



Using Technology to support Dyslexic pupils

Technology has been influential on all our lives and is a key tool to help Dyslexic learners in the classroom in both learning and teaching experiences as well as accessing or recording written information.

Many of the learning differences experienced when reading, writing, spelling, accessing the curriculum, learning vocabulary, improving phonic skills and assisting recording and presentation, become a smaller problem for Dyslexic learners when technology is used. This may be a result of appropriate speech supported software, selected hardware or tools, specific programs to support and improve memory skills, planning and organisation or Maths.

Some dyslexic learners also have co-ordination, sequencing and organisational difficulties. This may affect their handwriting, cause learners to produce less work or take a lot longer than expected. Once they have mastered the technology efficiently, a portable device can often liberate them, allowing them to concentrate on content rather than process.

Technology can provide the necessary risk taking, patient, multi-sensory environment many Dyslexic learners need. This can result in increased confidence and self esteem, enabling users to:

- see and hear written text on screen;
- repeat and review information, as and when they need to;
- try out actions first and make an informed choice;
- practise skills that meet their needs in both pace and content;
- overcome barriers such as slow typing or writing speed and spelling;
- record and edit ideas easily using ordinary word processing, word banks, predictive and planning tools as well as digital recorders and video cameras;
- plan work before starting to write and review output prior to completion;
- demonstrate their knowledge and ability;
- work more independently

Many popular programs used in today's classrooms were written originally with Dyslexic learners' needs in mind. They have specific pupil or teacher options, including the essential speech support. As with many strategies and resources designed to support Dyslexia, these will benefit many pupils in today's inclusive classroom enabling independent working and access to the curriculum for all.

Teachers can identify Dyslexic pupils and enable early intervention by using one or more of the assessment programs or tools. These are designed specifically to use in schools, and help support and/or confirm other assessments.

A regular audit of the provision, access to and current use of technology in the classroom, is recommended as something to be done by all teachers supporting Dyslexic learners. Regular use of technology in school may enable pupils to use it in exams, if they are eligible under access arrangements.

A suggested set of focused questions to help enable this process of provision is provided below. The additional table demonstrates some of the key areas for such a focus when using technology and the benefits for Dyslexic learners. Such provision mapping when planning to meet diverse learning needs will ensure Dyslexic learners can take full advantage of the power of technology to overcome barriers to learning, access the curriculum, work independently and demonstrate their true ability.

Audit Questions.

What hardware and software tools are offered in classrooms to support Dyslexics pupils with:

- Reading text.
- Improving phonic and spelling skills.
- Planning and recording written text.
- Accessing and learning to read, (or spell), high frequency spellings and subject vocabulary.
- Accessing other areas of the curriculum.
- Accessing written information on WWW.

Is access to technology and support, as described above, offered in the classroom:

- When requested by pupil(s).
 - Only if it is available.
 - At certain timetabled occasions e.g. Weekly, Daily.
 - Always where possible.
 - Rarely.
 - Not at all.
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- Do all programs used have speech options (i.e. will read text aloud)?
 - Can any existing programs be enhanced to offer speech by using additional software?
 - Do existing programs have many of the features suggested in the list (see below) on choosing software?
 - If yes, are they being used to meet individual needs, assessment for learning

and personal learning goals?

- Are headphones available, or ports accessible to enable their use, so discreet speech support is an option?
- Can digital cameras, video or recorders be used as an alternative form of writing text?
- Are there portable writing aids, tablets or word processors or recording pens available if required?
- Are there printers available for printing hardcopies of tasks or annotations from interactive boards?
- Are talking texts available to support reading and curriculum topics?
- Are screen settings adapted on desktop, personal or interactive boards to improve visual comfort and clarity?
- Are teaching staff and practitioners aware of the importance of using format options and screen tools to reduce glare and improve visual clarity when using interactive boards?

What other low tech solutions are available,

e.g. handheld spell checkers, scanning pens, digital/ cassette recorders, language masters, digital pens etc.?

- Are USB ports available for pupils to use with portable tools such as text to speech?

Hints on features to look for when choosing software to support pupils with Dyslexia.

