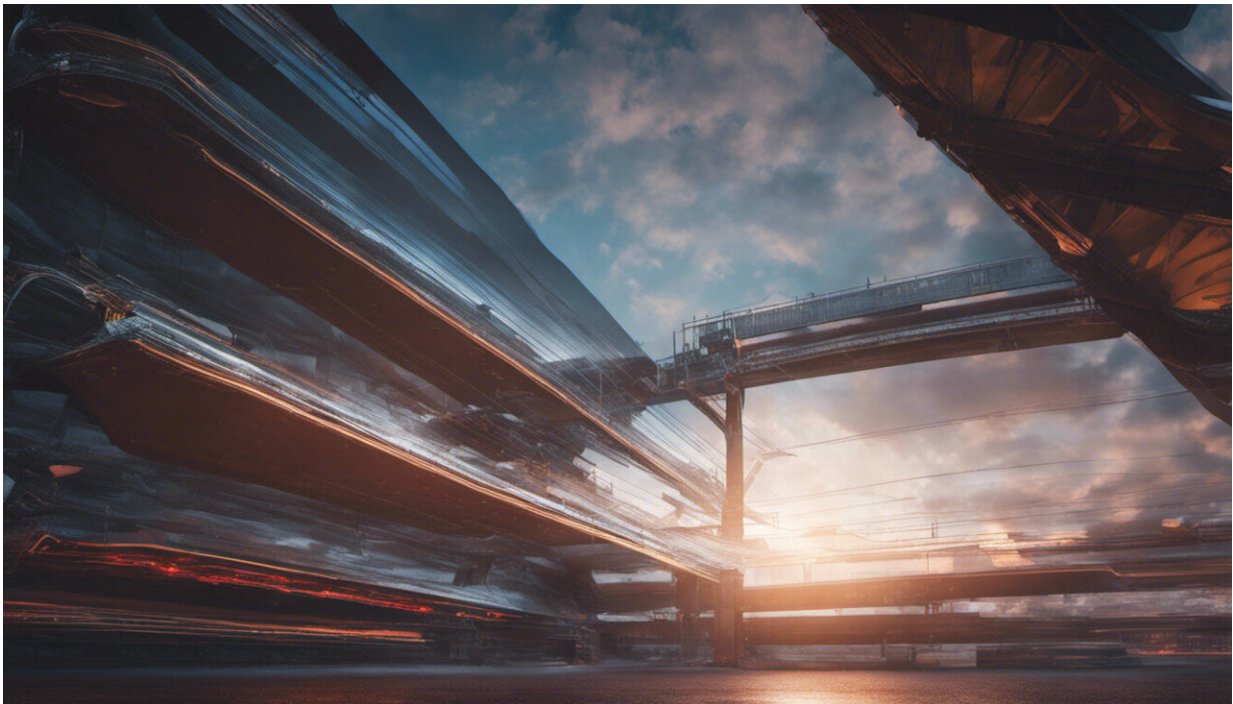


# We need memory to learn—but not the way we currently use it

April 27 2023, by Sylvie Pérez Lima and Jordi Perales Pons

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Credit: AI-generated image ([disclaimer](#))

Sometimes we remember things that we did not even know we had memorised and sometimes the opposite happens—we want to remember something that we know we've learned but are not able to recall it.

Faced with an exam, students only ask themselves about

decontextualised exam content: in this situation, they may not be able to bring back the answer, even if they think they know it. It may even seem to them that they have forgotten everything they have studied. Perhaps not everything, but a large part of it. Had they really ever even learned it?

## **There is no learning without memory**

Memory and learning go hand in hand. As much as it may not sound innovative in this day and age, and even if new methodologies reject the idea, it is impossible to separate learning from memory.

In order to defend this categorical statement, we need to understand what memory consists of, the different types of memory that we have and are familiar with, and their involvement in learning processes. It should also be clarified that language often betrays us and that "learning things by heart" (something which is sometimes necessary) is not the same as involving memory to achieve learning.

