more sugar granules one by one and then taste it every time. After adding few granules, the person will experience that water is sweeter now. The number of sugar granules which creates more sweetness than previous sweetness in 50% of the times is known as difference limen. So the minimum amount of change that is required in a physical stimulus to experience difference in sensation in 50% of the trials is difference limen.

Attention

Many objects present in the room where you are reading can work as stimuli for you such as chair, table, fan, books etc. But you cannot pay attention to all these stimuli at once. Your attention is on the page of the book that you are reading. It means that we do not respond to all stimuli. We select some stimuli as per our needs and desires and respond only to the selected ones. In psychology, this kind

of selection process is termed as attention.

It is important to note that attention depends, apart from selection, on some other factors also such as alertness, concentration and search. Alertness refers to the readiness by which a person faces the stimuli. You might have seen the participants of the run race in your school standing on the starting line waiting for whistle blow. Concentration refers to focusing on certain stimuli for the better awareness and keeping other objects out of sight. For example, students concentrate on teacher's lecture in the class and do not pay attention to other noise coming from outside the class. Search is a state where observer focuses on a particular object from a set of different objects. For example, when you go to school to bring your younger brother/sister to home then you look for them in the crowd of so many children. To do this, we have to put some effort. We can attend to a limited set of stimuli at one time. The question remains is that which stimuli will be selected out of so many. Psychologists have identified different factors that can affect the selection of stimuli during the process of attention.

Factors affecting attention

Many factors affect attention. These factors are usually related to stimulus characteristics and person-related characteristics. These factors are usually classified as external and internal factors. External factors are related to stimulus characteristics such as type of stimulus; visual stimuli tend to attract person's attention in comparison to auditory stimuli. The posters of cinema are more attended than its sound. If there is a change in stimuli before a person, it catches attention. For e.g. if a running fan in the room suddenly stops running, it will get attention. Novel

stimuli also get attention such as a new dress that you wear. If a student contrary to routine wears a dhoti-kurta in school, then other students will give attention to that student. Similarly, other stimulus related factors such as stimulus's big size, more intensity, repetitiveness, differentiation from other stimuli also get person's attention.'

Internal factors are person's individual factors. When we are hungry, we attend even to mildest smell of food. A student who has to appear in an examination is more attentive to teacher's lecture than the student who is not appearing in any examination. The person who has interest in cricket will pay more attention to news related to cricket. If you are waiting for somebody at your home, you will attend to opening of the main gate even when the television is being watched in loud noise. Objects or events which are of interest to a person are more readily attended. Meaningful stimuli get more attention. For example a Hindi knowing person will attend to messages in Hindi amongst messages displayed on a bus stand in Hindi, English and Regional languages. Previous training also has impact on attention. A doctor can readily identify a patient because he has been specially trained for identifying symptoms of diseases and its treatment.

In this way, we find that both stimulus related external factors and person related internal factors play an important role as determinants of attention.

Perception

Meaning of Perception

The process of perception starts from sensation. Perception is always of an object, event of a person. The persons, events or objects that are perceived are called stimuli. Whenever there is any stimulus before a person, he senses it through sense organs.

He interprets these sensations to find out what the stimulus is. This is called perception. Perception is the process by which we interpret and organize the stimuli that are present in the environment. Sensation and perception are different. Sensation is a process that happens before perception. When the sensation is understood, interpreted and provided meaning by the person, it becomes perception. For example, a person can smell an odour it is sensation. But when a person can tell us after identifying which object's odour it is, it is an example of perception.

Principles of Perceptual Organization

We do not perceive different parts of objects rather we perceive objects as an integrated whole or as complete object. for example, we perceive a bicycle in its totality not as collection of separate parts such seat, wheel and the handle. There are lot of factors that help in organizing different parts of an objects as a meaningful whole. Gestalt psychologists formed principles of perceptual organization studying these factors. Gestalt is a school of Psychology including major contributors Kohler, Koffka and Wertheimer. Gestalt is a term for regular figure or form. Now we will understand these principles of perceptual organization.

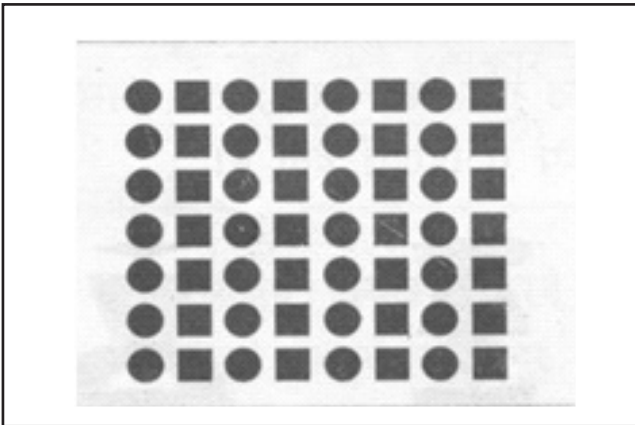
Principles of proximity

The objects that are closer to each other in space and time, they appear as related to each other or as a group. For example, in the figure given below, black dots do not look like as a squared pattern of dots but as a series of column of dots.

