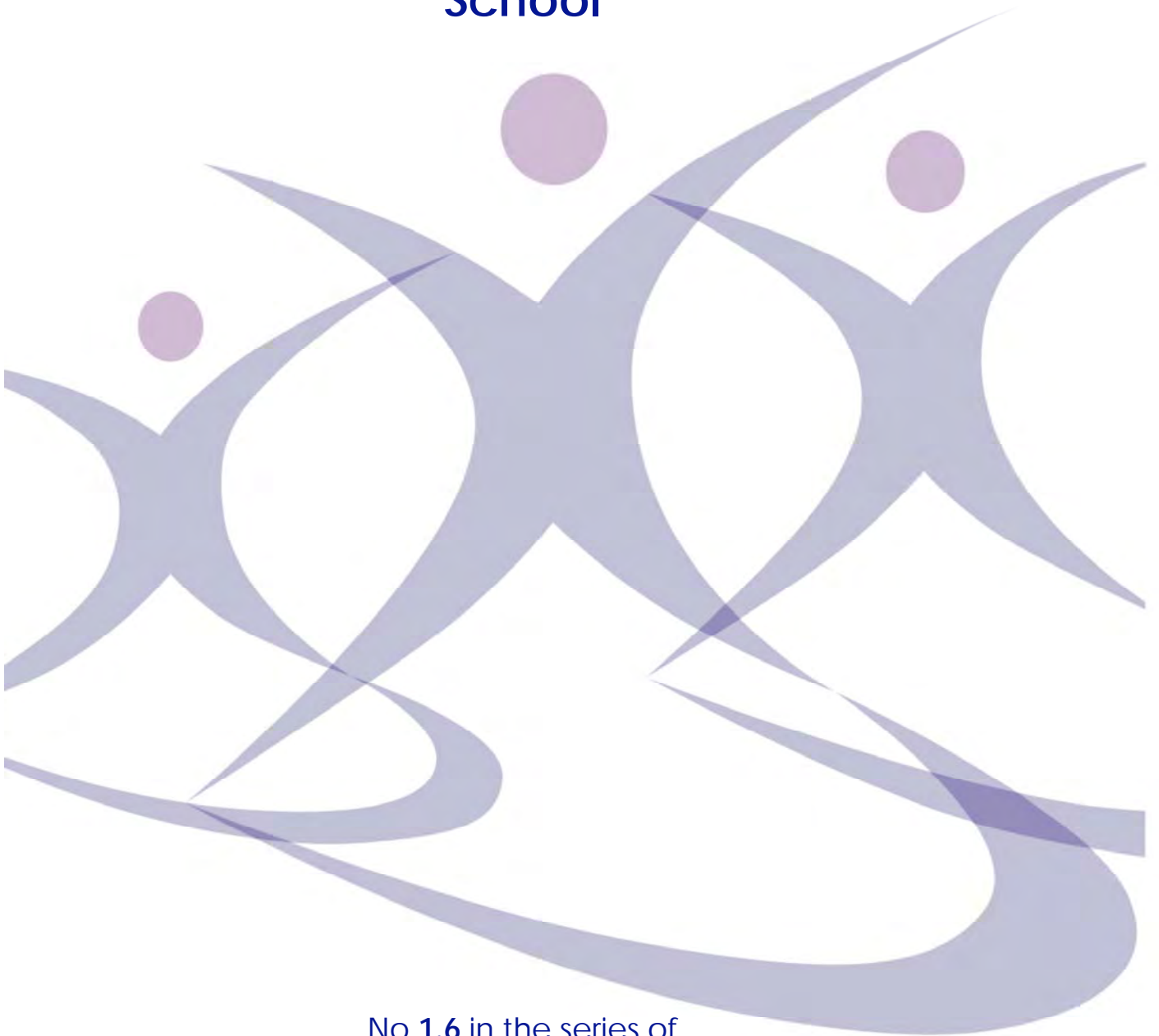




Dyslexia Scotland

Using ICT to Support Dyslexia in the Secondary School



No 1.6 in the series of
Supporting Dyslexic Pupils in the Secondary Curriculum
By Moira Thomson

