



Students with dyslexia have **strengths** in visual-spatial working memory. Studies comparing visual memory for novel objects confirm that students with dyslexia perform similarly to normal readers. However, if students with dyslexia are asked to label the objects, their performance drops because they have to rely on verbal working memory. Their good visual working memory means that they learn words as a unit, rather than work out their individual sounds. This strategy can be quite useful initially as they build up an impressive mental look-up table. But they usually find new words very difficult, as they do not have the skills to match the sounds to the letters to decipher them. For example, they may be able to quickly read the word "hawk" if it was part of their lookup table, but the word "tomahawk" would be hard to read if it were unfamiliar to them.

Here are some strategies that can support working memory in students with dyslexia (taken from *Understanding Working Memory*, Sage 2014).

Make information concrete to reduce working memory processing. Use numbers instead of bullet points to make it easier for students with dyslexia to keep track of their place in a multi-step activity. With younger children, use different colours instead. The use of numbers and colours gives students something concrete to keep track of their place in an activity.

Increase working memory processing. Older students with dyslexia often recruit working memory to read a text, leaving them very little working memory resources to comprehend that text. One way to increase their working memory speed is to give them easy passages to read and ask them to speed-read them. This exercise will increase their ability to speed-read words, as well as increase their confidence in reading.

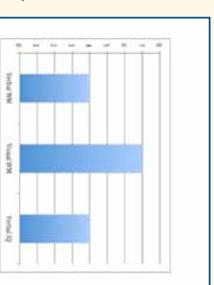
Working Memory training. I have been involved in research for a working memory training program called *Jungle Memory™*. In one published study with the support of Dyslexia Scotland, I found that the benefits of Jungle Memory training persisted when students were tested eight months later (Alloway, Bibile, & Lou, 2013). The study also included an **active control group**. The findings demonstrated that students who trained regularly with Jungle Memory improved their working memory scores by five times more



than those who only trained once a week. Their language and math scores also improved considerably, confirming a **transfer effect**. Jungle Memory improves not just working memory, but more importantly, grades as well.

But the most exciting news came eight months later: when I retested these same students and found that all the improvements they had achieved had been maintained—even *though none of them had been training during that period*. This **maintenance effect** suggests that these students had made lasting gains to their Working Memory.

Pilot trials with *Dyslexia Scotland* also demonstrated that adults with dyslexia made significant gains in working memory and verbal IQ scores after training with Jungle Memory. Their improvements are shown in the figure below where the higher the number, the greater the improvements (using standard scores). There are more trials underway, but the evidence so far is showing that the right working memory training can offer improvements that last.



SUMMARY

1. **Core Deficit:** Students with dyslexia have difficulty with phonological awareness (learning and discriminating sounds of words), which impacts spelling, reading, and writing.
2. **Working Memory Profile:** Impairments in verbal working memory, but average visual-spatial working memory.
3. **Strategies:** Shorter instructions and activities; and reduce working memory processing in classroom activities.

Reference: Alloway, T.P., Bibile, V. & Lou, G. (2013). Computerized Working Memory Training: Can it lead to gains in cognitive skills in students? *Computers & Human Behavior*, 29, 632–638. <http://www.sciencedirect.com/science/article/pii/S0747563212003032>

The Adult View - by Liz Rodger

At the November meeting of the Adult Network the discussion focused on Dyslexia Resilience – Managing Your Manager and Others. The session started off with Dyslexia Bingo – members had to grill each other to answer questions that allowed a grid to be completed relating to different workplace situations.

Members then spent the main part of the meeting discussing the main problems they had with their managers regarding dyslexia support in the workplace. Members then suggested potential solutions to managing their managers. Members also discussed how to deal with conflict from their managers.

Finally, the day finished with a fun session on Mindfulness and the Art of Eating Biscuits. (This makes sense if you were there!)



For details of Adult Network meetings which take place in Stirling and the Glasgow Adult Dyslexic Group meetings which take place in Glasgow, visit www.DyslexiaScotland.org.uk/events

Liz Rodger is Chairperson of Dyslexia Scotland's Adult Network

My experience with ICT has not been as great as others. I couldn't remember all the keys on a keyboard. It took me a long time to write and complete essays for college. It would take me roughly 2/3 days just to complete one essay. I tend to use a children dictionary for all my spelling.

I have not tried any software such as Dragon Dictation or Texthelp Read and Write Gold. I tend to use bigger font size and zoom in when I need to read back what I have written down. It seems to make things easier for me.

I don't like using computers or technology because when it's not working I need to solve the problem and I get frustrated.

I don't really know where to save my documents to on the computer. If I do manage to save a document, I then can't find it in my computer which makes me so frustrated. It feels like the computer has files inside files inside files ... Instead, I use my pen drive to store my documents because I know it's easier for me to access.

Ian Chan

Cycle Edinburgh by night and raise money for Dyslexia Scotland

A night to remember on the streets of Edinburgh

The Edinburgh Nightride starts on the evening Saturday 20 June and the challenge is to cycle 50 miles throughout the night, lit by the moon and lights of the city. What's more, you can raise money for Dyslexia Scotland at the same time by choosing us as your nominated charity for the challenge.

Join or sponsor our Chief Executive Cathy Magee who will be cycling alongside other supporters of Dyslexia Scotland on this epic bike ride - or why not organise your own team? For more information email intro@dyslexiascotland.org.uk