Long-Term Memory

Long-term memory is defined as memory that can last anywhere from a few days to a lifetime. In terms of structure and function, it differs from working memory or short-term memory which last anywhere from a quarter of a second to 30 seconds.

Various studies have disagreed on the relationship between long and short-term memory. The Atkinson-Shiffrin model for example, suggests that short term memories can become long-term ones if they involve an extreme situation. Yet other theories suggest that short and long-term memory are separate. Evidence to back this up includes the fact that there are many cases when short-term memory has been affected but long-term memory has not.

Long-term memory affects how we perceive the world and has a direct impact on how we behave. It is the framework to which new knowledge is applied. Long-term memory is divided into two separate sections: Declarative memory and Procedural memory.

Declarative MemoryThis refers to memories such as facts which can be recalled. Declarative memory is itself divided into a pair of sub-sections:

- **Episodic Memory:**
  This is when events such as times, places and various contextual knowledge are remembered. The medial temporal lobe is an essential part of episodic memory. Although it is possible to form procedural memories (relating to skills) without it, you cannot remember the events surrounding the memory. The prefrontal cortex is also an essential element when forming episodic memories. Again, it is possible to form memories without it, but these memories will be unreliable because the information remembered will be jumbled up. Unlike semantic memory, experiencing an event once is enough to remember it.
- **Semantic Memory:**
  This relates to the memory of meanings and understanding and includes general knowledge which does not involve a memory of a particular event. For example, you would be able to answer the question: “Are doves birds or timber?” without remembering any specific occasion when you learned that doves were birds. Unlike episodic memory, semantic memory is not linked to an event or occasion.

Procedural Memory

This relates to memories about how to do things. When we need to use motor or cognitive skills, procedural memories are automatically brought to the fore and used to correctly complete the task. Every skill we learn involves procedural memory [1], from playing a guitar to driving an automobile. This whole process requires no active thinking on our part. This type of long-term memory is also known as 'implicit memory [2]'.

Though it is a fact that skills we have practiced constantly can be performed effortlessly over time, an interesting exception occurs when great stress is placed on us. This is apparent during occasions when highly-skilled athletes make simple mistakes under pressure they would not normally make. This is also known as 'choking' and makes an elite athlete look like a beginner because they have momentarily forgotten how to do something they are accustomed to doing with ease.

Illnesses That Affect Long-Term Memory

Several theories suggest that sleep is an important factor when it comes to establishing long-term memories in an organized manner. Essentially, a well-rested mind finds it easier to store and access memories. There are a number of factors which can negatively affect long-term memory also.

Neurodegenerative diseases such as Alzheimer's, Dementia, Schizophrenia and Parkinson's can damage long-term memory. None of these illnesses directly act upon memory but the neuronal deterioration they cause greatly contribute to memory loss.

Links
[1] https://explorable.com/procedural-memory
[2] https://explorable.com/implicit-memory