

Quadrant II – Transcript

Paper Code: EDU 02

Module Name :- Structure of Information Processing (sensory register, Short term memory, Long term memory)

Module No: 28

Learning Outcomes

The student will be able to:

>acquire the knowledge of Structure of Information Processing

>be able to understand sensory register, Short term memory and Long term memory

Information Processing Theory :-

Cognitive psychology developed around late 50's.

Primary focus of cognitive psychology is on memory (the storage and retrieval of information).

Information Processing theorist proposed that like the computer the human mind is a system that processes information through the application of logical rules and strategies.

Like the computer , the mind has limited capacity for the amount and nature of the information it can process.

Information Processing Theory :-

Theory that attempts to categorize the way information is recognized, utilized and stored in the memory.

This theory recognizes the ability for a person to control what information is processed and the changes and developments of these abilities.

Memory refers to retaining and recalling information over a period of time, depending upon the nature of cognitive task you are required to perform.

Memory is the capacity to store all information that we acquire through learning and experience.

Brain-----vast store-house -----all information stored-----retrieved when needed

Memory is conceptualized as a process consisting of three independent , though interrelated stages, that are... encoding, storage and retrieval.

Encoding :- where incoming information is received and some meaning is derived. It is then represented in a way so that it can be processed further.

The multi-store model is an explanation of memory proposed by Atkinson and Shiffrin which assumes there are three unitary (separate) memory stores, and that information is transferred between these stores in a linear sequence.

The three main stores are the sensory memory, short-term memory (STM) and long-term memory (LTM).

Each of the memory stores differs in the way information is processed (encoding), how much information can be stored (capacity), and for how long (duration).

Information passes from store to store in a linear way, and has been described as an information processing model (like a computer) with an input, process and output.

Information is detected by the sense organs and enters the sensory memory, which stores a fleeting impression of sensory stimuli. If attended to this information enters the STM and if the information is given meaning (elaborative rehearsal) it is passed on to the LTM

The multi-store model of memory (also known as the modal model) was proposed by Richard Atkinson and Richard Shiffrin (1968) and is a structural model. They proposed that memory consisted of three stores: a sensory register, short-term memory (STM) and long-term memory (LTM).

The four pillars of the Information Processing Model:-

Thinking

Analysis of stimuli

Situational modification

Obstacle evaluation

Thinking :-The process of thinking includes the activities of perception of external stimuli, encoding the same and storing the data so perceived and encoded in one's mental recesses.

Analysis of stimuli :- This is the process by which the encoded stimuli are altered to suit the brain's cognition and interpretation process to enable decision making. There are four distinct sub-processes that form a favorable alliance to make the brain arrive at a conclusion regarding the encoded stimuli it has received and kept stored. These four sub-processes are encoding, strategization, generalization and automatization.

Situational modification :- This is the process by which an individual uses his experience, which is nothing other than a collection of stored memories, to handle a similar situation in future. In case of certain differences in both situations, the individual modifies the decisions they took during their previous experiences to come up with solutions for the somewhat different problem.

Obstacle evaluation :- This step maintains that besides the subject's individual development level, the nature of the obstacle or problem should also be taken into consideration while evaluating the subject's intellectual, problem solving and cognitive acumen. Sometimes, unnecessary and misleading information can confuse the subject and he/she may show signs of confusion while dealing with a situation which is similar to one he/she was exposed to before, which he/she was able to handle.

Hence the information processing approach characterizes thinking as the environment providing input of data, which is then transformed by our senses. The information can be

stored, retrieved and transformed using “mental programs”, with the results being behavioral responses.

Information processing models consist of a series of stages, or boxes, which represent stages of processing. Arrows indicate the flow of information from one stage to the next.

Input processes are concerned with the analysis of the stimuli.

Storage processes cover everything that happens to stimuli internally in the brain and can include coding and manipulation of the stimuli.

Output processes are responsible for preparing an appropriate response to a stimulus.

Structure of the information processing system:-

Sensory Memory - Information is received through a person’s senses, it comes from the environment around you – McDevitt & Ormrod, 2004

Holds information associated with the senses (e.g. vision, hearing) just long enough for the information to be processed further (mere seconds).

Short term memory functions as temporary working memory, whereby further processing is carried out to make information ready for long-term storage or for a response.

holds information for a limited amount of time and holds a limited amount of information. Where information is processed and “problem solving” occurs the working memory only processes things for a short period of time.

Long-term Memory – represents permanent store house of information, capable of retaining an unlimited amount and variety of information. The LTM has unlimited capacity and duration and encodes information semantically. Information can be recalled from LTM back into the STM when it is needed.

If the information is given meaning (elaborative rehearsal) it is passed on to the LTM.

Elaborative rehearsal involves the process of linking new information in a meaningful way with information already stored in long-term memory.