Perception

(i) Attention and its characteristics — (10)

(ii) Theories of Attention — (20)

(iii) Perception & its characteristics — (10)

(iv) Perceptual Defence — (15)

(v) Depth Perception — (15)

(vi) Perception: Nature-Nurture Debate — (15)

(vii) Culture & Perception — (15)

(viii) Perceptual Vigilance — (15)

(ix) Perception & attention relationship — (10)

(x) Plasticity of perception — (15)

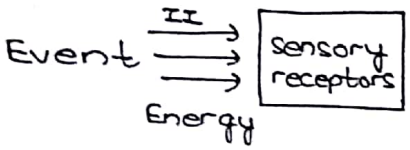
(xi) Perceptual Organization — (15)

(xii) Pattern Recognition — (10/15)

(xiii) Perceptual set — (10)

30-Jan-2019

* Perception
  ↳ sensation + meaning



- Can perception occur without sensation? ⇒ Yes, hallucination

Perception $\xrightarrow{\text{regulated}}$ Attention

- Regulated perception is attention.

* When sensation is given meaning, it becomes perception.
* Illusion → misperception
* Hallucination → perception without sensation
* It is possible that some sensations are not given meaning and hence, they will not be perceived.

* Perception is the process of knowing the objects/ objective events by the means of our senses.

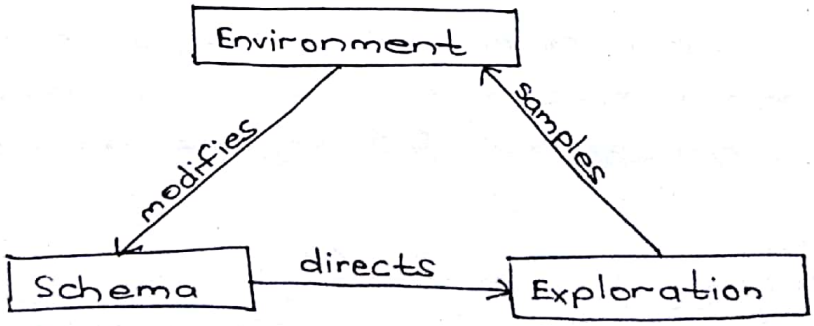
It is the process whereby sensory cues & relevant past experiences are organised to give most structured & meaningful pictures of the possible circumstances. The process of perception involves 3 sub processes:

(i) Receptor Processes
(ii) Symbolic "
(iii) Affective "

It is the affective processes that provide completeness to perception. Individual diff. in perception are guided by affective processes.

(Receptor Processes) → attach symbols give interpretation (Symbolic) Processes

Symbolic process → Affective processes (emotions are attached)



Cycle of Perception

* Schema is formed from past experiences. Generally cop starts from schema.

* Approaches to Perception

(i) Direct Approach
↳ Gibson

(ii) Constructivist Approach
↳ Gregory

(i) **Direct Approach**

↳ ecologically minded psychologists
↳ Bottom up
↳ sensory approach
↳ Nativist
↳ focus on nature
↳ learner relatively passive

↳ sensory info. is enough for perception to happen

Direct
↳ Our perceptual apparatus is designed in such a way that when sensory inputs comes, perception will happen.

(ii) **Constructivist Approach**

↳ top down
↳ Unconscious inference drawing
↳ empiricist
↳ Nurture (set/cultural influence)
↳ We construct & test hypothesis
↳ learner is active
↳ sensory info. is not enough, meaning has to be attached.

* If Gibsonian approach was correct, people of all cultures should have same illusions. However, cultural influence in perception is found → culture specific illusions.

* characteristics of Perception

(i) Our perception is influenced by context because context contains the cues that guide our perception. If context happens to be unfamiliar, perception happens to be a difficult exercise.

(ii) our perception is influenced by our expectancy.
eg. Rosenthal exp.

(iii) Perception can be independent of our conscious will. (unconscious element comes to the fore).

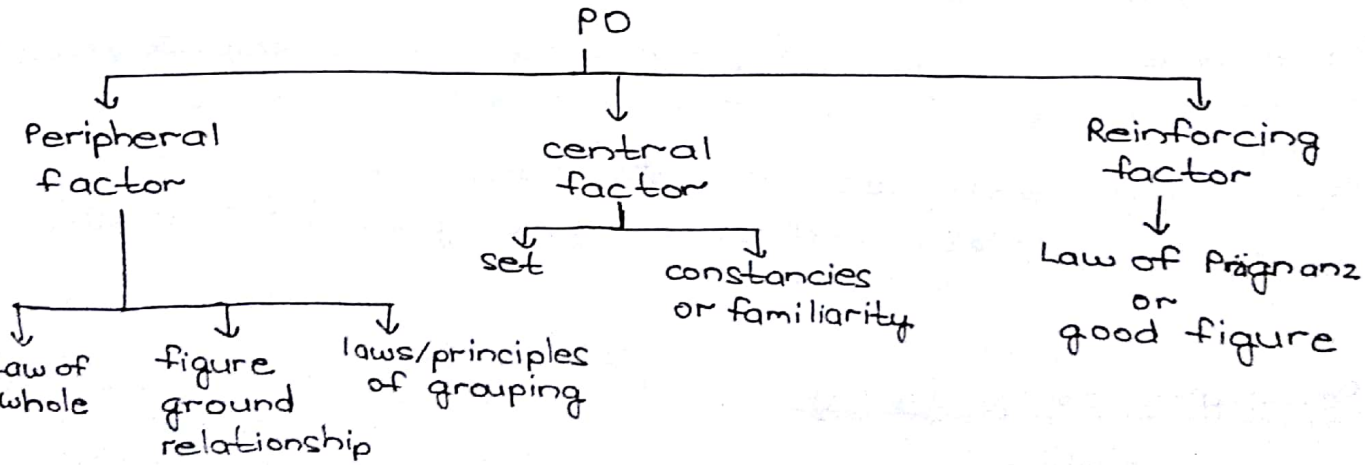
(iv) Unconscious nature of perceptual processing is seen when we are confronted with the challenge of processing ambiguous figures.