## **Memory types**

There is more than one memory. We could classify the types of memory as sensory memory, working memory and long-term memory.

Sensory memory is unconscious, made up of information gathered by the senses and sent permanently to the brain. When we direct our attention to a piece of information, that memory becomes conscious. This is a [short-term memory](#) (our "working" memory).

We are always using our working memory. To understand how this memory type operates, it is useful to think of it as a small space in which we can store only a certain amount of information

simultaneously—information that we gather from the outside or information that we bring to our consciousness.

## **Working memory in class**

The functioning of working memory depends, then, on where we focus our attention and also on how quickly we process the information with which we are working.

To this end, there are students whose processing speed (that is, the time they require to store the information in their working memory) may be greater. This does not mean that they do not have the capacity to work with the information, but rather that they cannot accumulate so many things at the same time in working memory. And vice versa: other students can handle more information faster.

Working memory is what [allows us to learn](#). It processes the information in our brain almost physically—organising it, comparing it with [prior knowledge](#), imagining contexts. When we become aware of our thinking, we are putting our working memory into play. So, should teachers teach with memory in mind? In the case of working memory, there is no doubt that the answer is yes.

## **Long-term memory**

Long-term memory is what we are normally referring to colloquially when we talk about "memory", and we can observe it when we remember things we have learned, different meanings, etc.

In terms of long-term memory, we can differentiate between what we call explicit and implicit memory. Explicit long-term memory corresponds to the type of memory that is the result of conscious

learning and it can come about quite quickly. This is semantic and meaningful learning or autobiographical and contextual learning. Once the knowledge has been processed in the working memory, one could say that it is transferred to the long-term memory. While working memory is limited, long-term memory is [infinite](#).

Implicit long-term memory is unconscious and is acquired through repetition and through experience. Also known as procedural memory, it is essential in [everyday life](#) since it helps us to [learn skills](#). This includes [motor skills](#), such as riding a bicycle or sewing, but also (and closely related to the educational field) [cognitive skills](#), such as learning to read.

Without automatic learning, reading would be impossible as a cognitive skill. Also, the ability to solve problems, plan, etc.

## **Memorising by thinking**

So, why do we say that we should abandon a learning system based on memory if memory is so important for learning? Because "learning by heart" or "rote learning", as we colloquially understand the expression, inevitably leads to the information being forgotten. It does not make learning conscious, it does not use working memory, and it teaches without a clear understanding of what the meaning behind that memorising is.

We need to learn by thinking. If we only ask students to "do things" without making them think about what we want them to learn—if we do not focus their attention and make them process the information—there will be no meaningful learning.

Teaching students to use and work with their memory implies activating prior knowledge through questions, setting out real or familiar contexts, bringing past experiences and memories back into [working memory](#).

And not only activating this knowledge, but also really making sure that they have it. Without this prior step, the student's reaction is to memorise in a meaningless way.

And that is why they forget: they cannot reactivate what they thought they had memorised when it is put into other contexts because they have no context and the knowledge has not been connected to the information that long-term memory already had in it.

For this reason, it is necessary to go deeper into the different topics (very different from adding more and more content), offering multiple situations and different schemes to form connections, all the while consolidating with more and more prior knowledge.

## **Having a 'good' memory or a 'bad' memory**

When we say that someone has a "good" memory, we usually refer to their ability to remember, to call up what has been kept in [long-term memory](#). And, thus, we say that someone who is capable of remembering many things has a "good memory".

The more ingrained the information is in the mind and the better we have learned it, the easier it will be for us to [remember it](#). But it is also necessary to facilitate this memory from the educational perspective, to make it sound familiar to us and give clues for contextualisation.

In exams, what we are measuring is the ability to remember. When we ask students to "study", what we should be asking them is to "practice to see if they remember". Repeating and trying to "learn by heart" causes them to not be able to remember the information later, even despite saying that they "knew it". For this reason, it is necessary to practice memory, work with the information and its meanings, and not just read while trying to memorise.

Thus, memorising is not learning. Learning is remembering.

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