

Memorization: A Proven Method of Learning

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Abstract

Now-a-days, people talk about the creativity, creative teaching, creative learning, creative evaluation, etc. Though those skills are incredibly important, memorization can still play a critical role in learning and brain development. Informed educators are often quick to write off rote memorization as an unnecessary and even harmful exercise, instead preferring to teach creativity and problem solving. While we agree that creative, analytical lessons are a great way to learn, it's worth pointing out that memorization can still play an important role in learning, no matter your age. The memorization should not be ignored at all. I feel that memorizing things are as important for exercising the brain as much as physical activity is important for exercising the body. Yet for both exercises, we want to do it in the most efficient and effective way so that we can reap benefits from this. Also, some exercises may be so boring and useless that I will give up before I ever see any benefits. In this paper, the benefits of memorization at primary and secondary levels are focused based on the research carried out in the current world.

1. Introduction

In my experience with students, both the college students I teach and the secondary students that teachers tell me about, the biggest weakness students have is that they either try to remember school material by rote memorization or have no strategy at all, relying on some kind of magical mental osmosis. Even among students who rely on rote memory, they generally lack much of a strategy for memorizing, relying on varying degrees of casual “looking over” the instructional material until they think they can remember it. Experiments show that students routinely over-estimate how much they remember and underestimate the value of further study. Moreover, many educators at all levels have disdain for memorization, stating that we should focus education on teaching students to think and solve problems, as if you can think and solve problems without knowing anything. Too many teachers regard memorizing as old-fashioned and even destructive of enlightenment. Disdain for memorization is a relatively new phenomenon in education. In ancient times, people took great pains and pride in memorizing huge quantities of information. The advent of printing greatly reduced the need to memorize history and cultural mores. In modern times, we have the Internet, where you can just Google what you need to know. So who needs to get brain-strain trying to remember things?

A study published by The American Physiological Society showed that 92.9% of students participating in the study experienced an improvement in information recall after only three 60-min sessions of training in the Loci Method.

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There has been a great deal of discussion recently concerning the benefits, or otherwise, of memorization in learning. Memorization, it must be stressed, does not necessarily mean learning by 'rote' and in fact rote learning is just one way in which we are able to commit things to memory. Information can be memorized in many different ways and using specific techniques (mnemonics, rote learning, visualization, and so on) in order to learn long lists of numbers, playing cards in a deck, dates, names and any amount of other things. The human brain is pretty good at learning. Each time it learns something new a connection is formed between neurons in the brain, the more the thing to be learned is repeated, the stronger the connections become.

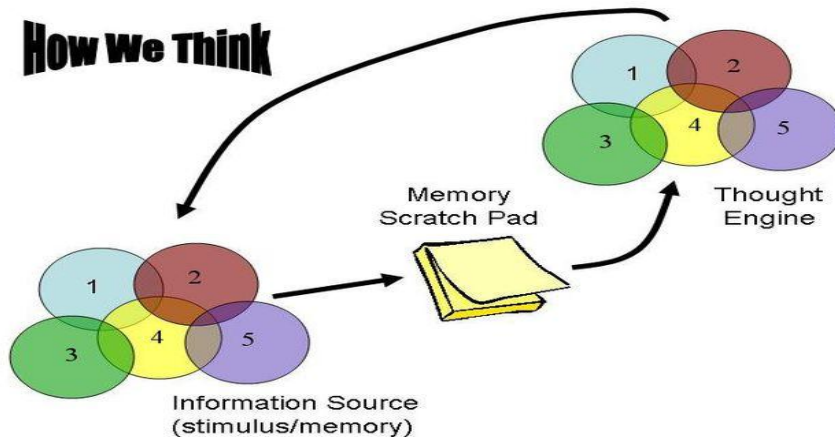


Figure: How we think

I think students do need to memorize certain things in order to function successfully on a daily-basis. Personal information (name, address, date of birth, phone number) should be memorized at an early age. There are many things that we do on a daily basis that we have memorized over time. I think basic grammar, vocabulary, syntax, etc should be memorized at the early age. I know I memorized a lot of English vocabulary at the secondary level when I was learning English language. But, unfortunately when I didn't get to practice them or use them, I quickly forgot about them. There are some facts that I found useless knowing and when I had not needed this information, I have forgotten them. That makes me feel that it was a waste of time even learning the information.