(v) Perception is rule bound. we use strategies as we try to percieve a figure. Some of these strategies are innate & some of them are learnt.

(vi) Non-perceptual factors like attitudes, values interests & even physiological states guide our perception. Our perception, therefore, is a creative process. The partial or incomplete info. that we receive gets embellished by creative nature of our perception.

(vii) Our perception is primarily an active process. Human beings are in dynamic interaction with their env. & their perceptual organisation undergoes a change with the changing env.

* Perceptual Organisation

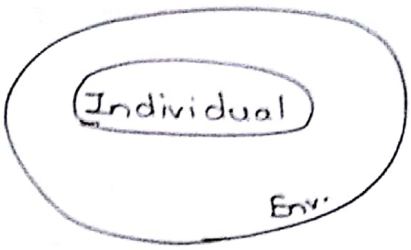


⇒ Concept of PO was given by Gestalt Psychologists. They gave PF & RF

⇒ New look approach to perception gave CF.

⇒ Gestaltists are nativists (nature)

⇒ Central factors emphasise on role of learning in perception.



⇒ Env. is haphazard, an individual has to organize his perception in order to associate to the env. meaningfully. This is why Gestaltists gave PO.

• Law of whole:- whole is imp. than sum of its parts (innate)

• Figure-ground relationship (innate)

• Figure
  - → well defined shape
  - → clear cut boundaries
  - → brighter
  - → dominates

• Ground is behind the figure

⇒ Something is lying on something.

⇒ Figure-ground relationship is lost during camouflaging

* Some figure is necessary → pilots develop space myopia (evolution facilitated this)

* Reversible or ambiguous fig.-ground relationship. It shows multistability in our perception. eg. Rubin's vase

⇒ Von Sender → studied congenital cataract
  ↳ showed that figure-ground relationship is innate.

* Principles of grouping

(i) Law of similarity

↳ Similar items will be seen together

↳ columns are seen, rather than rows of dissimilar objects.

X O X O
X O X O
X O X O
X O X O

(ii) Law of proximity

↳ placed together in time & space are seen together

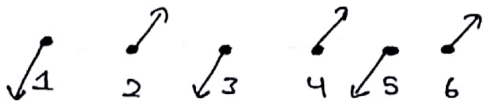
|| || || (3 pairs & not 6 lines)

⇒ These laws are for all senses & not of only visual

(iii) Law of closure

↳ fill in the gaps in stimulation in order to see it as an organised whole

(iv) Law of common fate/common movement



⇒ Items moving in one direction are perceived together or seen as one unit.

(v) Law of good continuation / continuity

It is seen as an arc cutting a zigzag line, rather than the line suddenly changing its path

(This is not seen)

* Law of Prägnanz / good figure

↳ Least effort

↳ RSS (Regularity, simplicity & similarity)

↳ See the whole but in such a way that least effort is required.

⇒ Good figure :- The figure that is recalled is better than the one perceived. It gets better

This is reconstruction in memory (after construction during storage) → given by Bartlet

** Central Determinants

- Set in perception → Myer's two-string experiment.
- Set indicates role of learning in perception.

- Constancies
  - ↳ size constancy :- size of an object is adjusted when it is taken far away & the image formed on the retina is smaller.
  - ↳ color constancy :- colour of your car is seen to be same even if light of some other color is being reflected from it.

⇒ Misplaced constancies would lead to illusion.

⇒ Constancies enable us to operate successfully in the env.

Limitation of Gestalt Psychologists

*(i) It is descriptive & they did not explain how it happens.- (PO)

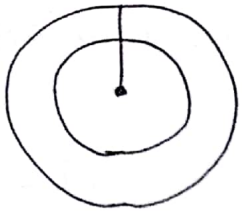
(ii) Most of the things are already whole → we do not break them into parts & again create wholes.

* Perceptual Vigilance

- Vigilance → sustained attention
  - ↳ remain alert to detect the critical stimulus that appears at randomly distributed intervals.
  - → indicates individual's wakefulness

* Research started during WWII when British soldiers were asked to monitor the radar for signals of enemy submarines
→ after sometime interval they started missing the signals though they were motivated enough.

* Norman Mackworth → developed a simulated radar display called as the "Clock Test"

