Memory

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Definition:

It is the process by which information is encoded, stored, and retrieved. Encoding allows information that is from the outside world to reach our senses in the forms of chemical and physical stimuli.

Model of Memory Systems:
Stages of Memory:

- Encoding
- Storage
- Retrieval

Classification of memory:

Human Memory

- Sensory Memory (< 1 sec)
- Short-term Memory (Working Memory) (< 1 min)
- Long-term Memory (life-time)

  - Explicit Memory (conscious)
    - Declarative Memory (facts, events)
      - Episodic Memory (events, experiences)
      - Semantic Memory (facts, concepts)
  - Implicit Memory (unconscious)
    - Procedural Memory (skills, tasks)
Physiology of memory:

Hippocampus, amygdale, striatum or the mamillary bodies are thought to be involved in specific types of memory. Hippocampus is thought to be involved in spatial learning and declarative learning. The amygdale is thought to be involved in emotional memory.

Forgetting:

It is a gradual loss of retained material but the loss is much more rapid in the first hours after learning. There is individual variation.

Causes of forgetting:

1. Passage of the time: it is not simply the time that passes which is responsible for forgetfulness; it is what happens during that time.
2. Interference and forgetting: the recent learned material interferes with what we are trying to remember.
3. Trace decay and forgetting: this means that memory traces which are not used or applied are less able to be recalled.
4. Motivation and forgetting (Repression theory): we unconsciously put certain painful memories beyond awareness.
5. Cue dependence forgetting: recalling will be best when cues that were associated with encoding of a memory are also present during attempts to retrieve memory.

Remembering (Retrieval):

It consists of three processes:

- Recall: remembering something that is not presented to our sensory organs.
- Recognition: remembering something that is present to our senses
- Relearning: you may not recall or recognize anything from a previously learned lesson but still find it very easy to relearn this particular lesson again.
Disorders of Memory:

1. **Amnesia**: partial or total inability to recall past experiences.
   - a. **Antrograde**: amnesia for recent events e.g. senility and dementia
   - b. **Retrograde**: amnesia for remote events e.g. senility
   - c. **Global**: amnesia for recent and remote events e.g. organic brain syndromes.
   - d. **Circumscribed**: presence of amnesic gap e.g. traumatic events.
   - e. **Blackouts or short gaps**: in alcoholic intoxication

2. **Hyperamnesia**: Exaggerated degree of retention and recall. It occurs in hypomania and obsessive.

3. **Paramnesia**
   - a. **Falsification**: adding false details to true memory.
   - b. **Confabulation**: Unconscious filling of gaps by imagined experience (honest lying).
   - c. **Fabrication**: Another version of confabulation but without gaps to fill.
   - d. **Déjà vu**: Illusion of familiarity of visual stimuli.
   - e. **Jamais vu**: False feeling of unfamiliarity with a real situation experienced.
   - f. **Deja entendu**: Familiarity of auditory stimuli.

Memory training:

1. **Memorizing**:
   1) Determine the task
   2) Observe the meaning.
   3) Grasp the whole dimension.
4) Perfect the parts.

5) Recite the parts.

6) Relearn at intervals.

7) Overlearn.

8) Use more than one sense.

2. **Retention:**

   1) Proper memorizing.

   2) Spaced learning.

   3) Sleep well after learning.

3. **Recall:**

   1) Proper memorizing and retention.

   2) Make a good trial, leave for a while and try again.

   3) Try to find the start of a thread then the parts will follow.

   4) Don’t test your memory without preparation by revision.

**Effective study habits: use “S, Q, 3R” (survey, question, read, recite and review)**

1. **Survey** the main heading and subheadings to create an organized framework.

2. **Ask** yourself questions to be answered when you read them.

3. **Read** the material carefully. It is helpful to read it loudly or write it down.

4. **Recite** information from one section to see if you understand it. Do not proceed to the next section until you understand the one you are studying.

5. Periodically **review** the information in the entire chapter by quizzing yourself on it and then read anything you fail to recall.