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00	00	00
00	00	00
00	00	00
00	00	00
00	00	00

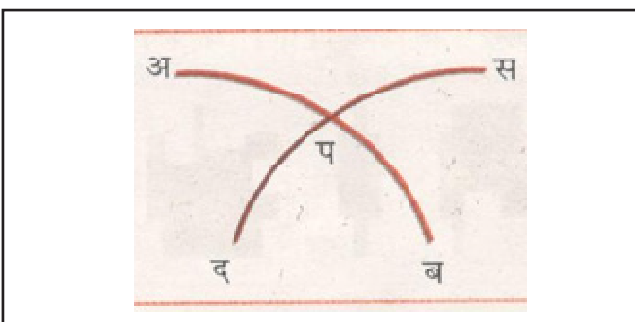
Principle of similarity

Objects that are similar to one another and have similar characteristics are perceived as a group. In the figure given below, the small circles and squares are evenly spaced both horizontally and vertically so that the proximity does not come into play. Then also, we see alternating patterns of circles and squares.



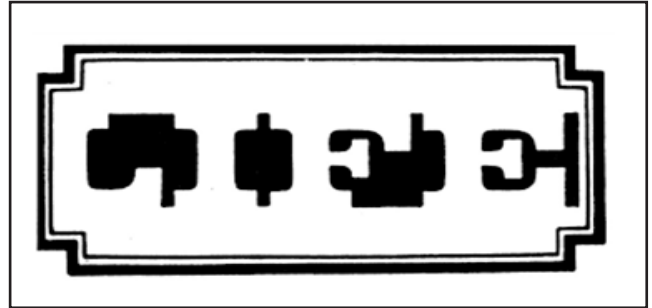
Principle of continuity

The principle states that we tend to perceive the objects as belonging together if they appear to form a continuous pattern. For instance, we are more likely to identify two lines a-b and c-d crossing than to identify four different lines meeting at point 'p'.



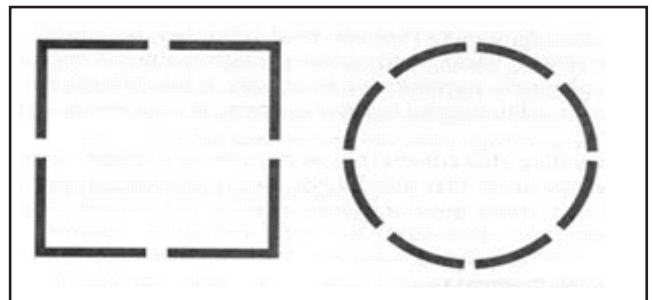
Principle of surroundedness

According to this principle, the areas surrounded by others tend to be perceived as figures. The image in the figure given below appears as five black figures in white background rather than the word 'LIFE'.



Principle of closure

We tend to fill the gaps in the stimulus and perceive the objects as whole rather than separate parts. The figure below looks as square and circle because we have a tendency to fill the gaps in the figure.



Factors affecting perception

Perception is a mental process which is affected by many factors or determinants. These are classified into four categories.

- Personal factors
- Social factors
- Cultural factors
- Political factors

Personal factors of perception

- Needs of the person: Hunger, thirst, sex, sleep are physical needs of a person. If a person is hungry, he will select and percept eatables

among many stimuli. Psychological needs such as prestige motive, achievement motive and level of aspiration motive also influence perception along with physical needs.

2. **Personal values:** Value system of a person also influences the perception. One stimulus is perceived differently by different persons due to their personal values. In an experiment done by Bruner and Goodman on children from rich and poor families, poor children perceived the coins as more valuable than rich children. This way, their perception was affected by personal values.
3. **Personal attitude:** A person perceives an object which is favorable to his attitude. We do not perceive a friend as we perceive our enemy.
4. **Moods:** Our moods also influence perception of a stimulus. When the person is in happy mood, he perceives the surroundings as more favorable.

Social factors of perception: Social factors also play an important role in influencing perception. These factors are:

1. **Social norms:** Every society has defined social rules called social norms. Every person living in that society has to comply with these social norms. These norms also influence our perception.
2. **Social customs:** Every society has its own customs. Due to differences in these customs, the persons from different societies have different cognitions and perceptions.

Cultural factors of perception: Cultural factors also play an important role in influencing perception. People from American culture and non-European culture were shown some figures which created

Muller-Lyer illusion in them. The results showed that American peoples perceived feather headed line bigger than arrow-headed line whereas non-European peoples did not show this type of illusion.

Political factors of perception: Political factors also play an important role in influencing perception. Every political party has its own ideologies. Their perception varies according to these ideologies. Due to political association, peoples perception also differ.

