

Perception

Definitions:

Perception is the mental process of transferring sensory stimulation into psychological information (awareness)

1. It is the process of getting to know the environment.
2. Giving meaning to a sensation.
3. The process of comparing the received sensation to the previously available information.

It includes the possibility of acquiring new information as a result of the interaction between the inside and the outside.

Many percepts carry with them emotional qualities e.g. smooth sensations are perceived as good, and hard sensations are negatively appraised .

Sensations are the main special inlet of information to the brain structure.

They are the inlet of consciousness and the tool of awareness.

What we perceive ?

We receive signs and perceive meanings.

The stimuli from the environment are the signs while objective facts are the meanings.

We usually receive the facts without paying particular attention to their signs, e.g. in reading we are not interested in how words (signs) appear, we just follow their meanings.

Signs are of two types :

a) **Symbols:** They are stimuli which stand for an object e.g. a name stands for a person.

b) **Signals:** They are stimuli received from the object

e.g. smoke is a signal for fire.

Mode of perception of signs

It is a complicated process.

We may perceive them as a whole or in a reduced form.

They may be ambiguous and misleading.

Sometimes different signs may have the same meaning.

1.Reduced cues: In perception we depend on reduced cues to a great extent and it is very economic to do so.
e.g. A good artist on drawing few lines (cues) could make you perceive a known personality.

2.Ambiguous signs: Stimuli are like words in that many of them have two or more meanings, e.g. Looking at familiar objects in good light you have no doubt and make few mistakes in identifying them.

In semi dark light it seems differently.

Accuracy of perception

Perception is sometimes sure and easy, sometimes difficult and uncertain.

In a discrimination test you are shown two objects and asked to tell which is the larger or which is darker.

The purpose is to discover how small a difference in weight or color can be perceived.

Localization of perception

Perception occurs in the sensory psychic areas.

Auditory - areas 41,42.

Visual - areas 18,19.

Olfactory - 28 entorhinal area.

Somasthetic - Areas 5, 7.

Extrasensory perception (ESP)

This means perception without sense organ stimulation.

This includes:

a) Telepathy: The thought is transferred from one person to another distance one. (mind reading)

b) Clairvoyance: The perception of objects or events not influencing the senses such as stating the number of a playing card in a sealed envelope. (perception of hidden objects or events)

c) Precognition: The perception of a future event.

It can be classified also into:

i-Pre sensory perception : it occurs in psychosis.

It is irresponsible process.

ii. Metasensory perception: It means the synthesis of perception through the sensations (or the usual perception) and the extrasensory perception leading to creation.

It occurs in creative .

Psycho kinesis (PK) (related to ESP): it is a mental operation with which the person affects a material body or an energy system, e.g. wishing for a number affects what number comes up in the throw of dice.

Disorders of perception

1- Camouflage:

It is a special application of the grouping tendencies.

In nature it is represented in the protective coloration and markings of animals e.g. butterflies.

In war it is used deliberately by man.

It can be carried out in many ways:

Addition: The shape of the figure may be lost when certain additions are made.

Embedding: A simple figure can be effectively concealed by embedding it in a larger one with new characteristics.

Prolongation: The regularity of the contour may be destroyed by simple prolonging some of its sides.

Avoiding contrasts.

Spread and proximity.

2- Illusion:

It is false perception of an external stimulus.

It may occur by factors in the individual, in the stimulus or in both:

- 1) Illusion due to physical causes e.g. mirror illusion.
- 2) Illusion due to habit and familiarity e.g. reading wrong words correctly.
- 3) Illusion due to set and expectation, e.g. hearing door ring as telephone ring.
- 4) Illusion due to unanalyzed total impression.

An objective fact may be disguised by being entangled in a complex subject.

Unless the subject tries with real effort to isolate such a fact he is apt to perceive it erroneously.

3-Deja vu Phenomenon (illusion of familiarity):

The person feels that he has previously experienced what he is experiencing at the present time.

This is common in temporal lobe epilepsy.

