

REASONABLE ADJUSTMENTS

How can Computers and other Assistive Technologies help overcome writing and spelling challenges experienced by dyslexic students?

A useful summary is provided in 'Assistive Technologies to Support Students with Dyslexia' (Dawson, Antonenko, Lane and Zhu, 2019) in the journal *Teaching Exceptional Children* January/February 2019 from which some of the following points are taken and full referencing of research is provided. <https://journals.sagepub.com/doi/abs/10.1177/0040059918794027?journalCode=tcxa>

What difficulties do dyslexic students have in spelling and writing?

Students with dyslexia tend to struggle with spelling and writing throughout their lives, without the use of technological support (Harris & Graham, 2013; Sumner, Connelly, & Barnett, 2014). Students with dyslexia who have spelling challenges tend to use less robust vocabulary (Sumner, Connelly, & Barnett, 2016), exhibit slower writing speeds due to pausing more often (Hatcher, Snowling, & Griffiths, 2002), and produce shorter amounts of text compared to peers without dyslexia (Gregg, Coleman, Davis, & Chalk, 2007).

What are assistive technologies (AT)?

There is a wide range of PC hardware and software and handheld devices that can make life easier for people with dyslexia. These are all termed assistive technologies and include:

- Speech recognition (dictation) software e.g in-built Dictate function in *Microsoft Word*
- Text-to-speech software e.g. in-built Read Aloud feature in *Microsoft Word / Clicker 8*
- Mind mapping software e.g. *Inspiration 10*
- Scanning software and hand-held reading pens e.g. *C-Pen*
- Spell checkers that are specifically designed with dyslexia in mind to automatically make corrections to written communications
- Word prediction software e.g. *Clicker 8 / Text Help, Read and Write*
- Tablets, Smartphones and Applications
- Computer-based learning programmes

What impact can assistive technologies have on spelling and writing?

Assistive technologies (AT), such as word processors with spellcheckers, can help students with dyslexia improve spelling, writing organisation and structure, and confidence in their writing (Hetzroni & Shrieber, 2004; Hiscox, Leonaviciute, & Humby, 2014). Talking word processors that translate written into spoken text and speech-to-text programs that allow students to convert their spoken language to writing can also improve writing and spelling performance (Cullen, Richards, & Lawless-Frank, 2008; Higgins & Raskind, 2004).

Students with dyslexia are also often able to improve spelling and vocabulary usage through word prediction software (Evmenova, Graff, Jerome, & Behrmann, 2010; MacArthur, 1996).

The effectiveness of this AT can be limited by students' ability to correctly identify the first few letters of a word; however, newer word prediction programs often take into account phonetic and inventive spelling when generating word lists.

Is it appropriate to encourage a dyslexic student to use a computer with assistive technologies as their normal way of working even in the early stages of education?

The SEN Code of Practice: 0-25 (2014) states that anticipatory reasonable adjustments, including the provision of auxiliary aids, must be made for children with SEN and disabilities including those with specific learning difficulties. With a focus on high aspirations, they must not be substantially disadvantaged and have equality of opportunity to enable them to succeed in education and make a successful transition into adulthood.

There are many assistive technologies that can be used with younger students to successfully support reading, spelling and writing development, a widely used programme being Clicker 8 (<https://www.cricksoft.com/uk/clicker/8>).

Why should dyslexic students be permitted to produce all drafts of longer pieces of writing on a computer and not just for the 'publishing' stage of the process?

If a dyslexic student is only allowed to use a computer to write the final draft of a piece of longer writing, the assistive features that support spelling and writing development will not have been accessed to reduce anxiety and frustration, ensure output is of appropriate length and contains vocabulary and syntax that is reflective of underlying abilities.

It is essential that practical issues with computer provision and set-up, for example, are not influences in determining whether a student has access to a required reasonable adjustment.

What support should be given to a student if they need to use assistive technologies?

Research has shown that students do not intuitively know how to learn with technology (Kirschner & van Merriënboer, 2013) so will need to be given instruction and continued support and monitoring. Teachers may need to speak with special education and technology experts in their schools or authorities about which ATs are available and how others use them to support students with dyslexia. This will help ensure they can feel confident in their use. In relation to commercially produced software, it is useful to know that free trials are often available. ATs require time to learn and perfect, and students will need support in figuring out how to use the features as part of their writing process.

What happens if a dyslexic student seems reluctant to use a computer?

Dyslexia is a hidden disability (McKay & Neal, 2009) meaning that, unlike a physical disability or severe cognitive impairment, it is not an immediately obvious trait, and many students of all ages with dyslexia go to great lengths to hide their literacy difficulties and blend in with their peers (Stampoltzis & Polychronopoulou, 2009). Thus, students with dyslexia may view using AT unfavourably if it makes them stand out from their peers or stigmatises them, or if they or others see it as an unfair advantage. This reluctance can be avoided if, for example, within a classroom, the use of a computer as an option for recording is normalised or a reading pen is available for anybody to use if needed. Students may be most apt to adopt ATs that blur the boundaries between AT and everyday technologies, such as text-to-speech programs (Israel, Marino, Delisio, & Serianni, 2014). It is important to consider that computer use is the normal way of working for most adults and older students in the 21st Century!

What should be done if a dyslexic student's handwriting speed is faster than their typing speed?

At the beginning stages of word processing, typing speed can be slow and slower than handwriting. It is, therefore, important that a dyslexic student is supported to become proficient and speedier around a keyboard. Explicit keyboarding instruction (touch-typing) is needed to develop keyboarding fluency and unlock the full potential of the word processor for children's writing. Whilst a student is still at a stage that typing is much slower than handwriting, the use of dictation software or provision of a human scribe should be considered so the student can produce work that fully reflects all they want to communicate.

Summary

It is important to understand that some impacts resulting from dyslexic difficulties do not go away with time. Students with dyslexia are likely to face spelling and writing challenges throughout their lives. Research is highlighting that ATs can easily help mediate some of these challenges. Students with dyslexia benefit when teachers understand how ATs can help them overcome their literacy challenges, acquire basic technical knowledge, learn about specific ATs and how these can be used effectively.

For further information and advice, please email info@sheffielddyslexiacentre.org.uk

Principal Specialist Teacher: Mel Hunt

B.Sc. (Hons.) Speech Science, P.G.C.E., P.G. Diploma in Dyslexia (Special Education) Level 7, Sheffield Dyslexia Institute, validated by University of York, 1999., Associate Member British Dyslexia Association (A.M.B.D.A.), Member of the Professional Association of Teachers of Students with Specific Learning Difficulties (P.A.T.O.S.S.), Certificate in Competence in Educational Testing (C.C.E.T.) , Level A. British Psychological Society, DSA approved Non-medical Helper (N.M.H.) for Spld (Dyslexia) in Higher Education