Activity 5.1

Ask your friend to close eyes. Write 12, 13, 14, 15 on the board. Ask him to open eyes for five seconds and to see on the board. Note what he sees. Now ask him to close eyes again. Replace 12, 14, 15 with v] l] n respectively. Ask him to open eyes and see. Now note what he sees. Many persons see 3 in place of 13.

Illusion

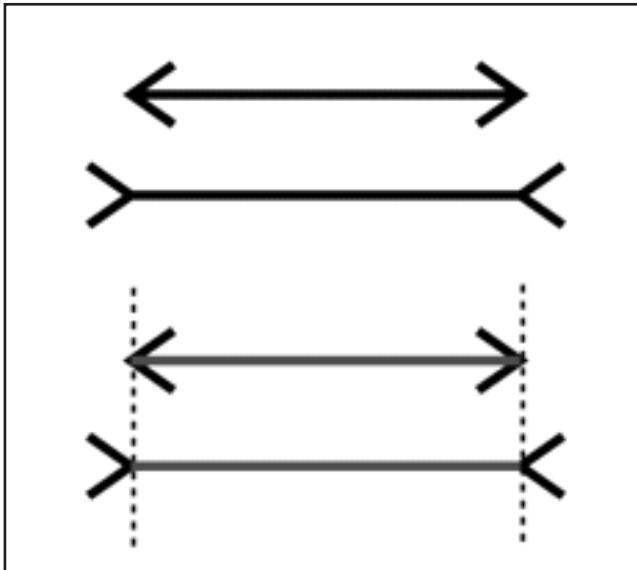
Our perceptions are always not correct. Sometimes we cannot correctly interpret sensory information. That is why actual stimuli and its perception differ. The incorrect perception due to incorrect interpretation of information received through sensory organs is termed as illusion. For e.g. while walking in a dark room, we hit across a rope and may perceive that rope as a snake. This is an illusion as we interpret 'rope' as 'snake'.

Muller-Lyer Illusion

Muller-Lyer Illusion is an example of illusion which is shown in the figure given below. The length of both the lines is equal. One line is arrow-headed and other line is feather-headed.

Although both lines are equal in length then also people tend to perceive feather-headed line

lengthier than arrow-headed line. Now it is clear that incorrect perception of an object is called illusion.



Activity 5.2

All students of your class can sit together and do the experiment of 'Muller Lyer Illusion'. Draw feather-headed line and arrow-headed line in your copy. Perceive these lines and tell which line appears lengthier.

Main Terms

Sensation, Sensory Limen, Absolute Limen, Difference Limen, Attention, Perception, Illusion

Important Points

In this chapter, we understood sensation, sensory receptors, attention and perception.

The initial experience of a stimulus or an object by our specialized sensory organs is called sensation. The branch of Psychology that studies the relation between the stimuli and the sensations they produce is termed as Psychophysics.

Person's internal and external both types of factors influence attention.

When any stimulus is present before a person, he gets its sensation through his sense organs. When

this stimulus is interpreted to understand what the stimulus is, this is known as perception.

Principle of similarity, Principle of proximity, Principle of continuity, Principle of surroundedness and Principle of closure are all principles of perceptual organization.

The incorrect perception due to incorrect interpretation of information received through sensory organs is termed as illusion

Practice Questions

Multiple-Choice Questions

- Which of the following is not an external sensory organ?
 - Nose
 - Skin
 - Ears
 - Kinesthetic
- Who is not a Gestalt Psychologist?
 - Kohler
 - Koffka
 - Watson
 - Wertheimer
- The initial information received through body's sensory organs is known as:
 - perception
 - sensation
 - cognition
 - adaptation
- We have a tendency to fill in the gaps in the stimulus. Which principle of perceptual organization is this?
 - continuity
 - proximity
 - closure
 - similarity

Very Short Answer Questions

1. What is absolute limen
2. What do you understand by attention?
3. Name Gestalt Psychologists.
4. What is Muller Lyer Illusion?

Short Answer Questions

1. Which are external sensory organs of our body?
2. Define Difference Limen.
3. What is Perception?
4. What is proximity principle of perceptual organization?
5. What is closure principle of perceptual organization?
6. Which are the internal factors affecting attention?
7. Define illusion.

Long Answer Questions

1. Explain principles of perceptual organization with the help of figures.
2. Differentiate between sensation and perception by giving examples.
3. Describe the factors affecting attention.
4. Differentiate between absolute and difference limen by giving examples.

Activity

Collect any five advertisements published in newspapers. Show these advertisements to 10 peoples. Ask them what they perceive in the advertisements. Study the pattern of differences or similarities in perception of these persons. Also study which facets of advertisements get maximum attention of viewers.

Answers to Multiple Choice Questions

- 1.D 2.C 3.B 4.C