

Human Memory

• Memory is a term that can be used in many different ways, but most often in one of the three ways:

• A mental function by which we are able to retain and retrieve information about events that have happened in the past. When we organise something so that we can remember it or recall it later on, we are said to be using memory.

• The storage system whereby these memories are retained in the brain. Terms such as STM and LTM are used to indicate the time span of such system.

• The information that we actually remember i.e., we have a memory of something.

• According to the second perspective Memory is seen as consisting of three interrelated . processes of encoding, storage and retrieval.

• Encoding is a process by which information is processed and registered in memory system.

• Storage refers to the process through which information is retained.

• Retrieval refers to bringing the stored information to ones awareness so that it can be used for performance.

• Atkinson & Shiffrin's Stage Model of Memory explains the process of Memorisation in the lines of computer and suggests that incoming information is processed through three stages, i.e., sensory memory, short-term memory and long-term memory.

• Craiks and Lockhart's levels of processing view of memory suggests that information can be encoded at three levels i.e., the structural, the phonatic and the semantic. The information which is encoded and processed semantically than it leads to better storage.

Any information which has been encoded verbally with the help of concepts and Schemas as well as in the form of images, i.e., dual coding is retained better and can be recalled for performance easily.

- According to Bartlett—a British Psychologist, memory is not only a reproductive but also a constructive process. The retained information during storage undergoes change and modification within one's past knowledge and Schema.

- Memory can be enhanced. There are various strategies for improving memory called ' Mnemonics'. The Mnemonics can be classified as Mnemonics using images Mnemonics using organisation.

- Image based Mnemonics use the Keyword Method and the Method of Loci. Whereas Mnemonics using organisation makes retrieval effective by using chunking and first letter technique.

- These Mnemonics can enhance simple memory but for complex mental processes a comprehensive approach to memory enhancement is required. For this purpose deep level processing of information, minimising interference, developing enough retrieval cues can help better.

Thomas and Robinson developed PQRS method for improvement of memory which is very practical and gives better results.

- We can think of human memory as being composed of three different, but related, stages of memory.

- The sensory register holds a replica of the visual, auditory, or other sensory input for a very brief interval while relevant information is selected for further processing.

- Short term memory holds information, generally as acoustic codes, for about a half minute unless it's renewed through rehearsal.

- The capacity of short-term memory (STM) is quite limited unless information is organized into larger chunks.

- Long-term memory (LTM) stores information primarily in terms of its meaning, or semantic codes. Its capacity is very large and memories stored there seem to be permanent.

- The store of information in Long Term Memory is so vast that it must be organized in some way to facilitate retrieval of information. Current theories suggest that the organization is primarily in terms of categories of meaning or in associative networks.

- Forgetting occurs because information is distorted or can no longer be retrieved rather than because it's lost from the long-term memory store.
- The division of memory into a distinct STM and LTM has been questioned by some theorists. They suggest, instead, that the duration that information can be held in memory depends on the depth at which it is processed, not the stage of memory in which it is held.
- Information that is processed deeply during the encoding process (more richly elaborated) is stored more permanently than information that is processed in a shallow way. If this distinction is kept in mind, however, it still may be useful to think of memory in terms of the STM/LTM stage model.
- There are four major causes of forgetting, each with different relevance to the three stages of memory.
 - Forgetting in the sensory register seems to occur primarily because of simple decay of the memory over time.
 - Forgetting in short-term memory can be attributed to decay over time but also to interference from other similar information stored in memory.
 - Interference from other memories explains some forgetting in long-term memory also, but much forgetting also seems to be caused by the reconstruction of memories to the point that they are inaccurate or irretrievable.
 - Memories may also be lost from LTM because they are unpleasant or threatening to us in some way (motivated forgetting), but both positive and negative emotions appear to facilitate memory.
- Retrograde amnesia and anterograde amnesia are the two major types of memory disorders that are caused by problems in the functioning of the memory areas of the human brain. Alzheimer's disease is the most common form of dementia found in adults and elderly.

Words That Matter

1. Chunking: A group of familiar stimuli stored as a single unit.

2. Cognitive economy : A term to denote maximum and efficient use of the capacity of long-term memory through organisation of concepts in a hierarchical network.

3. Concept: A general category of ideas, objects, people, or experiences whose members share certain properties.

4. Control processes: Mechanisms which govern transfer of information from one system of storage to another.

5. Dual-coding theory: Paivio's theory that memory is enhanced by forming semantic and

visual codes, since either can lead to recall. .

6. Echoic memory : A momentary sensory memory of auditory stimuli; if attention is elsewhere, sounds and words can still be recalled within 3 or 4 seconds.

7. Elaborative rehearsals : The linking of new information in short-term memory to familiar material stored in long-term memory.

8. Encoding : The process of recording information into the memory system of the first time.

9. Fugue state : Amnesia accompanied by actual physical flight – the person may wander away for several hours or move to another area and establish a new life with a new identity

10. Information-processing approach : An approach concerned with how individuals process information about their world, how information enters our minds, how it is stored and transformed, and how it is retrieved to perform problem solving and reasoning.

11. Maintenance rehearsal: Active repetition of information to enhance subsequent access to it.

12. Mnemonics : Strategies or techniques that use familiar associations in storing new information to be more easily retrieved.

13. Schema : A cognitive structure; a network of associations that organizes and guides an individual's perceptions.

14. Semantic memory : LTM component that stores memory for basic meanings of words and concepts.

15. Serial learning : The learning of a sequence of responses in the precise order of their presentation.

16. Working memory: Memory processes that preserve recently perceived events or experiences, also called short-term memory.

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