Supporting Dyslexic Pupils in the Secondary Curriculum

by Moira Thomson

USING ICT TO SUPPORT DYSLEXIA IN THE SECONDARY SCHOOL

Published in Great Britain by
Dyslexia Scotland in 2007

Dyslexia Scotland, Stirling Business Centre
Wellgreen, Stirling FK8 2DZ
Charity No: SCO00951

© Dyslexia Scotland 2007

ISBN 13 978 1 906401 05 4

Printed and bound in Great Britain by **M & A Thomson Litho Ltd**, East Kilbride,
Scotland

Supporting Dyslexic Pupils in the Secondary Curriculum

by Moira Thomson

Complete set comprises 18 booklets and a CD of downloadable material

(see inside back cover for full details of CD contents)

Foreword by Dr. Gavin Reid, a senior lecturer in the Department of Educational Studies, Moray House School of Education, University of Edinburgh. An experienced teacher, educational psychologist, university lecturer, researcher and author, he has made over 600 conference and seminar presentations in more than 35 countries and has authored, co-authored and edited fifteen books for teachers and parents.

1.0 Dyslexia: Secondary Teachers' Guides

- 1.1. Identification and Assessment of Dyslexia at Secondary School
- 1.2. Dyslexia and the Underpinning Skills for the Secondary Curriculum
- 1.3. Classroom Management of Dyslexia at Secondary School
- 1.4. Information for the Secondary Support for Learning Team
- 1.5. Supporting Parents of Secondary School Pupils with Dyslexia
- 1.6. Using ICT to Support Dyslexic Pupils in the Secondary Curriculum
- 1.7. Dyslexia and Examinations

2.0 Subject Teachers' Guides

- 2.1. Dyslexia and Art, Craft & Design
- 2.2. Dyslexia and Drama (Performing Arts)
- 2.3. Dyslexia and English (Media Studies)
- 2.4. Dyslexia and Home Economics (Health & Food Technology)
- 2.5. Dyslexia and ICT subjects (Computing Studies, Business Education, Enterprise)
- 2.6. Dyslexia and Mathematics
- 2.7. Dyslexia and Modern Foreign Languages
- 2.8. Dyslexia and Music
- 2.9. Dyslexia and Physical Education (Outdoor Education, Sports, Games, Dance)
- 2.10. Dyslexia and Science subjects (Biology, Chemistry, Physics)
- 2.11. Dyslexia and Social subjects (Geography, History, Modern Studies, Philosophy, Religious Studies)

ALL information contained in the booklets and the CD can be downloaded free of charge from the Dyslexia Scotland website – www.supportingdyslexicpupils.org.uk

Extra copies of individual booklets or complete sets are available from

Dyslexia Scotland, Stirling Business Centre, Wellgreen, Stirling, FK8 2DZ

Email: info@supportingdyslexicpupils.org.uk

To all my dyslexic pupils, who taught me what dyslexia really is

Acknowledgements

Dyslexia Scotland would like to thank the following for making possible the publication of this important series of books. Every secondary school in Scotland has been supplied with a copy. All material contained in the booklets and CD is downloadable free from the Dyslexia Scotland website - www.supportingdyslexicpupils.org.uk.

Special thanks to **M & A Thomson Litho Ltd**, East Kilbride, Scotland who printed the booklets at below cost – www.thomsonlitho.com.

Thanks also to Trevor Hook, Stephen Mitchell, Yvonne Cochrane and Senga Fairgrieve for their production input and Paula O'Connell for copy-editing all 18 booklets.

Moira Thomson would like to thank Meg Houston and Maureen Brice for their ongoing support and Alasdair Andrew, Karen Reid and the other members of the Dyslexia Scotland South East Committee for supporting the venture. Thanks also to David Dodds, former collaborator and colleague at City of Edinburgh Council, who was there at the beginning and contributed throughout.

Dyslexia Scotland is the voluntary organisation representing the needs and interests of dyslexic people in Scotland.

Mission Statement

To encourage and enable dyslexic people, regardless of their age and abilities, to reach their potential in education, employment and life.

Dyslexia Helpline: 0844 800 84 84 - Monday to Friday from 10am until 4pm.

