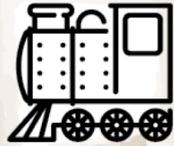


PAST-TIMES



Your memory

Module 1, Unit 1 : Your memory and its tricks

Memory: what is it exactly?



Introduction

There are five major types of memory involving different but interconnected neural networks:

- working memory (short-term memory at the heart of the network),
- semantic and episodic memory (two systems of long-term conscious representation),
- procedural memory (which allows unconscious automatisms) and
- perceptual memory (sensory related).

Knowing the specificities of the memory is an essential first step in order to know how to work on it better.

Short-term memory

- Short-term memory is the memory of the **present**. We use it to retain information from 0.5 seconds to 10 minutes after it enters the brain. On average, we are able to memorize seven different elements simultaneously in the short term. We use this type of memory on a **permanent basis**, for example to retain a telephone number while you dial it.
- Short-term memory is the **first step in longer-term memorization**. There are indeed interactions between these two memory systems: if we want to learn a poem, we can initiate a voluntary learning process by repeating it several times in order to store it in long-term memory.

Working (or immediate) memory

- ▣ Working memory, sometimes called immediate memory, refers to our ability to manipulate the information stored in our short-term memory. It works as an active space that allows processing on information kept in memory from time to time, for example: classifying words in alphabetical order.
- ▣ It is essential in everyday life activities and it plays an essential role when we want to do two things at the same time, such as listening to a class while taking notes.

Long-term memory

- Long-term memory stores information for a long time and even for life. With considerable capacity, it is divided into different memory systems depending on the nature of the information to be stored.
 - **Explicit memory or declarative memory**, works in the memorization of information that we can express through language (a personal memory for example). It covers semantic memory and episodic memory.
 - **Implicit memory**, also known as non-declaratory memory or procedural memory, allows the acquisition and use of motor skills (e. g. cycling or playing a sport).
- Long-term memory coupled with short-term memory play an essential role in our ability to learn, we can train them to learn better, learn faster and learn to learn.

Semantic memory

- ▣ Semantic memory is our memory of facts and theoretical concepts. In terms of explicit long-term memory, it allows us to store general knowledge about ourselves (our history, personality) and the world around us (geography, nature, and even the names of objects, their functions, uses or characteristics).
- ▣ This information is organized according to a semantic network; the time required to retrieve information depends on the distance between the "object of the question" node and the node where the information is located. In this system, there is no forgetting, but only what is called a "lack of accessibility", i.e. a difficulty in finding the node in which the information is located.

Episodic memory

- It has the ability to store information about events and their context (place, date or emotional state). This memory allows us to travel mentally through time and project ourselves into the future.
- For example, episodic memory comes into play in a person who is asked to recall a memory that has occurred in recent months or to think about the next vacation in order to imagine what will happen there.
- It is also the memory most affected by retrograde amnesia, which is a common memory problem for the seniors citizens.

Procedural (or motor) memory

- ▣ Very resistant over time, procedural memory (implicit memory) is the second part of long-term memory. It corresponds to the memory of automatisms, skills and know-how.
- ▣ Procedural memory is said to be unconscious, because the execution of usual gestures is automatic and does not require any particular mental effort: when we ride a bike, we do not consciously mobilize our muscles to pedal and balance ourselves.

Sensory (or perceptual) memory

- ▣ Perceptual memory corresponds to the memory of the sensations felt through our five senses. It stores images (faces and places) or sounds (voices) without realizing it. For instance, it is this type of memory that is solicited when a person goes back home out of habit, thanks to visual cues.
- ▣ There are several sub-categories of perceptual memory, each of which is specific to one of our senses: visual memory (representing 80% of the information transmitted to the brain), auditory memory (essential in musical creation), tactile memory (also called kinesthetic memory), gustatory memory and olfactory memory.

Eidetic (or photographic) memory

- ▣ Eidetic memory, also called photographic or absolute memory, is the hypothesis that human beings are endowed with the ability to remember almost perfectly a large quantity of images, sounds, or objects in their smallest details for about 30 seconds.