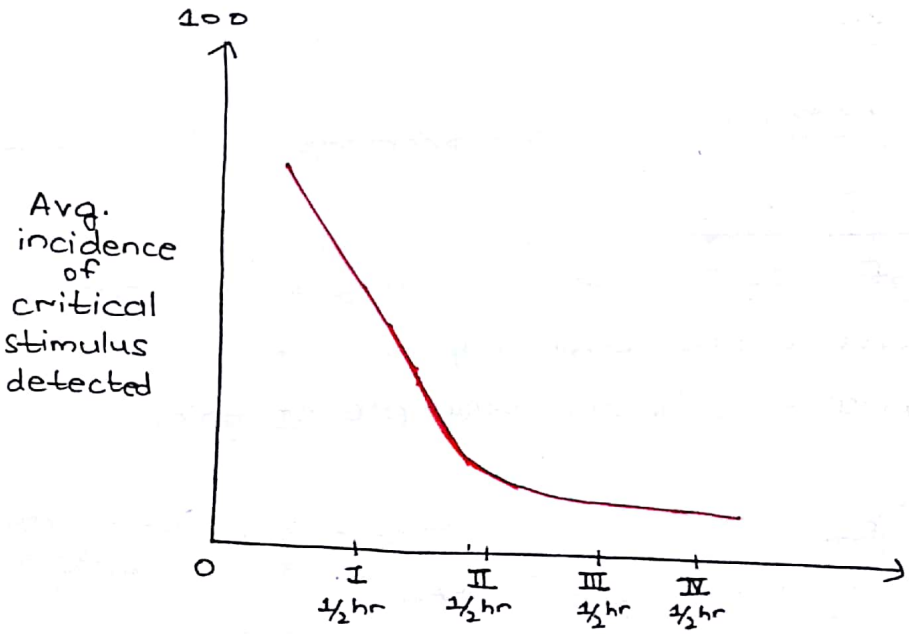


(Blank faced clock → with one hand

The hand moved 0.3 inches at a time @ sometimes it took double jump (critical signal)

* Pressed the buzzer when critical signal was detected.
* After half an hour → sufficient decline in the performance

• Eysenck said that it is due to automatic rest taken by the brain.



Factors identified for this

(i) Sensory modality

↳ signal detection will be better if multiple modalities are involved (eg. visual, auditory).

(ii) Signal intensity

↳ how well differentiated it is from the background

↳ more intensity is better for detection.

(iii) Event rate

Q) Signal det. to a large extent will depend on what is happening when the event is not there.

⇒ Faster event rate, poor detection

↳ Energy is limited. If attention resources are utilised in noise signals, critical signal will be lost.

↳ No. of events happening in the background when critical signal is absent → event rate

(iv) Temporal or spatial certainity or Inter signal Interval

↳ More predictable the signal, better chances of detection.

(v) Knowledge of Results or feedback

↳ It will always improve the chances of signal detection.

* Theoretical Explainations for Signal Detection

(i) Habituation Theory

↳ decline of neural responsiveness over time.

↳ event rate phenomenon supports it

↳ spaced practice is an example of this.

(ii) Arousal Theory

↳ Reticular Activating System (RAS)

↳ responsible for our wakefulness (neuron fibres run from brain stem to mid brain)

↳ RAS needs stimulus diversity for it to function in an optimal manner.

↳ Monotonous stimuli affect the functioning of RAS. (person will feel sleepy → wakefulness levels are reduced)

(iii) Utility Theory

↳ When things come for the first time, they have novelty & utility associated with them

↓

This reduces with (time & use) Hence vigilance reduces

(iv) Feedback Theory

↳ As the time passes, ~~ability to feedback reduce~~ feedback becomes erratic → person's motivation reduces → poor signal detection

1-Feb-2019

Perceptual Defence

↳ It is the result of new look approach. (coined by Perceptual Diff.) Postman, Bruner & McGinnies → to refer to the relatively high threshold for their low value words.

* Recognition threshold for their emotionally toned words was higher than the neutral words.

* Emotionally toned words → tabooed words

→ Perceptual defence is the tendency to avoid recognition of the threatening stimuli for as long as possible within the constraints of a given stimulus situation.

⇒ Reverse of Perceptual Defence is perceptual Sensitization
↳ Recognition threshold is lower for high value words in comparision to neutral words.

high value words → Food items

• New look approach → related to freud's work (role of unconscious in perception) (Motivated forgetting)

* McGinnies invited 8 boys & 8 girls to his lab and presented them with 18 words (randomly distributed) → 11 neutral
→ 7 emotionally toned words

• And these words were presented Tachistoscopically.

Tachistoscope

⇒ Cards will be displayed for a certain amount of time, then goes → till a (word) card is not recognised, it will be repeated.
→ for every trial this duration is increased.

⇒ Recognition threshold for tabooed words was greater than the ~~taboo~~ neutral word → It showed perceptual defence.

⇒ When asked to give words in writing, subjects made error in the direction of making the word harmless.
↳ ~~autonomic/dis~~ pre-recognition of the word.
eg. bitch was reported as pitch.

⇒ McGinnies wanted to check the role of gender in perceptual defence → mixed results were found.

⇒ In present times, these words are no longer tabooed & hence PD has reduced. In olden times, if more PD by women, it can be attributed to women of those times not using those words.

* Autonomic discrimination without awareness
↳ Discrimination below threshold level.

⇒ McGinnies measured GSR (Galvanic Skin Response) of the subjects → indication of anxiety.

⇒ Tabooed words created greater anxiety → Unconscious perceptual Determinants in play

* Howes & Solomon
↳ discarded McGinnies finding
⇒ (i) delay in the recognition of tabooed words was due to infrequency in their occurrence.

(ii) Selective Reporting or Response withholding
↳ tendency to hold back from presenting tabooed words till it is confirmed.

* McGinnies said that there is no evidence for delay in the recognition due to infrequency.
→ Also, the subjects were supposed to be loyal in the exp.

* Seigman → 80 % of subjects involve in response withholding.

*Messik → It is due to embarrasment

When subjects → females
experimenter → male
} Recog. threshold was higher.

* Postman, Bronson & Gropper → subjects faced much less inhibition while writing, rather than saying it aloud. (Selective Reporting is a factor)

• Hess → Pupilary dilation when threatening pictures were shown.

* Cowen & Beier

↳ They aimed to eliminate response withholding & unfamiliarity in their exp.