Dyslexia Scotland, Stirling Business Centre, Wellgreen, Stirling, FK8 2DZ
www.dyslexiascotland.org.uk

Registered in Scotland No. 153321
Scottish Charity No. SCO00951

FOREWORD

It is a privilege to be asked to write a foreword for this series of guides on dyslexia in the secondary school. Moira Thomson ought to be congratulated in putting together these informative and up to date guides that will both heighten the awareness of dyslexia in secondary schools and develop the knowledge and skills of teachers through the implementation of the suggestions made in the guides. Too often books and materials on dyslexia are cornered by a few, usually those who have a prior interest in the subject. Many feel it is not their concern, or they do not have the specialised experience to intervene. These guides will challenge and change that assumption. The guides are for all teachers – they contain information that will be directly relevant and directly impact on the practice of every teacher in every secondary school in the country. Not only that, the guides are up to date containing advice stemming from the most recent legislation (Education (Scotland) Act 2004: Additional Support for Learning). This makes the guides an essential resource in every school in the country.

Above all the guides provide a positive message. Dyslexia is couched in terminology that expresses what learners with dyslexia **can do** not what they 'can't do'. Any difficulties experienced by learners with dyslexia are seen as 'barriers to learning' which means that the onus is on supporting learners overcome these barriers and this places the responsibility firmly on the professionals working in schools. This reiterates the view that dealing with dyslexia is a whole school responsibility.

The breadth of coverage in these guides is colossal. It is highly commendable that Moira Thomson has met this immense task with true professionalism in providing clearly written and relevant guides incorporating the breadth of the curriculum. As well as including all secondary school subjects the guides also provide information on the crucial aspects of supporting students preparing for examinations, the use of information and communication technology, information for parents, details of the assessment process and the skills that underpin learning. It is important to consider the view that learners with dyslexia are first and foremost learners and therefore it is important that their learning skills are developed fully. It is too easy to place the emphasis on developing literacy skills at the expense other important aspects of learning. The guides will reinforce this crucial point that the learning skills of all students with dyslexia can be developed to a high level. I am particularly impressed with the inclusion of a section on classroom management. This again reinforces the point that managing dyslexia is a classroom concern and a learning and curriculum-focused perspective needs to be adopted. A focus on curriculum planning and acknowledging learning styles is essential if learners are to reach their potential in secondary schools.

The guides do more than provide information on dyslexia; rather they are a staff development resource and one that can enlighten and educate all teachers in secondary schools. I feel certain they will be warmly appreciated and used for that purpose. The guides will benefit school management as well as teachers and parents, but the real winners will be the students with dyslexia. It is they who will ultimately benefit and the guides will help them fulfil their potential and make learning a positive and successful school experience for all.

Dr. Gavin Reid,
Edinburgh, UK
July 2007

It is difficult to produce comment on Information and Communication Technology (ICT) support for dyslexics that will still be contemporary for even a short time after it is written. The rate at which new hardware and software is becoming available – for both the assessment of dyslexic difficulties and to support dyslexic learners – makes it virtually impossible to keep up to date.

Assessment of Dyslexic Difficulties

At the secondary school stage, identification of dyslexia may be difficult because non-specialist teachers must recognise indicators and make appropriate referrals before the assessment process can begin. Use of ICT as part of this process is non-threatening for many pupils who are already comfortable with computer use – and the software itself can indicate the direction that further assessment might take.

Self-esteem

The use of ICT can increase the dyslexic pupil's independence and improve access to the curriculum. Some dyslexic pupils have great difficulty in moving information from short-term to long-term memory which is frustrating and may be humiliating, especially for those at secondary school, and may contribute to low self-esteem leading to a failure to engage with some aspects of the curriculum. The use of ICT can re-motivate learners, boost their self-confidence and encourage them to develop strategies to compensate for their difficulties. ICT can enhance access to the curriculum, providing extra support in areas where difficulties are experienced without frequent requests for individual help and additional support. Some dyslexics retain information more easily when more than two senses are involved in the learning process. The use of ICT involving visual, auditory and kinaesthetic memory with sound prompts and spoken feedback is likely to be of great value to them not only in the quality of language processing and mastery of subject-specific concepts but also in improved self-esteem and reduction of fatigue.

