

Can memory problems cause a learning disability?



Yes, there are at least two types of memory problems, **working memory** and **long-term memory** which can lead to difficulties in learning.

Problems in **working memory** can lead to difficulties in learning because the individual may have less space in working memory for organizing and integrating new skills or knowledge. This can affect the individual's ability to follow directions, organize thoughts for speaking and writing, learn multi-step procedures, or process information quickly. Teachers and parents may see gaps in skills and lack of self-confidence for learning new things. It is common for teachers and parents to assume the student is lazy or unmotivated. Meanwhile the student feels inadequate and incompetent in their ability to learn. The individual, parents, and teachers need to realize that once material is learned the individual can show age appropriate ability to recall it. When parents and teachers, misinterpret the symptoms of a working memory problem, they may respond to the student in ways that lead the student to behave in a disruptive manner, withdraw from others, refuse to try to learn new things, and talk of hating school.

The second type of memory problem affects **long-term memory**. A long-term memory problem may affect what information is recalled, the time it takes an individual to recall information, or one's ability to remember things in the correct order or sequence. The individual may be disorganized, confused, or disoriented when presented with a series of directions or steps in learning new material. He/she may confuse the order of syllables in a word or phrase. It may be the case that the student knows what he/she wants to say but cannot organize the ideas, find the right word, or communicate their thoughts in a clear manner. This difficulty may affect speech as well as writing skills. An individual with this problem may experience significant frustration in class or at home because they have such difficulty communicating. They may have difficulty completing tasks that require more than two steps. Math computation and problem solving may be especially difficult because they may take a procedure out of order, make a simple calculation error, or write the wrong answer down despite knowing how to solve the problem.

How can a memory problem be diagnosed?

Memory problems are best diagnosed by a psychologist, if not a neuropsychologist. This does not mean that testing will require being put in an MRI machine. Simple tests of memory can be conducted to determine what type of problem exists.

What can be done to help someone who has a memory problem?



Short-term / Working memory

- Remember that the student can learn, it is just a matter of minimizing the demands on short-term memory.
- Ensure that the individual is attending to the task at hand.
- Whenever possible make what is to be learned connect with the individual's prior experiences, emotions, or passions.
- Limit the amount of important information presented at one time. Instead of giving multi-step directions provide directions one step at a time.
- Use short, simple sentences when speaking to the student. Be sure to keep instructions at the student's level of functioning.
- Present instruction verbally as well as visually. Match memory strengths to teaching style.
- Ask the student to put directions in his/her own words.
- Ask the student to repeat directions before beginning an assignment.
- Repeat directions as often as needed.
- Order directions or skills from simple to more complex.
- Provide hands-on experiences as much as possible.
- Expect that students with more severe deficits in memory will require 3 to 5 times as much practice and instruction.
- New skills should be practiced until they are automatic and students don't have to think about each step.
- Write directions down or, for younger children, use pictures to show what the child is supposed to do.
- Involve visual, auditory, and kinesthetic methods of learning simultaneously.
- Present information in smaller steps, then show the student how all the steps are connected.
 - Connect new concepts and knowledge to previous experiences.
 - Use mnemonic aids and strategies for retention.
 - Provide immediate feedback.
 - Practice frequently. A little at a time, more often is better than one long session.
- When reviewing, use different strategies such as copying, writing from memory, sounding out, and/or guessing.

Long-term Memory

- Teach the student to identify the purpose of a task and use organizational skills to direct attention and focus.
- Sequence material from simple to more complex. Use mnemonic devices to help students keep information sequenced.
- Provide intensive review, repetition, and learning at each step.
- Provide frequent opportunities for practice and review. Practice frequently. A little at a time, more often is better than one long session.
- Review within a few hours of learning.
- Review previous information before each lesson.
- When reviewing, use different strategies such as copying, writing from memory, sounding out, and/or guessing.



- Limit the amount of significant information presented at one time, instead of giving multi-step directions. Provide directions one step at a time.
- Use color-coding schemes to highlight information or distinguish levels of importance.
- Use short, simple sentences when speaking to the student. Be sure to keep instructions at the student's level of functioning.
- Use advanced organizers, like concept maps, anticipation guides, or outlines to direct student's attention.
- Have the student paraphrase what is being learned every few minutes (3-6 minutes) to determine if student is processing the information correctly.

Where can I find more information about memory?

LDA of Minnesota: <http://www.ldaminnesota.org> or 952-922-8374

National Center for Learning Disabilities: <http://www.nclld.org/>

Ld Online: www.ldonline.org search for memory deficits

Berninger, V. & Richards, T. (2002). Brain literacy for educators and psychologists. Academic Press: San Diego, CA.

Lyon, G., & Krasnegor, N. Ed. (2001). Attention memory and executive function. Paul H. Brookes Publishing Co. Baltimore, MD.

LDA of Minnesota

For more than 36 years, **Learning Disabilities Association of Minnesota** has been serving the needs of people of all ages at risk for learning disabilities or related learning difficulties by maximizing their potential so that they may lead more productive and fulfilled lives. Services include educational assessments, one-to-one and small group tutoring, consultations, family literacy activities, school-to-work transition programming, professional training, public education, and high-quality educational products.

LDA of Minnesota is the state affiliate of LDA of America, a non-profit organization of volunteers dedicated to identifying causes, promoting prevention of learning disabilities, and enhancing the quality of life for all individuals with learning disabilities and their families by encouraging effective identification and intervention, fostering research, and protecting their rights under law.