↳ They presented the subject, a list of words which was themselves read out by the experimenter & he asked the subjects not to withhold their guess.

↳ To their surprise, recognition threshold for tabooed words was higher than the neutral words.

↳ The found, in further research that recognition & infrequency of occurrence are hardly related. (Howes & Solomon's argument rejected)

* Postman, Bronson, Gropper & Wanda

Q) What is PD & its practical relevance.

Q) Is PD a fact or artefact?
(experimenter's creation)

⇒ McGinnies kind of elaborated the work of Sigmund Freud only.

⇒ Thus, it is more of artefact & not a fact. McGinnies could

not explain it (raised threshold) while Sigmund Freud explained it by the interaction bet. 'Id', 'Ego' & 'Super ego'.

⇒ If tendency is there not to recall unpleasant events from LTM then there can to a tendency to recall pleasant events from LTM easily.

P, B, G & W

↳ (ii) Recognition Threshold varies with the nature of preliminary instruction (i) Though RT for tabooed words > neutral words

Group I :- forewarned group (faster)

Group II :- uninformed group (delay in recognition)

(iii) RT for tabooed words in female subjects in comparision to males.

↳ Reasons → a) women are less exposed to these words.

b) Women indulge in more response withholding.

(iv) There is no impact of the experimenter of the opposite gender in RT.

⇒ At the best, PD can be called unconfirmed Hypothesis

Subliminal Perception

- Perceiving signal (stimulus) below its threshold level (not very deep below; just below)
- Practical implication:- placebo effect.

* James Vicary:- 'Eat popcorn, drink coke' was presented very fast that they could not perceive it properly.
→ Still, popcorn & coke sales went up.

This is done because if it is explicitly shown, it seems like a suggestion. Thus, subliminal perception is used in marketing.

Firm understanding:- Sales went up because of placebo effect.

- There is definite evidence to prove subliminal perception.
  ↳ Along with subliminal, persuasion should also be included in therapy as Hypnotherapy lasts only for 1-2 days.

Depth Perception

↳ also known as distance perception

↳ Binocular Cues (using 2 eyes)

↳ Monocular Cues (using 1 eye)

* Binocular cues

↳ (i) Convergence

(ii) Binocular or Retinal Disparity

(In human infants moncular comes first, binocular comes later.)

* Convergence

↳ Seeing an object which is very near will put more strain on the eyes → This sends signal to the brain & depth is perceived.

(ii) Retinal Disparity

⇒ Images seen by both the eyes are overlaid (steropsis)

If disparity is more → object is nearer

" " " less → " is far away.

↳ This requires simultaneous use of both eyes.

* Monocular Cues

↳ (i) Accomodation

↳ depending upon the object's distance, ciliary muscles will change the curvature of eye lens to keep the moving object in the focus.

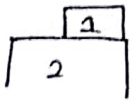
↳ This adjustment is done independently by each eye.

↳ This helps in depth perception

↳ a depth cue but a monocular cue.

(ii) Interposition

↳ one which is clearly visible → seems nearer
" " " obscured → seems far
(2 seems nearer)



(iii) Linear perspective

↳ two railways tracks seem to converge, distance between them seems to reduce.


(Railway tracks)

(iv) Atmospheric perspective / aerial perspective & clearness

↳ This will occur due to scattering of light as it moves in the atmosphere. Thus, nearer objects will be seen more clearly as compared to farther objects.

(v) Gradient of texture

↳ texture of objects (surfaces) far away seems to be very uniform while not so for nearby surfaces or objects.

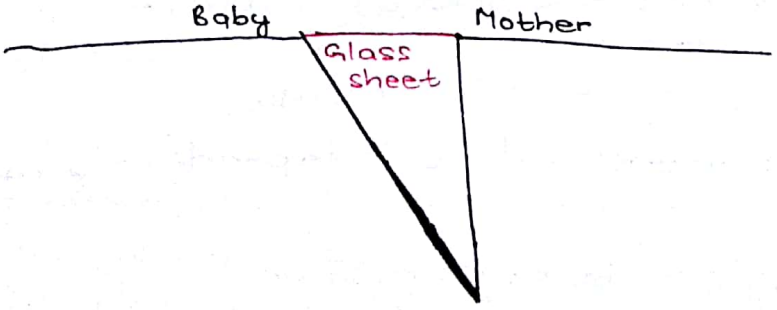
(vi) Motion Parallax

↳ When in a moving vehicle, nearer objects seem to be moving in opp. direction & at faster pace while far away objects seem to be moving along at slower pace.

* Innate or Inborn

↳ Inborn → but only monocular cues

↳ Gibson & Walk exp → Visual cliff.



⇒ Baby did not cross the glass sheet → Depth perception is present in crawling babies.

⇒ Infants avoid drop off by the time they can crawl.

⇒ With shallow cliff → some babies crossed
↳ babies could understand the diff. in the danger bet. deep & shallow cliff.

* Langer etal
↳ infants as young as 55 days → GSR was measured
↳ Anxiety levels were more when near to the cliff.
↳ With a shallow cliff, anxiety levels were lower as compared to that of a deep cliff.

⇒ Some scientists used the offspring of animals like goats → Depth cue was present.

Thus, nature has programmed us to have monocular cues at birth & to later acquire binocular cues.