Supporting Reading and Writing

Writing is a frustrating experience when pupils are unable to begin to write down the words they wish to use to express themselves. With the use of specialised software packages, dyslexics are able to keep up with their peers in subject classrooms and produce a standard of work that more closely reflects subject knowledge and ability than hand-written work does. As text reading and speech recognition software becomes more readily available for laptop computers, dyslexics will gain even more independence and improve the quality of written work at the same time.

Reading

There is an increasing range of software available designed to improve the basic reading skills of dyslexic pupils. These may take the form of flash cards, games or reading comprehension exercises – many similar to text based reading programmes - but an advantage of ICT based reading is that its use means that dyslexic pupils do not have to persist with reading interventions at which they have already experienced failure. They also have the advantage of being multi-sensory programmes so that individuals may use strengths in one area – perhaps visual processing – to compensate for weaknesses in another, such as auditory-verbal processing as well as involving physical processes that may help with memory difficulties.

It is very difficult for pupils whose reading lacks fluency, or whose decoding is such a struggle that they cannot remember what they have just 'read', to enjoy fiction. Audio taped books have often been used to give dyslexic pupils access to literature, but ICT can make books available on CD-ROM and on-line. Developing literacy skills are supported by software that will – e.g. read whole books aloud - and interactive packages that respond to prompts by the reader – all of which require only minimal teacher intervention, so increase the independence of the dyslexic reader. Pupils who struggle to locate information in a text source may be helped by using the 'find' option, and the 'copy' and 'paste' options permit accurate copying.

Software that reads what is on the computer screen aloud may resolve many difficulties experienced by dyslexic pupils in the secondary curriculum especially if they can scan text into the computer to make full use of this. Software that highlights each word as it is read aloud is particularly helpful.

Writing

The tasks of choosing and sequencing words, spelling them correctly and writing them neatly may be so daunting to some dyslexic pupils that they will produce only short, scrappy pieces of written work which do not reflect their ability or their understanding of subject content and concepts. Using a word processor frees them to concentrate on the content of writing and gives them the opportunity to become more organised. Spellcheckers applied while writing allow the flow of writing to progress without being interrupted by the difficulties presented by inability to spell appropriate vocabulary and enables the dyslexic, finally, to demonstrate subject knowledge and ability more appropriately. Written work may be easily edited and re-sequenced without the need to write it all over again and the dyslexic may then be given help and guidance appropriate to ability shown in the content rather than the teacher's attention being focussed on the quality of written language. Dyslexic pupils' inability to identify errors in their own writing is greatly reduced by ICT editing features and proof reading is supported by text readers.

It is important to match the use of ICT to the specific needs of the individual. Not all dyslexics may be able to make effective use of lap top computers but many who have not been able to write easily may find their powers of expression

unlocked when given a lap top, Using a spellchecker or predictive lexicon that allows the teacher to suggest appropriate vocabulary that sits on screen while the pupil is writing may be of little use to someone who cannot read the words brought up. Fortunately, software is increasingly available that removes this problem by reading spelling suggestions.

Search skills

Most dyslexics experience great frustration when they need to use dictionaries and other reference books as the sheer volume of text on the printed page often makes it impossible for them to find anything. Many dictionaries and encyclopaedias are now available on-line or on CD-ROM's - often with speech output which reduces the need for sophisticated reading skills. These aids still require some reading/spelling skills, but it is possible for the dyslexic to concentrate on the use of key words and use these to search for information. Access to the Internet may be virtually impossible for the dyslexic because of reading and spelling difficulties - but use of screen reading software make it possible for them to 'Read the Web' and opens up the 'Information Highway' to dyslexics for whom this was previously closed.

Curriculum Support

Many dyslexics need substantially greater amounts of practice in structured activities to help them achieve the literacy skills which others master - apparently effortlessly. There are now many interesting and varied didactic software programmes available which allow dyslexics to spend the necessary time on tasks in a more enjoyable learning environment which does not lead to the same degree of fatigue as using printed text and notebooks. Many of these programmes are designed to give frequent, positive feedback to the user, which generates improved self-esteem due to success. Interactive, integrated learning systems are computer based resources covering Maths, reading, writing and spelling with the option of including other subject areas. Each pupil has an individualised programme of work based on ability, rate of progress and prior knowledge, which is continually updated. Dyslexic learners do not feel threatened by the computer and find it an endlessly patient teacher. This is also true of bilingual dyslexic learners who are faced with not only acquiring speech and understanding of an additional language (which they often manage exceptionally well), but also with acquiring literacy in the new language. If learners experience a dyslexic difficulty in acquiring literacy another language, it is likely that software packages that support mono-linguistic dyslexic learners will be of equal - or greater - help to them.