On my own, I felt it benefited me to learn the dates of different events in history because when I learn something new in history, I can relate it to the dates that I know to give it a place of reference in my mind. I believe that when I have students memorize things, I need to think about the purpose for doing this. I need to be able to explain to them the rationale for memorization and have them understand that it will help them be more successful in life. If I can't do this or even convince myself of this, I need to stop and rethink about having them memorize this information. Some benefits of memorization are stated below:

1.1. Trans the brain to remember

Although memorizing lines of poetry may not feel particularly essential, it's an important task for training your brain to remember things. Research says this type of memorization task exercises our brain giving it strength to retain more information. Memorizing passages or poetry over time (rather than cramming) is a very effective way to make our brain more receptive to remembering.

A study done in University of Florida in 2017 in order to assess the effectiveness of mnemonics showed that 71.2% of students found such techniques helpful to remember and later understand the material better.

1.2. Challenges the brain

It is just like when we work out at a gym, consistent and challenging exercise is the key to staying brain fit. Challenges like memorization are a very useful way to work out our brain for better mental health.

1.3. Improves neural plasticity

Irish researchers found that through extended exercises in rote learning, learners can actually recall more information overall. Rote learning benefits the hippocampal foundation, a key structure in the brain for episodic and spatial memory in humans. In their group of participants aged 55-70, these researches noted that repeated activation of memory structures promotes neuronal plasticity in the aging brain.

1.4. Teaches rhythmic patterns

Research finds that repeating the same nursery rhymes over and over again to young children offers memorization by repetition, a very important memory tool for kids. As parents recite familiar rhymes, children learn rhythmic patterns, teaching them balance and symmetry.

1.5. Offers a mental gymnastics exercise

Studies show that those who obsess over sports statistics should be encouraged: neurobiologists believe that “mental gymnastics”, like remembering facts from sports history, can make your brain more quick and agile. Although researchers have yet to find a direct link, they do believe that there’s a plausible connection between sports score obsessions and a more flexible mind. Plus, as UCLA neuroscientist Arthur Toga points out, an exercise like reading sports scores “gets a lot more circuits involved” than, say, watching sports on TV.

In a study done at Harvard Medical School, participants walked briskly for one hour, twice a week for 6 months. This kind of exercise led to an increase in the size of the hippocampus, the brain area involved in verbal memory and learning. The study pointed out that it was important to engage in exercise that was challenging enough to elevate your pulse. This is important for increases blood flood to the brain that is responsible for transporting oxygen to the brain.

Further study done by research in Boston and Germany showcased how sleep deprivation affects people’s ability to perform simple tasks like face recognition and name recall.

The group that was kept awake did significantly poorly compared to the group that got an 8-hour sleep before performing the tasks. A lot about sleep is still undiscovered by the modern scientific community but one thing is clear: our brain “resets” when we sleep. During the night the brain seems to clear out any neuron build up from the activity it undertakes during the day, providing us with that feeling of being fresh and rested in the morning.

1.6. Knowing frees up brain power

Students who “just know” equations, functions, definitions, and other memorized facts can save brain power; brain power that can be used for other things. If foundational concepts and information are grasped, students can move on to bigger and better things, rather than spending time looking up words or doing simple math in a calculator.

1.7. Memory exercises help students practice focus

As students spend time memorizing passages, tables, anything at all, they learn to find focus. Educators have found that students who were required to memorize from an early age often go on to have more capacity to focus on educational tasks as high school and college students.

1.8. Learning Concepts

The researcher from Weber State University, Paula Fiet conducted a research project, discovering that underdeveloped short-term memory may be to blame for some students’ problems with mastering concepts in math and reading. Fiet explains, “you need working memory to learn,” or to hold enough information in your mind to comprehend what you’re learning. Fiet’s research has shown that “children with poor working memories don’t get enough information in their minds at one time to make sense of what is coming in.” Students who complete exercises aimed at building short-term memory have seen improvement in their working memory and capacity to learn.