Nature vs Nurture in Perception

→ figure-ground relationship
→ Myer's 2 string exp.
→ Constancies that are culture specific
⇒ Gibson vs Gregory
⇒ Depth perception is innate

Gestaltist taking isomorphism for granted are prone to attributing all characteristics of perceiving to innate field like properties of CNS. The behaviourists following some notion of parsimony (economical) tried to find out the evidence for learning in all the perceptual behaviours. This controversy bet. nature & nurture and nativism & empiricism continues but most psychologists in contemporary times assumes an instructionist position where the state that some aspects of perceptual org. are innate & other aspects are acquired. It is the common agreement among most psychologist that fig.-ground relationship, contour formation & certain attentional mechanisms

such as reflexes that drive the infant to fixate eyes & on the bright points in the field are innate. However, many other aspects, other than primitive sensory segregations are acquired through the process of persistent interaction with the env. The compelling evidence in favour of the innateness of figure-ground relationship comes from the work of Von-Sendon who studied individuals who were blind from birth with cataract in both eyes & whose vision was restored by surgery when they were adults. These patients were able to distinguish figure from ground as normally sighted people do. They were able to fixate their eyes on figures, scan them & follow the moving figures with their eyes. It appears that these abilities are innate. They, however, could not identify by sight alone, the objects that they were familiar by touch. It took them several weeks of training before they learned to identify simple objects by sight and even after identification had been learnt in specific situations, patients showed little evidence of the generalisation of perceptual constancies.

Von Sendon's study suggests that our perceptions develop gradually from primitive visual experiences in which figure-ground relationships & colour predominate & become more & more accurate & detailed with learning.

4-Feb-2019

Nature

a) Ecological Approach (Gibson)

b) Gestalt Psychologists

c) Direct Approach

d) Von Sendon (fig-ground relationship is innate)

e) Hubel, Wiesel & ~~Reisen~~
↳ specific cells for horizontal & vertical lines' perception

~~f) Reisen~~
↳ ~~plasticity of perception~~
~~Gregory~~

Nurture
role of
(culture in perception)

a) Constructivist - Gregory (set in perception)

- Reisen → plasticity of perception (mouldability of perception [once moulded, it cannot be reversed]
  ↳ interactionist approact (both nature & nurture)

- **Critical period**:- Period in the life of an animal when exposure to a particular ~~behaviour~~ Stimulus is required. If done after the critical period, the response will not be developed.

- Critical period applies to language (this was the belief). But now, we believe that though it is very difficult & the same level of language cannot be reached but still some improvement can be done.

- Von Sendon → fig-ground relationship is innate
  ↳ perceptual constancies are acquired

- Segall → carpentered world
- Annis & Frost
- Turnbull
- Ames etal

*Carpentered world

↳ consists of squares & rectangles

Ames

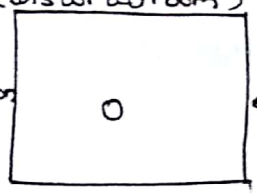
Exp. I

↳ A trapezoidal room (with one hole to look into)

↳ perception is a transaction

↳ placing bets

(Distorted room)



(People said that room is normal, people are abnormal)

← A tall boy & a dwarf adult were seen.

⇒ **Role of set, learning & culture in perception**

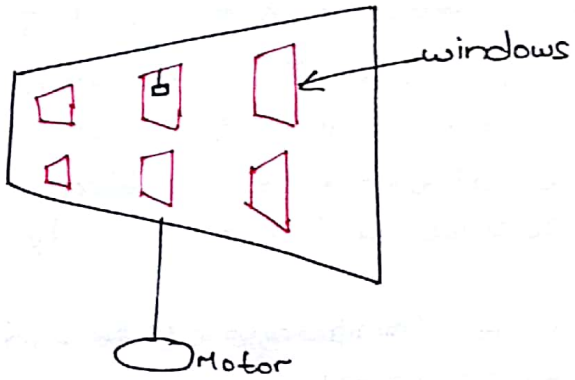
⇒ People place bets on what will give them more chances of success.

Exp. II

↳ concept was given by Ames, exp. was done by Pettigrew & Allport — Rotating window

Zulu Tribe → Spherical World

(Cube hanging with a rod)



The wooden structure rotates at a slow speed

↓

looks like oscillating rectangle

⇒ Subjects saw through 25 ft binocular

⇒ They saw the rod bending & the cube detaching & reattaching (moving towards them & going back)

10 ft → Monocular

10 ft → Binocular

20 ft → M

20 ft → B

{ To Zulu Group & Carpentered World Group }

Zulu subjects :- will not identify the engravings as rect. windows.

Max. differences bet the 2 groups came in 10 ft Binocular as Zulu subjects identified it as a trapezoid.

For carpentered world subjects → it is a window & hence is rectangular.

This shows the influence of set, learning & culture in perception.

⇒ 10 ft & not 20 ft as perceptual cues are more at lesser distance. Also, binocular has more cues than monocular

⇒ Honi phenomenon

↳ Used father & Brother of subject in distorted room exp.

↳ This time the subject identified the room as trapezoidal (it was identified as an abnormal room)

⇒ In Zulu tribe → there was no term for rectangle in their language (language influences thought)

Any person (of any group) → from 20 ft monocular, they will see oscillating rectangle (as perceptual cues will not come into play here)

* selective perception → some cues are ignored

* Turnbull's Exp

↳ Bambuti Tribe of Congo (Tropical Rainforests)

↳ In Tropical Rainforests, the could only see nearby objects. (Distance view not available).

↳ When taken to grasslands and shown buffallo at a distance → they saw it as an insect.

(They did not have size constancy)

• Annis & Frost

↳ Cree Indians (one group with no connection with carpentered world & other which had socialised with carpentered world people)

⇒ Thus, diff. in perception among the groups with same genetic makeup ⟶ role of culture

Attention

Attention is a behavioral & cognitive process of selectively concentrating on discrete aspect of info. whether deemed subjective or objective while ignoring other perceivable info.