- ◆ Options of full speech support on content, menus and help features.
- ◆ Clear, spoken instructions that can be repeated or paused.
- ◆ Opportunities to review and repeat.
- ◆ Options to alter format — background, font, colour, font size.
- ◆ Clear uncluttered screens.
- ◆ Written text in a clear readable format and font.
- ◆ Clear images that can be easily identified.
- ◆ Easy to navigate with clear icons for accessing tools, menus or onscreen help.
- ◆ Pupil tracking where appropriate — time taken, tasks attempted or completed.
- ◆ Pupil / teacher options to meet individual learning preferences.
- ◆ Options for differentiated levels or activities, where appropriate.
- ◆ Full speech support for word processed text, spellcheckers and word banks.
- ◆ Option of printed reports where appropriate.
- ◆ Spellcheckers with speech support and displayed definitions, also spoken.
- ◆ Text highlighted when spoken or text spoken when selected.
- ◆ Additional access options if required (e.g. switch control).

See additional table of Using Technology and Dyslexia Friendly outcomes.

Criteria for Dyslexia Friendly Schools - Technology table appendix.
**Consider the ways the following interventions can support Dyslexic learners
in your classroom.**

Strategies, Tools and/or Programs.	Dyslexia Friendly Outcomes.
<p>Altering format options onscreen or on an interactive whiteboard, e.g. background colour, font size, style and colour, using zoom, line and paragraph spacing.</p>	<p>Support for pupils with visual difficulties, relieves visual discomfort, reduces glare, and offers greater clarity of dense text, for reading and recording.</p> <p>Opportunity to modify colour choices of screen backgrounds, text and menus to meet individual preferences. Dyslexics who use coloured overlays when reading, may benefit from a virtual version to be available on the screen. (e.g. Virtual Reading Ruler — Crossbow Education).</p>
<p>Adding speech support to existing programs, applications and web pages, e.g. a text to speech program with MS Word such as ClaroRead, TextHelp.</p>	<p>Enables pupils to both see and hear all text onscreen or typed text as it is entered. Aids memory, clarifies unknown words or phrases and enables self-correction.</p> <p>Allows pupils to work more independently, provides reassurance and creates a non-threatening environment.</p> <p>Offers pupils access to all selected text in most situations. Provides a spoken version for computer generated essays etc, which promotes a multi- sensory learning environment to aid revision.</p> <p>Scanned text can be read back to a pupil from text or in many cases, PDF formats. Text to speech programs are particularly useful when the text being spoken is highlighted simultaneously.</p>
<p>Using literacy programs with speech options, e.g. Talking books, e books, spelling and phonic games and activities, talking word processors and onscreen wordbanks.</p>	<p>Speech support is essential especially for Literacy activities such as reading, spelling, phonics and writing. Pupils can hear words in games, spellings to practise, spellcheckers, instructions and help menus.</p> <p>Auditory repetition of any text can support weak memory skills and increase independent learning.</p> <p>Spoken encouraging comments made in interactive games and tasks can increase confidence, success and self esteem.</p> <p>Speech options need to be available for all age groups, not just Primary, e.g. technical vocabulary.</p>
<p>Using Word processors to record written responses (preferably with speech support) e.g. Textease, Clicker 6, Communicate in Print, Write On Line, Word with text to speech program, Portable Writing Aids.</p>	<p>Enables pupils to edit easily using copy, cut, paste, delete and undo options etc. avoiding unnecessary copying out and reducing frustration.</p> <p>By using a talking word processor, pupils can hear text as they type enabling better self correction. Where there is also rebus support, they can relate an image to a word whilst editing, which helps with the spelling of “tricky” words and homophones.</p> <p>Typed text is clear and easy to read for both writer and reader. Typed text supports pupils who find handwriting or letter formation difficult, or laborious, especially in extended writing tasks. Talking Spellcheckers found with many</p>