Keyboarding

Appropriate training in the use of ICT must be given and individuals should be carefully assessed on keyboard use. Some dyslexics will benefit from the use of a touch-typing tutor while others may 'hunt and peck' with one finger - which may still be faster, and will certainly be more legible than their handwriting.

There are a number of lap top computers available now which means that it is possible to match individuals to the most appropriate type of machine. Since it is the editing stage of word processing when adult support is most needed by the dyslexic, this can be done at a mutually convenient time and the pupil does not have to wait for teacher attention in order to complete written work.

There are several software packages suitable for dyslexics including predictive, adaptive lexicons and word processing packages with many easy to use features, including speech feedback of text and several editing icons which reduce the amount of reading needed to edit text. Both types of program can be used together, which combines the lexicon offering correctly spelled words and the speech output, which will read these words to the user. Many dyslexics that find this combination may slow down their writing, but, if they persevere, the benefits may outweigh the problems. Adding programs designed to help with writing structure to these enables dyslexic writers to connect the whole writing process – e.g. Use of Draft Builder to give a simple structure to writing; draft then transferred to Write Out Loud for redrafting; Co-writer integrates with both of these to help with sentence structure and spelling.

Independence

The aspect of current ICT use, which will give the greatest independence in learning to all dyslexics, may be that of speech recognition software. It is possible, with training, to dictate, edit, move and format text and data directly into any application. Text to speech features provide immediate feedback. Not only does the use of this software dramatically improve self confidence in dyslexics but it also gives them a level of independence in their learning that they have never before achieved. It also reduces the need for someone to read, scribe and transcribe for dyslexics. There is growing awareness in schools of the potential of Speech Recognition (SR) to increase access to the curriculum for dyslexic pupils. However, approaches and success with SR vary widely. Some dyslexics use SR routinely as their main means of writing and recording work, whereas others have found it difficult to implement with any success at all.

ICT Use in Examinations

Use of word processing packages by dyslexics in examinations is now fairly common practice, but this does require considerable prior learning – e.g. developing fast, accurate keyboarding skills; trying out a range of software packages in order to find the combination that suits an individual. Schools must then negotiate the use of the chosen package with the Examination Board concerned and ensure that hardware and software are available to the individual for all assessments. A natural development from such arrangements is the introduction of on-line and accessible digital examination papers. These have already been introduced at some Universities for some subjects, and SQA is currently investigating possibilities for national examinations.

Limiting factors

Developments in ICT may clearly lead to increased independence for the dyslexic learner at the secondary school stage, and enable them to improve reading, writing and search skills using new materials and methods instead of continuing with approaches in which they have already failed. However, the introduction of ICT support requires considerable resources – hardware - including laptop computers allocated to individuals, a wide range of software and time for the training of dyslexic learners in the use of these. Equally important is the need for the training of school staff in the use of ICT so that they may then pass on expertise to their dyslexic pupils. All of this will cost a great deal of money – and, unless placed high on a priority list, this may not be readily available. Dyslexics moving on to Higher Education will be expected to produce work using ICT, but the specialised training they may need will not be easily accessible at this level, so it will fall to the secondary school to ensure that dyslexic pupils leave with the required ICT skills already in place. Not an easy task – for either dyslexic learners or the teachers who help them acquire skills and develop strategies for coping with their difference.