→ Deployment of concentration on object of interest.

Attention is the process of focusing of perception, so that it leads to greater awareness of limited no. of stimuli. Attention allows us to focus on what is imp. at the moment & ignore the rest. It is the concentration of consciousness on the object(s) of interest.

A large no. & variety of stimuli impinge upon our sensory receptors simultaneously but a person can perceive only a few of them since he concentrates his awareness on certain objects & events while ignoring others in the env. & this is referred to as attention.

Morgan & Gilliland defined attention as being keenly alive to some specific factors in our env. It is the preparatory adjustment for a response.

Roediger defined attention as focusing of perception that leads to greater awareness of limited no. of stimuli.

Dumbville has defined attention as concentration of consciousness on one subject rather than the other.

- Sharma has defined attention as the process which compels the individual to select a particular stimulus acc. to his interests & attitudes out of the multiplicity of the stimuli present in the env.

Q) Attention develops from unfocused scanning to focused planfulness. Elucidate with relevant examples.

Ans= Children do not apply any strategies in applying their attention. These strategies develop with age.

Q) Attention is a strategy driven exercise.

Ans=> If set can guide perception, it can even guide our attention.

→ Attention is an imp. resource in problem solving.

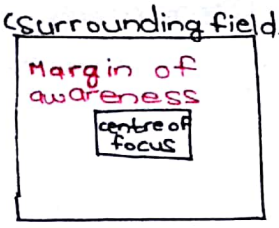
⇒ Attention develops with the development of myelin sheath around the neuron (absent in infants).

* Interest is latent attention & attention is interest in action.

* Characteristics

(i) Attention is essentially a process & not a product.

(ii) There is a centre & margin of awareness in attention



(iii) Attention is selective in nature. It is not indiscriminate we attend to objects that are of interest to us.

(iv) At any point of time, we can concentrate or focus our consciousness on one particular object only.

(v) The concentration or the focus provided by the process of attention helps us in clear understanding of the perceived object or phenomenon.

(vi) In a chain of S–R Behaviours, attention works as a mediator. Stimuli which are given proper attention yield better responses.

(vii) Attention is not clearly a cognitive function & is also determined by emotional & conative factors such as interests, attitudes, etc.

* Significance of Attention

(i) Attention helps in bringing about mental alertness or preparedness & as a result one tries to apply his mental powers as effectively as possible.

(ii) It helps us in providing proper conc. by focusing our consciousness on one object at a time.

(iii) It makes us better equipped to distinguish or identify the object of attention from others.

(iv) It acts as a reinforcer of sensory process & helps in better organisation of the perceptual field for max. clarity of the objects under observation.

(v) It provides strength & ability to continue with the task of cognitive functioning despite the obstacles provided by forces of distraction such as noise, unfavourable weather, etc.

(vi) When attention is focused on the object, we are able to do better learning, remembering, reasoning, transfer of training & problem solving.

Types of Attention

(i) Non-volitional

↳ Involuntary

↳ Is aroused without the will coming into play.

↳ We attend to object without conscious effort on our part

eg. mother attending to baby.

a) Enforced Attention :- aroused by our instincts (element of curiosity)

b) Spontaneous :- guided by sentiments.

↳ When

which we have +ve sentiment.

(ii) Volitional
↳ voluntary
↳ Act of will coming into play
↳ neither automatic nor spontaneous
↳ not a wholehearted affair

Types ↳ implicit & explicit

a) Implicit
↳ single act of volition is sufficient to generate attention

b) Explicit
↳ repeated act of will

* Factors influencing attention

(*) Observer characteristics or internal factors

(i) attitudes
(ii) values
(iii) Interests
(iv) Needs & desires
(v) Emotions
(vi) Mental set
(vii) Perceptual style

* Stimulus properties or External factors

(i) size
(ii) color
(iii) intensities
(iv) contrast
(v) movement
(vi) repetition
(vii) Distinctiveness

5-Feb-2019

Theories of Attention

(i) Selection or filter Theories

(ii) Capacity Theories

Attention → Selective → filter/selection theories

Attention → Divided → Capacity Theories

* Selective :- our ability to focus on one or sometimes a few tasks rather than focus on many tasks.

* Divided :- Our ability to focus on many things that are taking place around us.

(i) Selection or filter Theories
(Bottleneck theories)

