10 Strategies to Enhance Students' Memory

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The memory demands for school-age children are much greater than they are for adults. As adults, we have already acquired much of the knowledge and skills we need to function day to day. Although the knowledge base for some fields such as technology changes rapidly, the new information is generally highly specific and builds on existing knowledge. On the other hand, school children are constantly bombarded with new knowledge in multiple topic areas in which they may or may not be interested. Additionally, they are expected to both learn and demonstrate the mastery of this knowledge on a weekly basis. Thus, an effective and efficient memory is critical for school success.

Many students have memory problems. Students who have deficits in registering information in short-term memory often have difficulty remembering instructions or directions they have just been given, what was just said during conversations and class lectures and discussions, and what they just read. Students who have difficulty with working memory often forget what they are doing while doing it. For example, they may understand the three-step direction they were just given, but forget the second and third steps while carrying out the first step. If they are trying to solve a math problem that has several steps, they might forget the steps while trying to solve the problem. When they are reading a paragraph, they may forget what was at the beginning of the paragraph by the time they get to the end of the paragraph. These students will look like they have difficulty with reading comprehension. In facts, they do; but the comprehension problem is due to a failure of the memory system rather than the language system.

Students who have deficits in the storage and retrieval of information from long-term memory may study for tests, but not be able to recall the information they studied when taking the tests. They frequently have difficulty recalling specific factual information such as dates or rules of grammar. They have a poor memory of material they earlier in the school year or last year. They may also be unable to answer specific questions asked of them in class even when their parents and/or teachers think they really know the information.

The following ten general strategies are offered to help students develop a more efficient and effective memory.

1. Give Directions in Multiple Formats: Students benefit from being given directions in both visual and verbal formats. In addition, encouraging them to repeat the directions given and explain the meaning of these directions could check their understanding and memorizing of instructions. Examples of what needs to be done are also often helpful for enhancing memory of directions.

2. Teach Students to Over-learn Material: Students should be taught the necessity of "over-learning" new information. Often they practice only until they are able to perform one error-free repetition of the material. However, several error-free repetitions are needed to solidify the information.

3. Teach Students to Use Visual Images and Other Memory Strategies: Another memory strategy that makes use of a cue is one called word substitution. The substitute word system can be used for information that is hard to visualize, for example, for the word *occipital* or *parietal*. These words can be converted into words that sound familiar that can be visualized. The word occipital can be converted to *exhibit hall* (because it sounds like exhibit hall). The student can then make a visual image of walking into an art museum and seeing a big painting of a brain with big bulging eyes (occipital is the region of the brain that controls vision). With this system, the vocabulary word the student is trying to remember actually becomes the cue for the visual image that then cues the definition of the word.

4. Give Teacher-Prepared Handouts Prior to Class Lectures: Class lectures and series of oral directions should be reinforced by teacher-prepared handouts. The handouts for class lectures could consist of a brief outline or a partially completed graphic organizer that the student would complete during the lecture. Having this information both enables students to identify the salient information that is given during the lectures and to correctly organize the information in their notes. Both of these activities enhance memory of the information as well. The use of Post-Its to jot information down on is helpful for remembering directions.

5. Teach Students to Be Active Readers: To enhance short-term memory registration and/or working memory when reading, students should underline, highlight, or jot key words down in the margin when reading chapters. They can then go back and read what is underlined, highlighted, or written in the margins. To consolidate this information in long-term memory, they can make outlines or use graphic organizers. Research has shown that the use of graphic organizers increases academic achievement for all students.

6. Write Down Steps in Math Problems: Students who have a weakness in working memory should not rely on mental computations when solving math problems. For example, if they are performing long division problems, they should write down every step including carrying numbers. When solving word problems, they should always have a scratch piece of paper handy and write down the steps in their calculations. This will help prevent them from losing their place and forgetting what they are doing.

7. Provide Retrieval Practice for Students: Research has shown that long-term memory is enhanced when students engage in retrieval practice. Taking a test is a retrieval practice, i.e., the act of recalling information that has been studied from long-term memory. Thus, it can be very helpful for students to take practice tests. When teachers are reviewing information prior to tests and exams, they could ask the students questions or have the students make up questions for everyone to answer rather than just retelling students the to-be-learned information. Also, if students are required or encouraged to make up their own tests and take them, it will give their parents and/or teachers information about whether they know the most important information or are instead focused on details that are less important.