FURTHER READING

Crivelli, V (2001): Write to Read with ICT, Wakefield, SEN Marketing

Crivelli, V & Lannen, C (2001): ICT Across the Curriculum IN Peer, L & Reid, G (eds) (2001): Dyslexia – Successful Inclusion in the Secondary School, London, David Fulton in association with BDA

Dimitriada, Y (2000): Using Information and Communication Technology (ICT) to Support Bilingual Dyslexic Learners IN Peer, L & Reid, G (eds) (2000): Multilingualism, Literacy and Dyslexia – A Challenge for Educators, London, David Fulton

Horne, JK, Singleton, CH & Thomas, CV (1999): LASS Secondary Assessment System Beverley, E Yorks, Lucid Research Ltd

Nisbet, P et al (1999): Supportive Writing Technology, Edinburgh, CALL Centre, University of Edinburgh

Singleton, CH (1996): Computerised Screening for Dyslexia IN Reid, G (ed) (1996) Dimensions of Dyslexia vol 1, Edinburgh, Moray House Publishers

Singleton, CH, Thomas KV, & Horne, JK (2001): Lucid Adult Dyslexia Screening (LADS) Beverley, E Yorks, Lucid Research Ltd

USING ICT TO SUPPORT WRITING

Programs to support writing

The programs and ICT tools to support writing are not like those used to support, teach and develop reading, phonics and spelling skills. These are not games and activities but open ended software that supports dyslexic by scaffolding the production of written work.

Word-processors

Word-processing programs have made a huge difference to many dyslexic pupils by supporting writing demands of the secondary school curriculum and the examination system. If the dyslexic pupil can type longer pieces of work or essays it removes the pressure of having to rewrite work many times over to get a neat piece of writing. Redrafting formal written pieces can be an agonising and time consuming task for dyslexic pupils who may not only struggle to identify technical errors in their own work but make additional errors while rewriting a corrected piece. Word processing and editing features eliminate much of the stress of writing for dyslexic pupils by:

- Removing illegibility caused by poor handwriting and/or presentation of written work
- Eliminating many spelling errors (but not all – some words will be missed or unknown)
- Helping with the organisation and sequencing of ideas
- Enabling easy drafting and editing (moving written text around the page easily, using facilities such as drag, delete, copy , paste and cut)
- Making proof reading easier by scrolling and highlighting text to be checked

The font size, colour and style and line spacing can be changed easily so that those affected by visual difficulties may use a familiar and comfortable style. Features like underline, bold and italic can help with presentation, as can the addition of borders, clipart and tables to text.

To begin with, many dyslexic pupils type very slowly and may find the movement of the text on the monitor difficult to follow. Using word-banks, grids or predictive lexicons can help them enter text more quickly but practice will soon develop greater keyboarding speed, especially once the editing and spelling advantages are discovered. Many dyslexic pupils never have the satisfaction of presenting a clear, well presented piece of writing, and the boost to their self esteem from using word processors can be enormous. Their work is easier for their teachers to read too and this may result in positive comments, perhaps for the first time.

Features of Word-processors

1. Text reading features

Most computers now have a text reading facility and some word-processors now have this built-in. These may be adjustable and allow pupils to hear the words and/or sentences as they are being typed or read only at the end of a sentence. Most will read words or sections of text only when it is selected. Some programs use robotic sounding (synthesised) speech that can help pupils determine the accuracy of their text and reassure them that the content makes sense, though some pupils find the voices irritating or difficult to understand. Many text reading programs now offer a range of voices to choose from and these may remain available for other tasks such as reading toolbars and spellchecking menus.

Browsealoud reads web pages aloud helps the dyslexic pupil to read online (Browsealoud <http://www.browsealoud.com/>)

2. Texthelp – Read & Write Gold (Texthelp <http://www.texthelp.com/page.asp>)

Read & Write GOLD is a literacy support tool designed to assist users of all ages who require extra assistance when reading or composing text. It is designed to assist pupils to improve their reading and writing skills. **Read&Write 8.1 GOLD** provides study features to assist dyslexic pupils with research and composition.

3. Write Out Loud

This has an onscreen word-bank facility that offers lists of regularly used words or subject vocabulary. Pupils can listen to the words in the list by pointing to them, then click on the word they need and it is entered into the text, saving typing time and spelling worries. Pupils or teachers can create subject-specific lists for the word-banks.