It can be explained physiologically by the earlier arrival of the visual stimuli to one hemisphere before the other.

It occurs also in normal people.

4-Hallucination:

Perception in the absence of stimulus.

5-Depersonalization:

Perception of one's self as different.

6-Derealization:

Perception of outer world as different.

Factors affecting perception (Gestalt factors)

I. Figural factors (objective factors)

1.Similarity : Similar stimuli tend to be grouped together
i.e. perceived as one stimulus group.

```
.0 . 0 . 0 . 0 . 0 . 0
.0 . 0 . 0 . 0 . 0 . 0
.0 . 0 . 0 . 0 . 0 . 0   A
.0 . 0 . 0 . 0 . 0 . 0
.0 . 0 . 0 . 0 . 0 . 0
.0 . 0 . 0 . 0 . 0 . 0

.....
0000000000
.....
0000000000   B
.....
```

In A we provide dots and circles running vertically and in B horizontally.

This is because stimuli which are similar tend to be grouped together.

2. Proximity: Proximate objects tend to be grouped together e.g. in the following series we see the near circles as a pair, oo o

3.Closure: Closed stimuli tend to be grouped together, e.g.

A l l l l l l
 B [] [] []

3-Symmetry:

A l l l l l l
 B l l l l l l

In A proximity makes us group the lines into pairs.

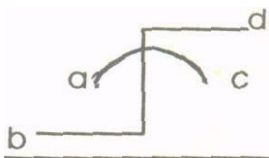
In B the end lines are paired not because of proximity but because of symmetry.

5 - Good continuation:

In this figure we see curved line ac and two right angled lines bd in spite of dp. are close together and ab are close together.

This is because of good continuation of **ac** as curved line and **bd** as two right angled lines.

We benefit from this principle in camouflage by disruption of the good continuity of the object by additions, distortions, patchy colors



II] Subjective factors in perception (central factors)

1. Mood, emotion:

Our mood influences markedly our perception e.g. when you are sad you perceive everything bad.

Also our emotional bias affects perception e.g. when you love a person you see everything is good and lovely and you do not see the bad aspect of him.

2. Need:

When we are hungry, we will pay particular attention to things related to food.

3. Interests:

We all do not necessarily perceive the same things.

Example: when a geologist, artist, botanist went for a walk together, then every one describes what he sees.

The geologist will describe the lands.

The artist will describe features of beauty.

The botanist will describe plants.

4. Mental set:

when we want to see something we will find it.

So, we ignore (do not perceive) the defects.

5. Pregnant factor: This is the tendency to see the objects complete and perfect.

Gestalt Psychology

Main principle is : The whole is not equal to the sums of parts of the object.

It exceeds it.

Gestalt quality or form quality or whole quality is present in a whole but not present in any of the parts making up the whole.

The gestalt perception or a whole perception requires the higher mental processes of combining and constructing that is not required in simple cases of seeing or hearing patterns.

The stimuli reaching the sense organs are unorganized and uncombined.

But the nerve impulses from the sense organs on reaching the brain immediately interact, attract and repel each other and

so organizing, themselves into patterns.

The advice for one who would be a productive thinker, is to let the whole dominate the parts and never to lose sight of the problem as a whole even while devoting the necessary attention to details.

Avoid piece meal thinking which is sure to be blind.

Perceptual constancy

This means that an object will be perceived as the same one in spite of different stimuli which it sends to you under different conditions, i.e. a well known object is perceived as permanent and stable regardless of the illumination on it, the position from which it is viewed, or the distance at which it appears.

1- Color constancy: It is the tendency to see the color of a familiar

object as the same regardless of the actual light conditions.

2- Shape constancy: It is the tendency to see an object's shape as unchanging regardless of the viewing angle.

3- Size constancy: It is the tendency to see an object as the same size regardless of distance.

4-Location constancy: It is the tendency to see the object retaining its same position even as we move about.

NB

1- The word constancy is an exaggeration, but it dramatizes our relatively stable perception of objects.