In a nutshell

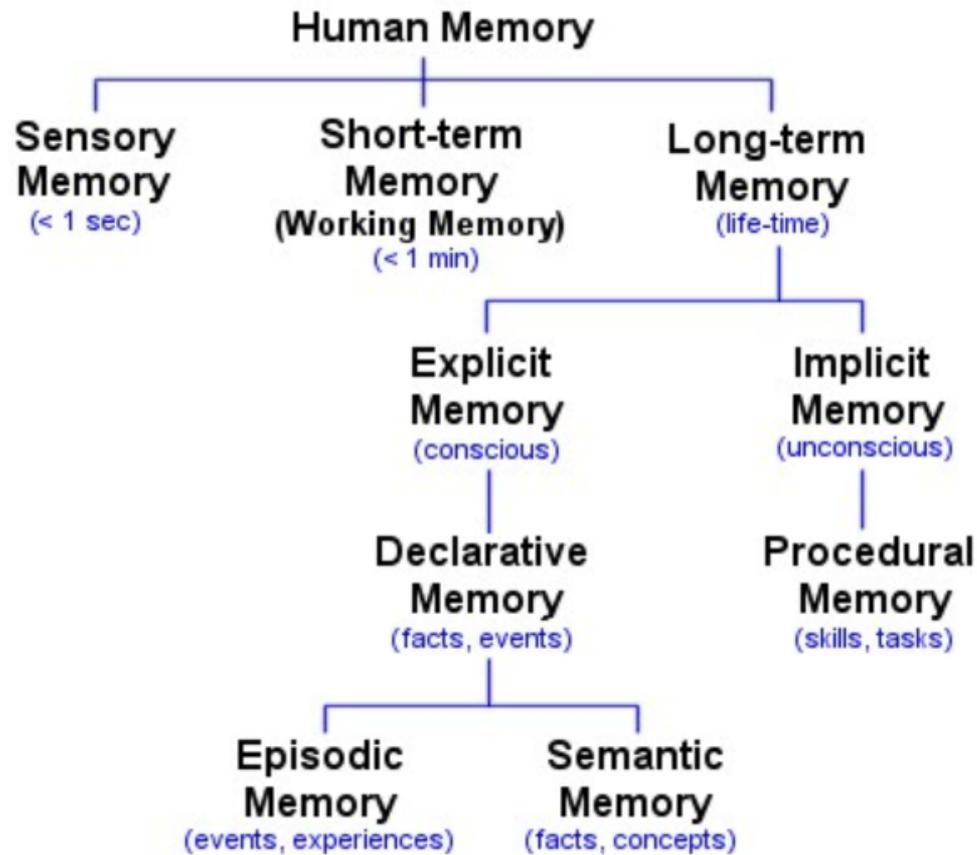


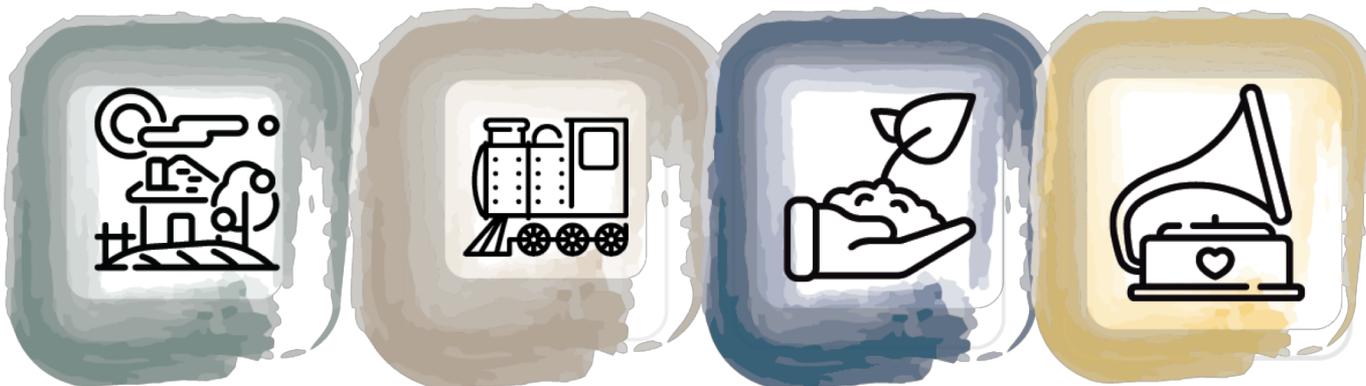
Diagram by Luke Mastin

Thank you for your
attention

Any question?



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