There are several other programs that help users to enter words and phrases quickly and save typing time. They can be used in together with any word processors,

4. Spellcheckers in Word-processors

Spellcheckers in word processors can help identify misspellings or typing errors. However, many computer spellcheckers are not very helpful when suggesting a correction list. They usually suggest words that have the first two letters in the spelling error. If these letters are wrong it may not suggest the word needed - e.g. type 'sercle' and the suggestions may be serial or serve but not circle. A handheld Spellchecker may be useful. These try to interpret phonic spellings so typing in 'sercl' will get the suggestion circle. Write Out Loud, a talking wordprocessor uses the Franklin spellchecking algorithms in their program. Wordprocessing tools such as search and replace however will find repeated errors and correct them. The error (e.g. thay) and corrected version (they) need only be typed once and the other corrections will be done automatically. Microsoft Word has a facility to autocorrect common or personal spelling errors.

5. Additional on-screen wordbanks and grids

Additional on-screen wordbanks and grids usually have their own speech facility enabling users to hear the words. They can offer multiple lists of words or phrases on screen, for use with any word processor. Users click on the word or phrase and

it is typed automatically into the word processor. Pictures and recorded speech can be added to some wordbanks such as Clicker (Crick) which is useful for younger users. Wordbar (Crick) is useful for older users. These Wordbanks enable words and phrases to be entered quickly and accurately and help users with difficult or subject specific spellings. Users can create their own grids of words for personal or subject use. The Crick programs have many useful ready-made files that can be downloaded free from their website. Crick <http://www.cricksoft.com/>

6. Predictive programs

Predictive programs can be used to help cut down keystrokes, save typing time and aid spelling. After just one or two keystrokes, these programs try to guess which common or regularly used words the user is trying to type.

It presents the suggestions in a window on the screen so the user can listen and then make the appropriate choice. E.g. Type the letter t and up to 8 or 9 common words are suggested such as:- the, this, there, they, etc. Many of these programs have a speech facility enabling the word processor to talk too. Programs such as Penfriend XP (Penfriend Ltd), Co Writer (Don Johnson) and TEXThelp (from iANSYST) are good examples. Many predictive programs have additional facilities to make any on-screen, text speak not just in word-processors. This can be useful to use in other applications, email and internet.

7. Typing and Keyboard Skills

To make full use of word-processing it is helpful to develop efficient and accurate keyboard and typing skills. Details of some typing tutors are listed at the end of this booklet.

8. Voice or speech recognition software

Voice or speech recognition software enables users to speak the words they want to word-process. This may be a useful option especially for older pupils, students and adults. However, it may be not as easy as it sounds. It takes time and training. It is not very appropriate for use in the classroom, but can be valuable for producing extended pieces of work in a quiet environment or at home. More details are available on the CD.

9. Portable Word processors and Writing Aids

Many dyslexic pupils need access to a word processor much of the time, especially in the secondary curriculum. A PC or MAC laptop would be suitable for older pupils but a small portable word processor or laptop notebook may suit younger dyslexic users. These may be remote keyboards that look a bit like small laptop computers with smaller screens. They can be used independently and have their own spellcheckers, but they are connected to desktop computers for more advanced editing features.

There are a variety of these available and work from either batteries or mains adaptors. The best ones for dyslexic use often have full size keyboards so pupils can type in their text, check the spelling, transfer it to a desktop machine, save it, or print it directly. Some have additional facilities such as organisers, calculators or predictive programs.

10. Planning software

Mind mapping is a dyslexic tool and reflects the way some visual dyslexics organise their ideas. There are now several computer programs that enable ideas to “bubble up” in a visual format without anxieties of spelling, grammar or sequencing. Once the ideas are ready, they can be organised as a map and then saved as a text outline. This can then be worked up into an essay or report and imported into a word processor. The mind map itself can be kept as a useful tool for later exam revision purposes.

Using laptop computers to support dyslexic pupils' access to the secondary curriculum

Laptop computers are, arguably, the most important support for dyslexic pupils in the secondary school – provided that pupils are taught to use software, are given time to practice with this and that subject teachers encourage laptop use.

All too often subject teachers place obstacles in the way of dyslexic pupils' laptop use, many actually removing any chance of this vital equipment being used effectively. This is not done deliberately, but is usually the result of misunderstandings and false assumptions about computer use together with a lack of knowledge about dyslexia and its impact on the classroom performance of pupils.