2- Constancy is largely depending on age and learning i.e. it is less apparent in infants and children.

3- Its value is that it helps us to deal with the environment with fluidity and with less energy.

4- Disturbance of it could be one of the early phenomena in psychosis and underlying phenomena like depersonalization derealization, and delusional mood.

Perceptual Deprivation (Sensory deprivation)

The Brain's adaptive capacity depends on sensory input to maintain its reality-adapted activity.

This capacity is mediated through the reticular activating system.

When sensory deprivation occurs this function is markedly disturbed.

Technique: The sensory deprivation can be done by putting the person in dark, sound proof room and keeping him lying quietly, ear plugs are used and the communication between subject and experimenter is minimal.

Effects:

1. Affect: fear, irritability, panic, depression.

2. Perception:

a) The room appears to alter in size and contour.

b) Perception of time is changed: time is overestimated by about 0.5-1 hour.

c) Imagery: Ranging from visual, tactile, gustatory, olfactory and auditory images to frank hallucinations.

3. Level of consciousness and attention are decreased.

4. Somatic complaints, especially feeling of weakness.

Attention

Definition:

It is the psychological selection of perception .

It is a relatively sustained selective perception.

It is the direction and concentration of perception towards selected stimuli.

Attention is the function of the reticular formation in connection with the cerebral cortex .

Laws of attention

- | | |
|-------------------------------|-----------------|
| I. Selectivity and attraction | II. Shifting |
| III. Combination | IV. Fluctuation |
| V. Sustainability | VI. Distraction |

I. Selectivity and attraction

At any moment many stimuli are competing for our attention. The factors which give advantage to one stimulus over another in this competition are; external and internal factors.

A. External factors (factors in the stimulus)

(i) Intensity of stimulus:

A stronger stimulus is more attractive than a weak one e.g. an elephant is more attractive than the fly over its head.

(ii) Repetition of stimulus:

A loud sound repeated many times is more attractive than a

single one.

Repeating the cry help would attract attention than a single cry

(iii) Changeability:

A changing stimulus is more attractive than a non changing one. Flickering lights attract attention more than steady light.

(iv) Contrast:

The more the contrast between a figure and background the more it is attractive.

Both could be used together in advertisement.

(v) Unfamiliarity:

The unfamiliar stimuli are more attractive.

A clown in the street can attract our attention more than a fully dressed gentleman.

(vi) Combination of sensory stimuli:

A stimuli reaching more than one sense organ at the same time attract attention more than a single one.

TV. is supposed to be more attractive than the radio

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(vii) Combination of factors:

A stimulus characterized by more than one of the above mentioned factors is more attractive.

Newspapers and magazines make use of space, big letters, vivid colors and different forms at a time.

B) Internal factors (Factors in the individual)

a) Permanent factors:

i) **Sensory fitness** : fitness of sensory organs is essential for proper attention.

ii) **Lasting specific factors:** Habits of perfection in attention and habit of inattention.

Some people are known to be excellent observers, others are known to be absent minded at least to the external surroundings.

iii) **Intelligence.**

b) Temporary factors:

i) **Physical state** e.g. a feverish person is less attentive.

ii) **Emotional state** e.g. Depressed person is less attentive.

iii) **Set:** a special preparedness which directs the attention towards certain stimuli.

II) Shifting

One cannot focus his attention on a particular object for an indefinite time.

Usually the attention shifts from one stimulus to another.

The factors responsible for the occurrence of this phenomenon are:

1.Spontaneity: One has a tendency to shift from one stimulus to another.

This attention shifts spontaneously after a period of focusing on one stimulus.

2.Exploring: One has to explore (multiple stimuli) for the sake of whole perception.

With complex stimulus pattern, each part is focused at one after another.

After exploring different parts we combine them in some meaningful whole.

3. *Monotony*: Attention to the same stimulus for long time gives feeling of uneasiness of continuous expenditure of energy in the same direction, hence attention shifts to another.