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	<p>programs help users to make an informed choice. Some web based spellcheckers such as Ginger and Ghotit, are usually free to educational establishments and will enhance spellchecking options where no speech is available as in MS Word for example.</p>
<p>Using onscreen wordbanks or predictive tools with speech support, e.g. Clicker, Write On Line , The Grid, Wordwall, word banks available with talking word processors and prediction in Penfriend, Co:Writer, WriteOnline, TextHelp, ClaroRead.</p>	<p>Pupils can select from a wide range of vocabulary in a variety of subjects, styles and genres to express their true ability, as opposed to what they are able to spell or type at speed.</p> <p>Words or phrases can be heard before selection, enabling a more informed choice. More sophisticated program tools will explain context or homonyms.</p> <p>Words entered into a text from a word bank or predictive tool will speed up the writing process, reduce the number of keystrokes and support spelling. Flexi spelling in prediction tools , allowing for phonic alternatives or “sounds like” are helpful, e.g. type <i>ord</i> to predict <i>audience</i>.</p> <p>Sentences and phrases in on-screen grids can be used as writing frames to speed up the initial writing process, so pupils are more likely to finish tasks more quickly and concentrate on content, rather than typing or spelling skills.</p>
<p>Using Portable Writing Aids, e.g. portable wordprocessors, tablets palmtop devices.</p>	<p>Offers pupils word processing facilities anywhere at school, especially if a laptop or desktop computer is not available.</p> <p>This can have all the benefits as described earlier in Wordprocessors. Many such tools have additional facilities, such as diaries to help planning, personal organisation and aid memory.</p> <p>Many tablets now have additional speech support and predictive options e.g. Clicker 6 and Write Online apps for iPad.</p>
<p>Using programs with user options e.g. font and colour formatting, timers, speech support, content difficulty etc.</p>	<p>Dedicated programs with pupil options enable teachers to meet individual needs and preferences both in format and content, thus providing the optimum environment for learning and enabling personalisation.</p>
<p>Using mind mapping and planning tools e.g. Inspiration, Kidspiration, Spark Space, WriteOnline workspace. Some of above are available as apps.</p> <p>Create Mindmaps, Writing Frames and planners to use onscreen using Smart Art in MS Word or Power Point.</p>	<p>Mindmapping strategies and planning tools work to a Dyslexic pupil's creative and visual strengths and support common weaknesses in planning and organisation of ideas.</p> <p>Typing ideas directly into writing frames and story plan templates created in word processors reduces time and effort, enabling pupils to expand their ideas and notes and use cut, copy and paste to organise their ideas.</p> <p>Pupils can plan visually using text, symbols and graphic images to draft and organise their work.</p> <p>Dedicated mind mapping programs allow all of the above and the facility to add additional notes before using the program to convert the map into linear text to import into a word processor, web page or multimedia presentation. This reduces time and effort in copying or typing out plans, notes and links planning seamlessly to the writing task. The option of speech support for Dyslexics is</p>

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	<p>recommended in mind mapping tools. Mindmaps can also provide Dyslexics with a useful revision tool.</p> <p>Using computer filing systems for saving and retrieval also supports organisation skills.</p>
<p>Using Programs that track pupil progress e.g. time taken, attempts made, correct answers, details of errors made,</p>	<p>Dedicated programs that track pupil progress can inform and encourage pupils as to how well they are doing, increase self esteem and help teachers with target setting and measuring achievement.</p> <p>This is particularly important when using skill based programs as part of a measurable intervention.</p>
<p>Using Interactive Whiteboards.</p>	<p>Enables better visual clarity for text and diagrams, improves visual tracking with tools such as reveal, magnifier or spotlight. Activities can be multi-sensory and “hands on”. Pupils and teachers can model and demonstrate tasks. Interaction on the boards can often be captured in the “record tool”, ideal for revision and supporting pupil explanations and evidence of achievement. The white background needs to be changed (filled) with a colour that will help to reduce visual stress.</p>
<p>Offering alternatives to writing as key method of recording.</p>	<p>Dyslexic learners enjoy using alternative forms of recording and often use strengths in pictorial imagery in their learning. Technology can support this with the use of digital images and clip-art, digital cameras, multimedia presentations and video cameras for example. There are many programs that allow pupils to create their own images such drawing apps.</p> <p>Recorded speech using tapes or digital recorders offer low tech solutions. Digital pens that record written and spoken information such as the Livescribe Pulse Smart pen may help.</p> <p>Voice recognition software may be appropriate in any cases, especially at KS 3/4 where the demand for writing in all curriculum areas increases both in volume and difficulty, (e.g. Dragon software or for smaller texts the Dragon App free for iPads and tablets).</p>
<p>Hand held Spellcheckers, e.g. Franklin Children’s Dictionary. Many handheld products have additional features to support individual spelling such as homonym checker, personal lists and a thesaurus. (See also talking spellchecker notes above.)</p>	<p>Enables pupils to spell check using phonic alternatives rather than rely on usual first 2 -letter match on many common computer spellcheckers.</p> <p>Increases spelling accuracy and confidence and is usually faster than using a standard dictionary.</p> <p>They are more likely to provide correct spellings for words highlighted as errors by the word processor’s spellchecker.</p> <p>Additional games found in many of the products provide extra motivation for learning spellings too.</p>
<p>Typing and keyboard awareness programs. e.g. despite the shift</p>	<p>As technology is such a key tool in the support of Dyslexic pupils it is essential that they have a good knowledge of the keyboard and learn to either touch type if possible or type efficiently, (using two hands) so that entering text is as least as fast or faster than their normal writing speed. This needs to be done as early</p>

