

## **Diagnosis is not enough**

### **Research that shapes inclusive teaching**

Robbie in year 4 is reserved and quiet. He tends not to volunteer responses. He rarely answers direct questions, particularly in a whole-class situation. Sometimes he becomes more vocal when working in small groups, although he isn't necessarily discussing the task in hand.

Robbie is a learner with a poor Working Memory. He is similar to pupils we can all immediately picture within our lessons. He is just one example, cited by Sue Gathercole, a cognitive scientist who leads the Cognition and Brain Sciences Unit at Cambridge, of a struggling pupil with a behaviour profile commonly found to be associated with working memory disability. Pupils like Robbie are not always on the SEND register and the longer we struggle to notice him the wider the gap between his attainment and his potential will be.

Working Memory is often described as your mental jotter a metaphorical notepad for holding new information. A child with weaker working memory finds it very difficult to take in new information and hold on to it long enough to apply to further thinking, such as calculating a sum immediately. Over time, such students may slide further behind their peers, becoming less likely to ask questions, concerned about being labelled "lazy" or being told that they weren't listening.

It's just one of a number of invisible disabilities that SENCOs are increasingly uncovering, often co-occurring with other learning difficulties such as ADHD. By its very nature poor working memory is more difficult to spot and support but as one of the most accurate predictors of academic outcomes it deserves our serious attention. In fact, according to Gathercole (2008), more than 80% of children with poor working memory fail to achieve expected levels of attainment in either reading or maths, typically both.

There is new currency in memory training to help overcome this kind of difficulty as part of the emerging cognitive enhancement industry. Whilst the idea that brain fitness software and playing mentally challenging games will make you smarter is a great topic for a TED talk, the challenge in the classroom is much deeper. I highly recommend looking at Gathercole's extensive research in more detail for guidance that can directly inform quality first teaching.

She recognises the importance of bridging her research findings on performance of memory with teacher understanding. It goes beyond diagnosis; seeking to make sense of what is happening for pupils with WM difficulty within complex classrooms and recommending what teachers can usefully do to mitigate against these challenges.

The warning signs in children identified by this research include: failing to follow instructions; incomplete recall; losing track of place; abandoning a task. Most importantly, there is great dependency upon our capacity as teachers to 'notice' these recurring problems.

In addition to identifying the challenges, Gathercole recommends a raft of strategies to reduce working memory loads; reducing the amount of material to be remembered; increasing familiarity and relevance. In Robbie's case a cognitive psychologist suggested the best way to understand his poor working memory is to think of information being poured into the memory in the brain through a funnel. When the working memory is poor, the funnel is narrower. If you try to pour too much in or pour too fast, the information simply spills over the sides and doesn't go in.

To compensate, Gathercole encourages use of memory aids such as Working Walls, mnemonics, number lines, multiplication grids, calculators, memory cards, audio recorders and digital software. For now, Gathercole suggests teachers focus on compensation not cure: to scaffold, to strengthen pupil voice, to reduce barriers to learning. 'If you can't learn the way I teach, then I'll teach the way you learn' is a mantra that will serve us well here.

When listening to Sue Gathercole give a neuroscience keynote last year, I was struck by her clarity. She suggested educationalists may want to consider dimensions of strengths and weakness as the dominant construct in building teaching strategies for children like Robbie. Boldly she went on to add we might do this 'either in addition to diagnosis or maybe to replace' conventional diagnosis.

It certainly made me think. First, teachers need to support poor memory through noticing challenges and adjusting their teaching accordingly. And second, more importantly, we should reconsider our strategies beyond a child's diagnosis and plan our support based on their actual relative strengths and challenges. How brave is that!

Gathercole, S. E., & Alloway, T. P. (2008). *Working memory and learning: A practical guide for teachers*. Sage.  
CALM Researchers - Do 'Brian-Training' programs work? (2016)