a) Early Selection Theory → by Broadbent

b) Late Selection Theory → by Deutsch & Deutsch
&
Deutsch & Norman

c) Attenuation Theory → by Treisman

d) Multimode Theory → by Johnston & Heinz

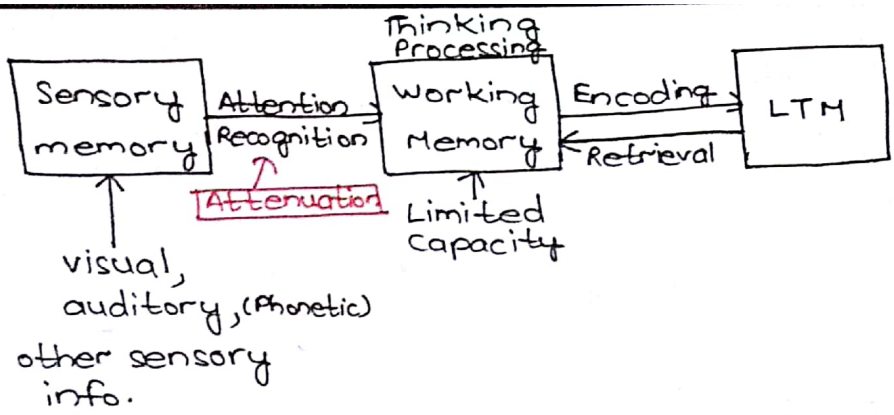
(ii) Capacity Theories

a) Single Capacity Theory → by Kahneman

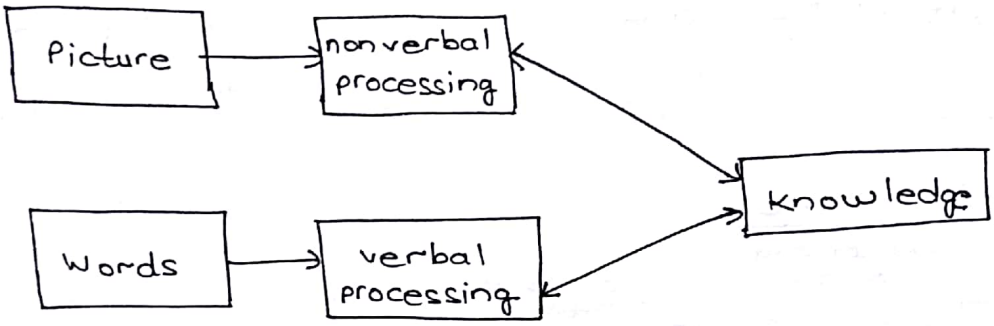
b) Multiple " "

α)

* Feature Integration Theory (New Approach)



* Attenuation:- To lessen the impact.



Pavio - Dual Coding

* Selection Theories

a) Early Selection Theory
(Broadbent)

↳ exp. on dichotic listening task

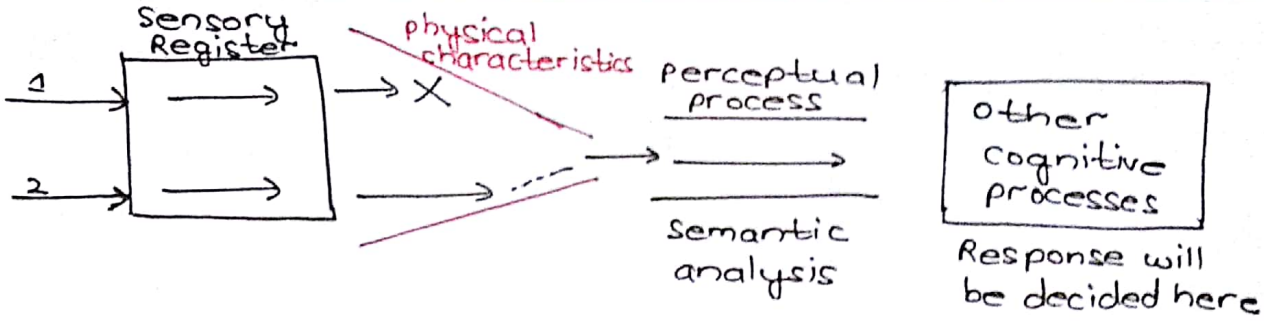
↳ message falling on each ear was different.
eg. Left ear → ABC
right " → 123

→ Shadowed ear → ear whose messages have to recalled.

→ Non-shadowed ear → message has to be ignored.

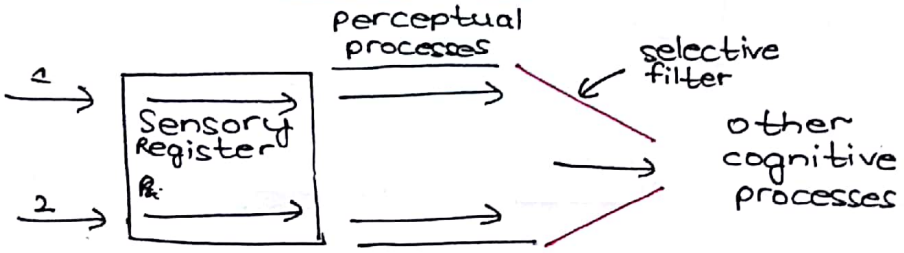
⇒ Subject could not recall the message of non-shadowed ear → only some info about it eg. gender of speaker

⇒ Filter is placed immediately after sensory Reg. & it blocks one message → This filter selects the msg on the basis of physical characteristics like pitch, accent &, loudness, etc. & not semantic characteristics.



- Cherry – Cocktail Party Phenomenon
  - ↳ 2 people engrossed in conversation amidst a noise but still if a person's name is taken with a low intensity, it is heard → some info. does pass ↓ Late Selection Model

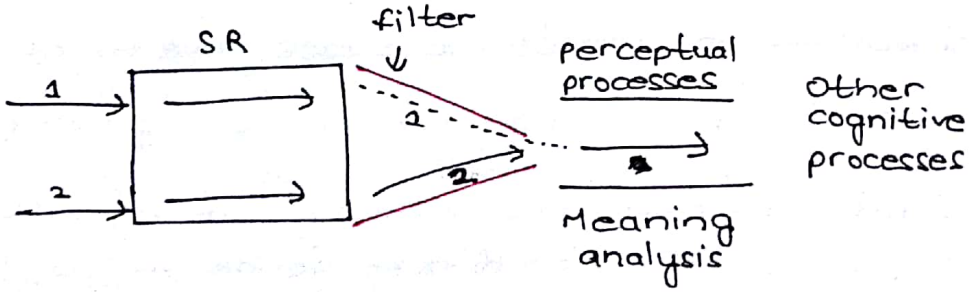
b) Late Selection Model



⇒ filter comes into operation late after some kind of meaning interpretation has been done.