8. Help Students Develop Cues When Storing Information: According to the memory research, information is easier retrieved when it is stored using a cue and that cue should be present at the time the information is being retrieved. For example, the acronym HOMES can be used to represent the names of the Great Lakes – Huron, Ontario, Michigan, Erie and Superior.

The acronym is a cue that is used when the information is being learned, and recalling the cue when taking a test will help the student recall the information.

9. Prime the Memory Prior to Teaching/Learning: Cues that prepare students for the task to be presented are helpful. This is often referred to as priming the memory. For instance, when a reading comprehension task is given, students will get an idea of what is expected by discussing the vocabulary and the overall topic beforehand. This will allow them to focus on the salient information and engage in more effective depth of processing. Advance organizers also serve this purpose. For older students, Clif Notes for pieces of literature are often helpful aids for priming the memory.

10. Review Material Before Going to Sleep: It should be helpful for students to review material right before going to sleep at night. Research has shown that information studied this way is better remembered. Any other task that is performed after reviewing and prior to sleeping (such as getting a snack, brushing teeth, listening to music) interferes with consolidation of information in memory.

Encourage Student to become an active reader--underline, highlight, or jot key words down words in the margin or on post-it notes when reading chapters. Then go back and read what is underlined, highlighted, or written in the margins, or put all the post-its in linear order on a sheet of paper as a way of creating a virtual active working memory.

When performing multi-steps or engaged in large amounts of support his working memory by having Student record the steps or provide him pieces of what he needs to remember so that his has more working memory for the higher level thinking, have Student use a post-it note to record the four steps (estimate, multiply, subtract, bring down). Then move the post-it from problem to problem, or use a multiplication fact chart or a calculator for the internal steps in the problem.

There are five main ways to support the capacity of working memory:

1. Feed into the working memory only small amounts of new information at a time.

2. Clear unneeded, old information out of the working memory to make room for the new information. Our brains perform this service for us automatically - almost as soon as we stop focusing attention on the information.

3. "Chunk" several pieces of information together, so that several individual pieces comprise a single chunk.

4. Efficiently and rapidly shuttle information into and out of working memory. This requires retrieval, which is discussed in conjunction with long-term memory later in this chapter.

5. Use additional devices to supplement human memory. For example, if we record a phone number on a piece of paper, we don't have to store it in memory. If a teacher projects a map or a diagram on a screen, then it takes little effort for the learners to bring it into working memory - they can just look at any part of the image in front of them.

http://www.mindsparke.com/

Strategies for Improving Memory

By Jonathan Mooney
http://www.neurodevelopmentcenter.com/index.php?id=128

https://www.mybrainsolutions.com/Pages/TrainingSolutionsThinking.aspx?gclid=COPM0bO_w6ECFc5i2godaxpRUg

Test success often relies on a good memory. While it's very important to help your child find the right structure for his test review, you can also help him improve his memory. The key to memory retention is to get the mind and the senses highly involved in order to help move information from the short-term memory into the long-term memory. As you work with your child on memorizing and retaining information, integrate color, touch, sound, and verbal processing. Here's how:

1. Integrate color. Use colored flashcards, colored pencils, or a rainbow of highlighters. Before you start reviewing, identify specific colors for themes, details, concepts, and arguments.

2. Integrate visuals. Use a visual representation of the information he is learning as often as possible -- it can even be as simple as a circle drawing.

3. Integrate verbal processing. Let Student "talk it out" when learning new information. Give him audio equipment (digital or tape) so that he may record as he studies. Talk with him about what will be on the test before the review begins, then talk it out again halfway through the review, and once again at the end of the review.

4. Integrate touch. Touch and movement can help stimulate memory. Encourage him to work at a big table so that he can lay out the material, group flash cards, or build models. Most importantly, let him move around while studying. Have him trace concepts, draw concept maps on a white-board, walk around when reciting information, and lastly, let him chew gum or drink liquids. Believe it or not, all of these activities can engage his physical memory system.

5. Integrate application. One of the biggest misconceptions for many kids is that they think simply reading over the information will be adequate preparation. Encourage him to use the content and skills in problem solving questions, discussion questions, and conversation.

6. Integrate visualization. For every piece of information that he is attempting to memorize, have him think of a picture for it -- whatever comes to mind. It takes 30 seconds, but it's often the key to long-term memory and retrieval.

7. Integrate mnemonics. Have him think of a rhyme or a catchy wordplay to associate with a set of terms or ideas. This allows him to store the information through a mnemonic device -- an age-old strategy for retention. This memory technique is very effective for some.