1.9. Important for creativity

It is just as a strong working memory is good for learning, working memory is important for creativity as well. Dutch researchers have found that semiprofessional cellists were able to perform more creatively with a higher working memory capacity. But under cognitive load, participants performed worse on a creative insight task. Students who learn to focus and develop their working memory through memorization tasks can free their mind to become more creative.

1.10. Stave off cognitive decline

Memory-forming can become a healthy lifelong habit. Researchers from the National Institute on Health and Aging have found that adults who went through short bursts of memory training were better able to maintain higher cognitive functioning and everyday skills, even five years after going through the training. Practicing memorization allowed the elderly adults to delay typical cognitive decline by seven to 14 years. Students who start practicing memory training now can stay sharp in years to come.

I can easily make a strong case for memorization, especially for schools. Here is a list supporting the importance of memorizing:

- Memorized information is always with you, even when you lack the time or access to sources where you could look it up.

- We think and solve problems with what is in working memory, which in turn is memory of currently available information or recall of previously memorized information. The process of thinking is like streaming video on the Internet: information flows in as short frames onto the virtual scratch pad of working memory, successively replaced by new chunks of information from real-time or recalled memory.
- Numerous studies show that the amount of information you can hold in working memory is tightly correlated with IQ and problem-solving ability.
- Memorization provides exercise for the mind. This is the reason schools used to require students to memorize poems, Bible verses, famous speeches, etc. The true advantage of such exercise is that generates mental industriousness.
- Memorization trains the mind to pay attention and focus intensely. Such skill also seems to be lacking in many youngsters, which is most obvious in the growing number of kids diagnosed with ADHD.
- Memorization trains the brain to develop learning and memory schemas that facilitate future learning. Learning schemas develop as we acquire competence in an area—call it skill.

2. Memorization Techniques

Memorization techniques have a double effect on our brain. Firstly, we learn the information at hand, and secondly, we become better at remembering over time. Our brains favour information that is living, active, colorful, vivid, and engaging. The means that we need to make the information that we want to remember interesting for our brains. The key to getting better at any memory technique is finding one that works for you in particular, and setting goals for your training. Here are some of the most used techniques that can do exactly that, and help us with everything from memorizing.

The memory demands of *school-aged children* are more regimented than they were a decade ago. While many schools' main teaching strategies are not mainly on memorization, but more on higher-order thinking skills, the ability to memorize information is still vastly important. Learners are constantly being inundated in the classroom with information on new topics and concepts. While some children may find it to be easy to recall words or math facts in an instant, others' short-term memory may find it more difficult. T

There are **teaching strategies** that we can use to enhance the of the memory our learners. Try integrating the following **teaching strategies** into our curriculum to help our students develop a more efficient memory.

2.1. Mnemonic

Mnemonic devices have been thoroughly studied and have been proven to be an effective way to help one remember information more efficiently. Research states that when information comes into your brain, it searches for prior knowledge, then it seeks meaning through patterns. Try teaching your students to use a mnemonic device the next time they need to remember something. A popular device that many students use in order to remember the colors in the

rainbow is ROYGBIV, which is pronounced (Roy-G-Biv). Each letter represents a color, for example: R-red, O-orange, Y-yellow, G-green, B-blue, I-indigo, and V-violet. Try having students think of a silly sentence that will correlate with what they need to remember.

2.2. Chunking Words and Activities

We can encourage our students to chunk. This means to group items or things into categories or words to make it easier to remember. For example, if a student was having a hard time remembering a spelling word, they could place a word before and/or after it to help them remember. For example, let's say the student couldn't remember the word "Fragile." They can think of it like "Breakable, fragile vase." This will help them remember that fragile means that it can be breakable.

2.3. Students Teaching Others

To help our struggling students improve their working memory, try having them learn a concept in order to teach it to a classmate. The teachers have to brush up on some of their skills before they teach it to their students. This will require the students to learn it twice, which will help cement the concept into their brains.

