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How to improve your memory: Strategies for kids and adults

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We tend to think of people's memories as being either good or bad. However, you might know someone with a terrible memory for names and faces who is very good at learning languages. Another person might

have an extraordinary ability to recall past events in detail, but they struggle to memorize phone numbers.

These apparent contradictions are the result of our memories' complexity. In fact, our memories are made up of various systems, which are supported by an array of neurobiological structures and mechanisms that vary depending on what we are learning and how we learn it.

Learning a new language, for instance, does not use the same brain mechanisms or processes as scientific information. This makes it difficult to generalise about what makes a particular memory strategy more or less effective in an educational environment.

In this article we will focus only on declarative memory: explicit pieces of information that we can consciously access, such as facts, dates, names, past events, concepts, and so on.

Memory strategies and mnemonics

Studies on competitive memory experts (people who can recall huge amounts of information) have shown that, although genetics accounts for much of our differences in being better or worse at remembering data, people can develop an exceptional ability to remember by using strategies they have practised over long periods of time.

The most commonly used techniques, known as mnemonics, are based on the creation of mental images or verbal strategies that usually require a lot of training.

Visualization methods—such as the method of loci—consist of associating the items to be remembered with specific places. For example, you could memorize a shopping list by mentally following your

route to work and leaving the items on the list in different places along the way. When you want to remember them, you would only have to mentally retrace the route.

This method is commonly used by memory experts, and neuroimaging data shows that, during memorisation tasks, memory experts have greater activation in the brain areas responsible for processing spatial environments.

The effectiveness of mnemonic strategies is rooted in three fundamental principles:

1. Relate the information you want to learn with things you already know.
2. Remember the route to access the information along with the information itself in order to recover it quickly.
3. Practice makes perfect: training and practicing the first two processes is essential to having a sharp, agile memory.

Research on memory experts suggests that if someone can be trained in memory strategies to remember 67,890 digits of the number pi, it could also be used to boost learning in schools. However, while spatial or verbal mnemonic techniques have been proven to be highly effective, their actual use in everyday life is limited.

In school, this means they can be used to learn lists—such as planets or chemical elements—but not for more complicated materials or information.

Encoding memories and knowledge networks

Because of these limitations in school contexts, it is worth looking at other ways of improving memory. We can do this by focusing on the

elements involved in memory processes themselves and applying the same principles as mnemonic strategies.

The creation of a memory begins when information is first perceived, catalogued and encoded in the brain. We know that the most important factor in learning new information is not the intention or desire to learn, but rather what we do with the information.

Deeply processing information by relating it to existing knowledge is the key to making it easier to memorize—it is much more effective to relate information to things we already know than just mentally parroting something until it sticks.

It is therefore essential to create rich networks of knowledge in which you can integrate and organize new knowledge. Remembering when the first American president was elected will be much easier if we relate it to what we already know about, for instance, the French Revolution. Researchers call this semantic encoding.

The process of retrieving a memory is just as important as the process of encoding it. All too often we know something but cannot access it, like when you have a person's name on the tip of your tongue but cannot actually remember it.

For memory training to be effective, we must therefore store the keys with which we are going to access it together with the information itself. Repeated practice is essential for memorisation to occur more efficiently and quickly.

Getting to know your own memory

In schools, the most effective method is not to simply teach memorisation techniques, but to help students learn how their own

memories work. As a general rule, the more knowledge they already have and the longer they practice effective memorisation strategies, the easier it will be for them to acquire new knowledge.

It is also essential to teach students which study strategies are the most effective for different types of content and assessment, and to focus on applying them with flexibility.

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