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<p>towards portable tablets etc the use of a key board is still required</p>	<p>as possible and practised in regular daily short sessions, with social support, at school and at home. Where appropriate, typing can then be their normal mode of recording and used for extended writing and recording, homework and exams*. *subject to exam board conditions and eligibility.</p>
<p>Low Tech solutions.</p>	<p>Simple low tech solutions can help support many pupils in both access, learning, organisation and recording. Cassette or digital recorders are helpful for recording ideas and information, listening to instructions or texts. Cue markers on Dictaphones and digital recorders enable easy location of recordings. The digital pens that can record written and audio information such as Livescribe may also be useful.</p> <p>A small memo microphone may also be useful for brief reminders, homework and instructions. Inclusive Technology have a wide range of these. Any qwerty keyboard can help with practising typing skills.</p> <p>Talking calculators found in several programs or inexpensive handheld versions can overcome potential errors of misreading, wrongly entering or reversing digits.</p> <p>Language Master machines, that can play recorded cards, can offer audio-visual support for words, phrases and instructions. Talking postcards* in a variety of sizes enable short single or multiple recordings and visual prompts. (*from TTS-group)</p> <p>Talking tins or similar devices (from Talking Products) can provide up to 40 second clear recordings.</p> <p>Selections of school texts can be scanned into digital recorders and used with headphones to provide independent support for more difficult curricular texts.</p> <p>Many school texts are now available in e-format or e-books that can be used with text to speech tools to offer access, e.g. Blio.</p> <p>Many apps are available free or at low cost to support text to speech or practise literacy skills where appropriate hardware is available, e.g. Speak it or Road Block for iPhones/iPads.</p> <p>All schools and educational establishments have access to easily accessible texts for use with text to speech tools.</p>
<p>Using Technology to support other areas of the curriculum.</p>	<p>Literacy support will be needed across all curriculum areas. Speech support will be required for web pages to help access text and information. Dedicated programs with speech options used in subject areas such as Numeracy can be equally beneficial, enabling learners to hear instructions and content, so they can achieve the tasks and overcome literacy barriers to learning.</p> <p>Talking calculators can offer reassurance that the numbers and sequences are correct. Charts, graphs and tables can be easily prepared and edited using technology tools.</p> <p>See leaflet on Numeracy in Dyslexia Friendly Schools pack for other suggestions.</p>

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	<p>Digital cameras can be used to record practical activities and the image can be annotated in reports or essays instead of hand-drawn diagrams.</p> <p>Some schools have used mobile phones for teachers or LSAs to prompt a child with short term memory or concentration problems, to stay on task, record homework task . Memo microphones or similar devices can also be used this way for prompting and task management.</p>
Using Technology to support learning and general school environment.	<p>School intranets, learning platforms and virtual learning environments (VLE) and websites can help pupils access information for homework, coursework presentation in the classroom, etc. as well as provide access and recording tools.</p> <p>Use of Interactive Whiteboards with appropriate colour settings and font format to reduce glare and increase visual clarity, make tasks or texts easier to read from a distance , especially with reveal, spotlight and magnification tools where required.</p> <p>The use of word processed notes and handouts in enlarged font or increased line spaced format help overcome visual stress and reading difficulties, especially on cream paper.</p> <p>Clearly typed labels, signs and classroom posters or information with appropriate clipart, symbol or digital images will support correct identification, reassure learners and increase independence.</p> <p>Adding audio instructions, by using digital recording, to text documents such as MS Word or Power Point together with additional images will increase understanding.</p>

This document is an updated version of the former I.C.T. supplement to the B.D.A. Dyslexia Friendly Schools pack.

<http://www.bdadyslexia.org.uk/quality-mark-and-accreditation.html>

It is available for download on B.D.A. Tech web at:

<http://bdanewtechnologies.files.wordpress.com/2010/10/technology-for-literacy.pdf>

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