2.4. Using Mental Imagery

Mental imagery is another effective method to help students enhance their working memory. Using a visual picture can help cement the concept into the brain. A great example of this comes from a primary classroom. When it comes time for the spelling test, and the students are trying to remember the word, the word becomes a cue for the visual image. It's that easy.

2.5. Focus to Remember

Studies show that in order for you to retain information, you have to be focused and pay attention. If you are not, then the information will be disregarded within 30 seconds. Try giving your students this piece of information next time you really want them to pay attention. They may be surprised by this fact. Encourage students to work to retain the information you are giving them by using visualization or by taking notes.

2.6. Utilize Technology

Learners love technology and they also love tapping away on the keyboard, texting, and messaging their friends. Students will have to take the information that they learned and put it into their words in order to send their point of the view of what they just learned to their classmate. This can be a fun and effective way to cement the information into her brains.

2.7. Connecting to Emotions

Studies show that if you connect an emotion to something that you want to remember, you will more likely be able to commit that information to your memory. The next time your students are struggling to remember something, ask them to try and emotionally connect to it. For example, if students are learning about Rosa Parks, ask them to put themselves in her position at that time, and try and connect their feelings about the situation to what they need to remember about her. If they find that they feel sad or angry about this historical event, then they will be more likely to remember the details about it.

2.8. Visual and spatial techniques

Visual and spatial techniques are memory tricks that involve our five senses. They utilize images, songs, feelings, and our bodies to help information stick. Humans have outstanding visual and spatial memory systems. When we use visual and spatial memory techniques, we use fun, memorable, and creative approaches rather than boring, rote memorization. This makes it easier to see, feel, or hear the things you want to remember. Visual and spatial techniques also free up your working memory. When you group things together, you enhance your long-term memory. Using visual and spatial techniques helps your mind focus and pay attention when your mind would rather wander to something else. They help you make what you learn meaningful, memorable, and fun.

2.9. Memorable visual images

The next time you have a key item you need to remember, try making a memorable visual image to represent that item. Images are important because they connect directly to your brain's visuospatial centers. Images help you remember difficult concepts by tapping into visual areas. But you don't just have to use images—the more of the five senses you can use, the easier it will be for you to recall information. Rather than just visualizing an image, try to *smell*, *feel*, and *hear* the image as well. For example, if you are trying to remember that the capital of Louisiana is Baton Rouge, draw up an image of a girl named Louise carrying a red baton.

2.10. The memory palace technique

This technique involves visualizing a familiar place—like the layout of your house or dorm room—and using it as a visual space where you can deposit concept-images that you want to remember. This technique can help with remembering unrelated items, like a grocery list. To use the memory palace technique, visualize your place (house or dorm room) and then imagine items from your grocery list in different areas around the place. For example, picture a cracked egg dripping off the edge of the table or a bushel of apples sitting on the couch.

2.11. Songs and jingles

Much like the memory palace and images, songs or jingles use your brain's right hemisphere and can help us remember tricky things like equations and lists.

2.12. The five senses

Using as many of the five senses as possible when studying helps us use more parts of our brain and retain information better.

2.13. Lively visual metaphors or analogies

This can help us to not only remember but *understand* concepts, especially in language, literature and science. A metaphor is a way of realizing that one thing is somehow similar to another. Metaphors—especially visual ones—can stick with you for years. They help glue ideas in your mind because they make connections to neural structures that are already there.

Conclusion

We never forget anything. With the exception of injury and disease, the brain never loses anything. Forgetting is either 1) the failure to store information in the first place. Some of these techniques can feel strange at first or take some time to develop. The more you practice them, the easier and more natural they become, and the more information you can commit to memory. Also, remember that you do not need to do every tip on this list. Experiment with a few and find which ones work for you. Remember that you can make an appointment with an academic coach to discuss memory techniques, create a study plan, or talk through any other academic issue. Check out some of the Learning Center's resources on other effective study strategies:

Works Consulted

- Brown, P., Roediger, H., and McDaniel, M. (2014). *Make it stick*. Massachusetts: The Belknap Press of Harvard University Press.
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