4. *fatigue*: Reduction in efficiency resulting from continuous work.

The efficiency of a student studying certain subject tends to decrease by time due to fatigue.

If he changes the subject every now and then, his efficiency (ability of attention) may increase.

5. *Satisfaction*: Satisfaction tends to inhibit continuation of attention.

Thus once the person is satisfied in a given situation he tends to shift his attention to another.

Ill) Combination

Normally one cannot attend to more than one thing at a time. Combination in attention is unnatural.

It is observed in certain persons where it occurs by rapid shifting from one stimulus to another.

IV) Fluctuation

Focusing attention at the same object for a long time, makes the attention waxes and eases.

This may be regarded as a quantitative shift in the response to the same stimulus in contrast to the qualitative one from one stimulus to another one.

V) Sustainability

In spite of shifting there is a tendency of attention to be sustained e.g. during an interesting film.

Sustainability is the contrary to shifting and distraction.

Factors that help sustainability are:

i) *Interest*: The more interesting the subject is, the more we can sustain our attention to it.

ii) *curiosity*: An author may utilize curiosity factor in writing a novel, particularly a novel of adventure or a detective novel (Agatha Christy).

iii) *Punishment and praise*: A teacher may try to sustain the attention of students to persuade them to master a particular subject.

Here again the mastery motive acts to overcome any obstacle and reach satisfactory perfection and thus achieve appreciation and praise.

Simultaneously one avoids punishment and blame.

VI) Distraction

It is the negative aspect of attention.

A distracting stimulus is the stimulus that attracts attention from the object one mean to attend.

They may be: external as: flashes of light, or it may be internal as: preoccupation with certain idea or persistent somatic pain.

How to eliminate distraction ?

i) Elimination of the distracting stimuli e.g. turn off the radio when you are studying.

ii) Putting extra-effort in attending to the original task.

iii) Negative adaptation: this is the habit of inattention to the distracting stimuli e.g. people living near a railway stations are not distracted by the noise of trains.

iv) Combining the distracting stimulus with the main task e.g. when a colleague enters your room while you are studying he may represent some distracting stimulus.

Then you can overcome this distraction by inviting him to share discussing the subject you are studying.

As such, the stimulus becomes an aid, to put more emphasis on the original task attended to.

Types of attention

1. Active attention is the type where we deliberately and consciously direct and sustain our attention towards certain stimulus, e.g. in digit forward or digit backwards tests; or in going backward subtracting sevens from one hundred etc..

Most reference to attention in the daily life is primarily referring to this type of attention.

2. Passive attention is the type where stimuli reaches us without deliberate directing our attention to it. It looks rather contradictory since the definition of attention implies directing perception to a particular stimulus.

How then we call this passive attention while it looks like perception.

However in this type there is selectivity and sustainability but they do not appear overtly.

We can differentiate passive attention from simple perception by the selective quality that could appear later on while recalling particular events.

The individual's role in this type appears negative as if he is just yielding to the action of the environment, but later on we can discover how he has been participating some way or another. This type is particularly noticed in experiments of memorizing (or learning in general), during sleep and in certain diseases like catatonia.

Disorders of attention

1. Hyperprosexia: In this state the attention is heightened and is paid to every detail of the stimulus.

It is met with in cases of hypomania and sometimes in paranoid states..

2. Inattention: Inattention to environment may be met with in grades: from simple inattention up to stupor and coma. In stupor the individual although losing his active attention can be aroused by strong stimuli while in coma he cannot be aroused by such stimuli.

3. Distractibility: In this disorder any minor or auxiliary stimulus may distract the attention away from the original task.

Distracting stimuli may come from the external environment just as noise.

They may be other ideas (stimuli from within the mind).

If these ideas are recurring to attract attention and to exclude most other ideas this is called preoccupation.

Preoccupation may occur in normal life.

It becomes excessive in anxiety.

The ideas are black and sad in depression.

If the individual is compelled to think it over and over whatever resistance he offers, it is called obsession.