The Connection Between Memory and Learning

WORKING MEMORY DEFICITS OFTEN CONFUSED WITH LACK OF MOTIVATION

WRITTEN BY

LYNN CARAHALY, MA, CCC-SLP,

TRACEY GRAVES, PHD, CCC-SLP

Children who receive poor grades in reading and mathematics, have problems finishing schoolwork, and have a hard time paying attention are often labeled "unmotivated" by parents and teachers. The challenge may not actually be a lack of intelligence or even a lack of motivation for many struggling students, but simply a poor memory, in particular a poor working memory.

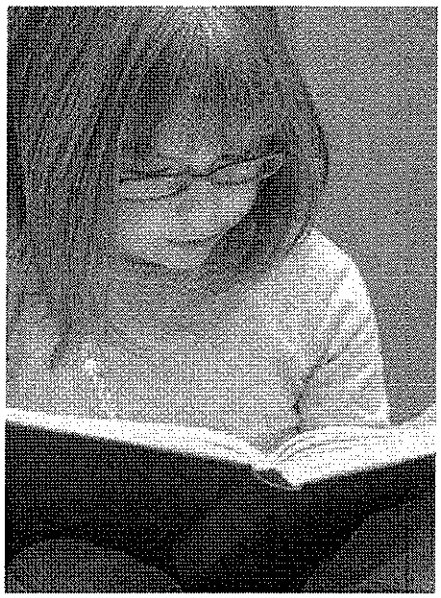
Working Memory is a critical cognitive function that refers to the ability of the brain to hold and manipulate verbal and visual information in the mind for brief periods of time. An example of working memory is remembering a telephone number or remembering someone's name 30 seconds after they have introduced themselves. Working memory precedes short term memory. It works like a mental notepad to help us store important information to carry out tasks.

Children with working memory deficits are easily distracted, struggle to remember instructions, and have difficulty starting, prioritizing and finishing tasks. Studies have shown that they also have difficulty in school, particularly with reading comprehension and math, due to their inability to hold in mind sufficient information to allow them to complete the task at hand.

Studies conducted at York University concluded that working memory skills at 4 years old are excellent predictors of children's achievements three years later on national assessments in reading, writing and mathematics. Children with good working memory skills perform better in school. In contrast, children who did not achieve at expected levels in national assessments in literacy and mathematics typically have weaker working memory skills compared to their age matched peers.

Many researchers in the field of cognitive skills related to academics believe working memory is the most important predictor of learning, much more so than a student's overall IQ score. Working memory gives us an isolated measurement of what a student is capable of learning. It measures a child's potential to learn and not just what they have already learned.

Working memory plays a key role in Attention Deficit Disorders. Poor working memory leads to poor attention, and good working memory results in good attention.



Many children diagnosed with AD/HD also have a limited working memory capacity. Research shows that children with AD/HD have an average working memory level roughly equal to that of a non-AD/HD seven year old. Strengthening working memory can help to reduce the social, academic and other challenges that children with AD/HD face every day.

There is good news for students with poor working memory skills: there is something that can be done about it. The human brain has the ability to reshape and rewire itself. This is called neuroplasticity. Neuroplasticity, also referred to as brain plasticity or cortical re-mapping, is the brain's ability to change shape and re-network, creating new connections between neurons, as well as establishing new neurological pathways in the brain. Working memory impairments can be addressed using a combination of research based working memory training techniques to actually create a neurological change in the brain's ability to expand working memory capacity, and directly teaching and implementing memory strategies in the classroom and everyday life.

For further information on working memory deficits and interventions, please visit www.listening-ears.com or email Lynn Carahaly, MA, CCC-SLP at info@listening-ears.com. ©

Having a limited working memory capacity often results in losing crucial information when trying to follow instructions and details of what to do next. If information is not stored properly, or at all, a child most certainly cannot retrieve this information for information for learning. Children with working memory future tasks or build upon prior deficits demonstrate difficulty remembering information from one lesson to the next.

Children with working memory deficits often:

Get poor grades in reading and math

Are easily distracted

Have problems finishing classroom assignments

Have trouble following directions from teachers

Are reluctant to answer questions in class