* But this goes against the principle of least effort which human beings show.

c) Attenuation Model



⇒ 1 goes in a weakened form, if it is found to be more relevant, then it is processed for further meaning.

⇒ Cocktail Party Phenomenon → The threshold for your name is very low.

⇒ Filter will not eliminate but only attenuate.

⇒ In attention → physical
→ linguistic
→ semantic
} levels of analysis

⇒ Latest ⇒ You can move your filter & you will place it on the basis of the incoming info & the perceptual load (to avoid info overload)

d) Multimode Theory

↳ Attention is a flexible process that allows for selection of one message over another at several diff. points.

↳ 3 stage processing of info.

Stage I: Sensory Representation of the stimuli are constructed.

Stage II: Semantic Representations are constructed

Stage III: Sensory & semantic representations are constructed.

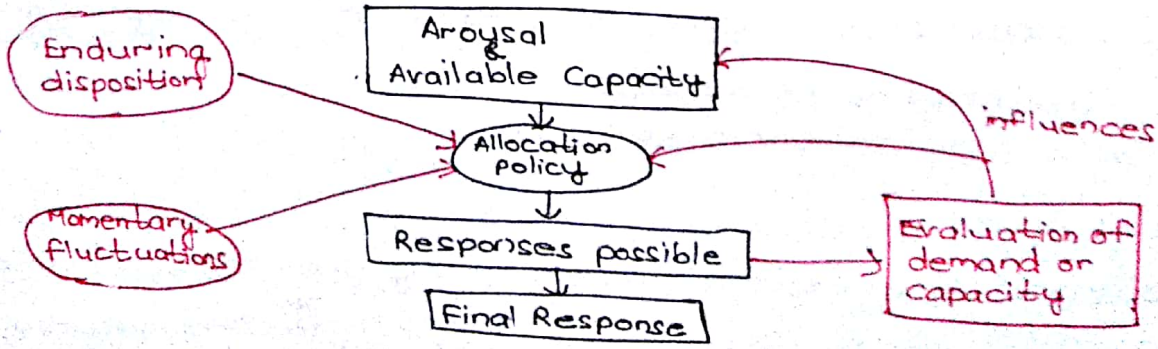
↳ More effort required for stage III

↳ Filter can be moved on the basis of relevance of the info.

* Capacity Theories (Kahneman)

↳ also known as Resource Theories

↳ Allocation of mental resources to specific tasks or specific mental processes.



→ Automatic processing
→ Controlled "

- Automatic processes
  - ↳ colour of the word 'Red'
  - ↳ it is difficult to say black
  - ↳ biological orientation or through habit
  - ↳ Stroop effect → semantic characteristic take over
  - ↳ This saves energy.
  - ↳ Prejudices also become automatic processes
- Controlled processes
  - ↳ not automatic, attention can be controlled

⇒ Higher arousal → task is more imp.

⇒ enduring disposition → habit
↳ genetic

⇒ Based on evaluation of demand or capacity, the response is decided.

⇒ Single → general resource (of energy)

⇒ Multiple → capacity is task specific → visual task
auditory "

→ Thus, visual & auditory task can be done simultaneously but not 2 visual tasks.

⇒ Central Executive also manages the allocation.

Feature Integration Theory

→ Before attention, there is pre-attention (related to pattern recognition)

→ Pre-threshold → gives the idea of the importance of the info.

→ Pre-attentive processes
↳ facilitate pattern recog.

→ Automatic

→ Feature specific cells → carry pre-attentive process
↓
This directs the allocation of attention

⇒ Pre-attentive processes are present in both selection & capacity theories.

Pattern Recognition

→ identification of objects & events

→ step bet. initial sensory registration of the stimulus & the identification of the stimulus as whole meaningful unit.

→ matching the sensory info. with the corresponding info stored in LTM.

(i) Sensory Register
(ii) LTM

* Theories of Pattern Recognition

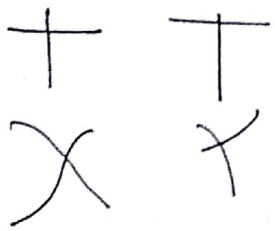
(i) Template Hypothesis / Theory
(ii) Prototype Theory
(iii) Top down & Bottom up approaches
(iv) Feature Analysis

(i) Template Hypothesis

↳ more used during childhood
↳ Literal copy of the input stored in LTM
↳ pattern presented by sensory experience is compared with the template.
↳ Direct Match is found → object is recognised.
↳ Lock & Key Hypothesis
↳ This goes against cognitive economy
↳ It cannot explain the speed of recognition & recognition that is done even when a variation of the object is presented.

(ii) Prototype Theory

→ Abstraction of patterns stored in LTM



⇒ 4 templates
but
only 1 prototype
(2 lines crossing)

→ This favours neural / cognitive economy.

(iii) Top down & bottom up

- Top down
  - ↳ concept driven
  - ↳ context driven
- Bottom up
  - ↳ data driven

⇒ Human beings use top down as we are semantically driven.

⇒ Bottom up is used when top down fails.

⇒ Top down → expectation driven

⇒ Both top down & bottom up can happen simultaneously. Checking the hypothesis on the basis of parameters available.

(iv) Feature Analysis

(Recognition by components - RBC)

↳ Before higher level ~~recognition~~ pattern analysis, feature analysis takes place.

↳ feature analysis then facilitates pattern analysis

↳ feature detector cells in animals prove the presence of feature analysis.