

## WORKING MEMORY NOTES

The following notes are based on a range of researcher's studies and articles including Klingberg, Alloway, Williams, Klemm, and Gathercole.

Current research is indicating that working memory efficiency is a better indicator of academic success than is IQ level. Working memory at the start of formal schooling is best predictor of academic success in the development of subsequent skills in reading, spelling and maths. This holds true irrespective of IQ level.

Is Working Memory the new IQ? Cate Wikner Read More

<http://www.hppsyh.com/cogmed.html>

Working memory measures capacity to acquire knowledge, is strongly correlated with fluid intelligence ("The ability to learn or invent new strategies for dealing with new kinds of problems", Lahey B.B.1998) it doesn't measure what is already known (crystallized intelligence).

Working memory is involved when we are involved in conscious thought  
10% of students may have working memory problems

It is the ability to temporarily hold information in our mind and manipulate it mentally (without concrete tools like pencil and paper). Working memory is like a mental workspace

Working memory provides a resource for the individual to integrate knowledge from long term memory with information in temporary storage and can have an impact on both learning and anxiety.

Working memory allows us to progressively analyse existing knowledge, integrate it into the current situation and re organize it or create something new.

Short term memory refers to storage tasks only – ones that require no manipulation, which differs from working memory which involves manipulation as well.

Working Memory is required for

Paying Attention (which is a pre-requisite to learning)(Klemm)

Stay focussed

Speed of processing

Following instructions

Mental maths

Remembering patterns of letters – spelling

Reading

Remembering sentences

Comprehension

Retrieving information from long term memory

Respond to questions thoughtfully

Analysis & Synthesis if information and ideas

Creatively solve complex problems

<http://www.cogmed.com/working-memory-checklist>

Children with working memory deficits take much longer to process information and therefore don't cope well with timed activities or fast presentation of material. They often give up out of frustration.

**Learn More :** <http://working-memory-and-education.wikispaces.com/>

Strategies parents and teachers could implement to reduce the overload or overfilling of working memory capacity

Following instructions ( Alloway)

- Brief simple instructions
- Individual steps
- Frequent repetition of instructions
- Step by step reminders as task is being done
- Have child repeat instructions back

Children usually understand their working memory problems so we can assist them by naming them, explaining what is happening and assisting them to develop strategies.

Link to Bill Klemm article. <http://www.sharpbrains.com/blog/2008/05/25/try-thinking-and-learning-without-working-memory/>

Working memory storage has been thought to be finite however more recent research has shown the benefits of Working Memory Training. Recent research has shown that the use of systematic computerized training programs can increase working memory capacity and that this has led to a measured improvement in grades and reported improvements in social skills, taking initiative, remembering instructions and independent task completion.

AGSC are planning to be able to offer a Working Memory Training program in the near future.