

# childPSYCH News

A newsletter for professionals and parents

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Inside this issue:

Working Memory

Written language problems

How should AD/HD be diagnosed?



APS Psychologists



Australian Tutoring Association



QUEENSLAND COLLEGE OF TEACHERS



COGMED

## Concentration and Attention Problems?

The cogmed program consists of 25 training sessions of 30-40 minutes each, done over 5 weeks. It is the intensity of this training schedule that is critical to the program's success. The user/family sets the training schedule with the Cogmed Coach, with plenty of flexibility.

## Working Memory

by Philip Gosschalk, Clinical & Educational Psychologist

Working memory as a word has been used a lot lately. It is not uncommon to find teachers and parents referring to suspected "working memory" problems in children. In this article, I thought I would provide an overview of what it is, why is it important and how we can assess it and treat any working memory problems.

### What is working memory?

So you probably think that working memory and short term memory mean the same thing?

Working memory is different from short term memory. Short term memory is our ability to remember information for brief periods of time without rehearsing. Like remembering someone's name when you're introduced. But if you started thinking that the person's name sounds familiar and you try to recollect where you may have met them before, you're using working memory now!

Working memory is the ability to hold information in short term memory while you engage in some other processing. For example, when you listen and write, or read and remember what you've read, or when you start planning what you're going to do to host a party.

### Importance of working memory

So you can begin to see how working memory is related to just about everything we do. Working memory is more a way of describing a series of cognitive skills. But the frontal lobe (i.e., forehead) is considered the area where information in working memory is held when it is being processed. You can imagine what happens then if you have a car accident and have a frontal head injury—you



*"some researchers argue that working memory is a better predictor of academic achievement than your IQ score"*

will have problems with multi-tasking, keeping up with what's being said, difficulty following lengthy directions and so on.

By now you may be thinking that this sounds like a description of children with learning and attention problems. You would be right. However, while these children often have problems with working memory, it is not the only area of cognitive functioning that is impaired. It's just that working memory is a very important part of brain functioning—the most important some would argue.

In fact, some researchers argue that working memory is a better predictor of academic achievement than your IQ score. Researchers have shown that problems with working memory affect mathematics performance, as well as reading ability. Some researchers have shown that your working memory ability predicted grades six years later, better than an IQ score.

### Working memory and learning

How is working memory related to reading? Working memory is needed for learning phonics. For example, when you begin to learn the letter A makes the /a/ sound. This is called sound-symbol association. You now those letter reversals and number reversals you see

some children make? This can sometimes reflect confusion in the learning process arising from poor working memory ability and not a visual problem.

Unfortunately, working memory problems also result in concentration problems. Children with the inattentive type of AD/HD ("ADD") often have working memory problems. These children can become overwhelmed easily by what they feel is too much information. Poor working memory leads to difficulty with following instructions and such students need to be taught in a step-by-step fashion. But just because you have a working memory problem doesn't automatically mean you have AD/HD. Assessing for this disorder is more complex.

Psychologists are well placed to assess working memory. We typically use tests that measure the capacity of working memory and how much information a child can hold. It is important however, that other areas of brain functioning are evaluated. This is because other areas of problematic brain functioning can appear to be working memory problems.

### Addressing working memory problems

Working memory problems can be addressed by altering the teaching environment so that it suits the child's learning style. For example, keeping instructions short. The cogged brain training program is a recent evidence-based intervention for improving working memory functioning. Similarly, medication such as Ritalin has been shown to improve functioning also. As psychologists we are trained to look at changes to the environment brain training as interventions to address working memory problems.

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## Learning Problems?

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## Written Language Problems

A Disorder of Written Expression encompasses problems with the legibility of letters but also with the expression of ideas on paper.

Written language disorders are poorly researched compared to that of reading disorders (dyslexia). However, some research from the area of neuropsychology has shed light on possible causes.

Various areas of neurological functioning may cause problems with written expression. For example, problems with what's called Executive Functioning, can cause problems with organisation of ideas as well as with the legibility of handwriting. Executive functioning is located at the front of the brain and considered an important area in organisation and attention. As expected then, children with disorders such as AD/HD which are often caused by difficulties with executive functioning, will also have difficulties with written language tasks.

However, executive functioning is not the only area implicated in written language problems. For example, problems with the right side of the brain can also have a role to play. The right side of the brain is involved in motor movements but

also retrieving information from long term memory. Therefore, if a learner has problems with this part of the brain, then we can expect the learner

to produce not only messy handwriting but also generate poor quality written work that lacks good vocabulary and so on.

For students with executive functioning problems, they are better able to "put ideas on paper" if they can use a computer, speech-to-text software or have someone write down their ideas for them. For those students with problems with the right side of the mind, they may bene-

fit from the use of "mind maps" and other instructional approaches that help them organise their thinking before they begin to write.

In our practice we often see high school aged students who are beginning to show problems with the quality of their written expression. Such students are often bright but as they have been required to produce more written work in high school, have failed to hand in quality assignments. At *childpsych* our NeuroEducational Evaluation™ is designed to evaluate learning problems thoroughly but is particularly suited for written language problems as the assessment process assesses various areas of brain functioning that impacts upon neatness of handwriting as well as such things as quality of written work.



## How should AD/HD be diagnosed?

AD/HD is a real neurobiological disorder which should be diagnosed only after a full evaluation. There is no test for AD/HD despite what some may claim. However, there is a best-practice way to evaluate for AD/HD. These guidelines emphasise the importance of obtaining information from a variety of sources such as teachers and parents. The guidelines also caution against making a diagnosis based on how the child presents in the consulting room. AD/HD children can be quite restrained in such environments. The use of questionnaires which measure not only AD/HD symptoms but also other areas of the child's functioning is also recommended. These rating scales compare the observations of the child by various adults and determine just how different the child's behaviour is from those children without AD/HD. In other words, is the child just "over active" or "hyperactive".

In addition, an evaluation of cognitive (brain) performance is useful in differentiating between the types of AD/HD. For those of you unfamiliar with the types of AD/HD, there are three types - hyperactive/impulsive types, inattentive/distractible types and those that are both inattentive and hyperactive. A cognitive evaluation assists with determining what "type" the child is because children with the inattentive type of AD/HD usually perform poorly on tests of working memory and planning skills and have learning problems, compared to those who are mainly hyperactive.

It is also important to be aware that about 25 percent of children with AD/HD will have an anxiety disorder and 12-60 percent will have a learning disorder. A medical evaluation is also important in ruling out hypothyroidism, lead poisoning and other medical causes. In short, a full paediatric and psychological evaluation is needed.

## Autism Services

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