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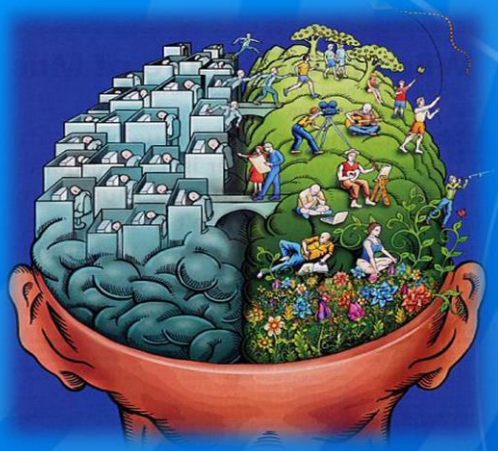
MEMORY AND LEARNING

SENSORY, SHORT-TERM AND LONG-TERM MEMORY

DIFFERENT TYPES OF LONG-TERM MEMORY

Memory and learning are so closely connected that people often confuse them with each other. But the specialists who study them consider them two distinct phenomena.



These specialists define learning as a process that will modify a subsequent behaviour. Memory, on the other hand, is the ability to remember past experiences.

You learn a new language by studying it, but you then speak it by using your memory to retrieve the words that you have learned.

Memory is essential to all learning; because it lets you store and retrieve the information that you learn. Memory is basically nothing more than the record left by a learning process.

Thus, memory depends on learning. But learning also depends on memory, because the knowledge stored in your memory provides the framework to which you link new knowledge, by association. And the more extensive your framework of existing knowledge, the more easily you can link new knowledge to it.

In addition to being associative, your memory is also a reconstruction.

If you know that a Porsche is a car, you know that a Porsche has brakes, even if you have not actually seen them, because you know that all cars have brakes. This highly useful form of reasoning is called inference, and it is based essentially on knowledge that we already have stored in our memories. The more knowledge we have already acquired, the more we will be able to draw inferences.

Human memory is not a unitary process. Research suggests that, at the psychological level, various types of memory are at work in human beings. It also seems increasingly likely that these various systems bring different parts of the brain into play.

Types of memory can be classified in a number of ways, depending on the criterion used. With duration as the criterion, at least three different types of memory can be distinguished: sensory memory, short-term memory, and long-term memory.

Sensory memory takes the information provided by the senses and retains it accurately but very briefly. Sensory memory lasts such a short time (from a few hundred milliseconds to one or two seconds) that it is often considered part of the process of perception. Nevertheless, it represents an essential step for storing information in short-term memory.

Short-term memory temporarily records the succession of events in our lives. It may register a face that we see in the street, or a telephone number that we overhear someone giving out, but this information will quickly disappear forever unless we make a conscious effort to retain it. Short-term memory has a storage capacity of only about seven items and lasts only a few dozen seconds. Just as sensory memory is a necessary step for short-term memory, short-term memory is a necessary step toward the next stage of retention, long-term memory.

Long-term memory not only stores all the significant events that mark our lives, it lets us retain the meanings of words and the physical skills that we have learned. Its capacity seems unlimited, and it can last days, months, years, or even an entire lifetime! But it is far from infallible. It sometimes distorts the facts, and it tends to become less reliable as we age.

Though each of these types of memory has its own particular mode of operation, they all cooperate closely in the process of memorization.

Long-term memory as a whole is defined by the criterion of long duration. But other criteria can be applied to break down the complex phenomenon of memory into separate components.

One such criterion is whether or not the long-term memory in question can be verbalized. On the basis of this criterion, two main forms of long-term memory can be distinguished.

The first is declarative memory: your memory of all those things that you are aware of remembering and that you can describe in words, such as your birthday, or the meaning of the word "cradle", or what you ate last night. This form of memory is also called explicit memory, because you can name and describe each of these remembered things explicitly.

The other form of long-term memory is non-declarative memory. It is also known as implicit memory, because you express it by means other than words. For example, when you ride a bike, juggle some balls or simply tie your shoelaces, you are expressing memories of motor skills that do not require the use of language. Such "motor memories" are just one type of implicit memory. There are others as well.

Congratulations to our SAMI students who completed the course!!