It won't help poor spelling or slow and illegible handwriting – so what? It is not the subject teacher's role to teach spelling or handwriting, but to deliver the subject curriculum and monitor pupils' progress in this. If dyslexic pupils can access worksheets and text using software packages and their work is presented legibly using word-processing skills, subject teachers should praise this and make sure the laptop is always used in class. It is a common feature of dyslexia that the same word may be spelt differently several times on the same page – a computer spell checker will allow some degree of consistency. Dyslexic pupils may be unable to identify errors in their own work – in fact, often cannot even read their own work – so using a spell checker to identify these provides important support that would otherwise have to be provided by the subject teacher or learning assistant. Sometimes teachers' criticism is of the speed at which dyslexic pupils write, being absolutely certain that these pupils can write faster and more neatly if they just concentrate and put more effort into the task. Actually, there are often fine motor difficulties present in a dyslexic profile that make the co-ordination required to write fluently at speed completely impossible. The automaticity achieved by secondary age pupils in writing is rarely present in those who are dyslexic – so the notion that improved handwriting 'will come' if enough practice is given is a false one, usually based on incomplete knowledge about how dyslexia affects individuals. It is true that some dyslexic pupils' handwriting may actually deteriorate after a laptop is introduced, possibly because of the physical differences between the multi-sensory nature of keyboarding and the upper body movements required for handwriting.

Some teachers think that the use of a laptop computer in class by dyslexic pupils gives them some sort of unfair advantage over other pupils – ignoring the fact that the dyslexia has already placed such pupils at an unfair disadvantage.

Anything that helps dyslexic pupils to approach the same level as their classmates cannot be considered unfair. While claims that other pupils will find the dyslexic's laptop distracting may be true for a short time, due to novelty, they soon get used to it – making them aware that there are no games on the machine helps them to lose interest quickly.

There are genuine concerns about laptop use that need to be explained more fully to subject teachers so that they will be prepared to support laptop use more effectively. Subject teachers need to be made aware that dyslexic pupils will be permitted to use the same software in examinations that they use in the classroom, so they need to make as much use of this as possible in order to gain confidence and skill prior to assessments. Teachers' concerns about dyslexic pupils being self-conscious or embarrassed about being different from their peers must be addressed, perhaps by insisting that all work must be typed, and making positive comments about the high quality of this. Unless pupils are using equipment or software that actually permits drawing by hand directly on to the screen, there will be problems when diagrams are required. Software packages like Microsoft office or Appleworks have drawing tools, so these can be used for diagrams, though pupils will be slow and clumsy to begin with – though some actually draw better using a mouse – but if they do not practice, they will never gain this skill. Some laptop users draw diagrams by hand and insert them into printed work or scan them into the computer for incorporation into text.

Some subject teachers, aware of the organisational difficulties of many dyslexic pupils, are concerned that they may lose their work, or even lose the whole machine - but this could also happen with note/text books and is not a valid reason for depriving pupils of this support. Practical concerns about space and electrical outlets in the classroom and the possible need for technical support that might disrupt a lesson do need to be addressed, but these can be overcome with a little effort that is insignificant compared to the level of support provided by the laptop, and ultimate saving of teachers' time. Problems with printing should be anticipated by the subject teacher and arrangements put in place for this to be done at a time and place that will minimise any disruption to the class.

Schools should develop a protocol for laptop use that sets out arrangements for the identification of those dyslexic pupils who would benefit from laptop use, together with the procedures in place for matching pupils with appropriate equipment and training in its use. While all pupils should receive ICT tuition, dyslexic pupils may require more time and different software to support their developing keyboarding skills. Some subject teachers whose own grasp of technology is insecure, may need CPD on dyslexia and ICT use that takes account of all of the possible obstacles and suggests ways of overcoming these.

FURTHER READING

Cogan J & Flecker M (2004): *Dyslexia in Secondary School – a practical handbook for teachers, parents and students* London Whurr Chapter 3

Crivelli, V & Lannen, C (2001): *ICT Across the Curriculum* IN Peer, L & Reid, G (eds) (2001): *Dyslexia – Successful Inclusion in the Secondary School* London, David Fulton

Nisbet, P et al (1999): *Supportive Writing Technology* Edinburgh, CALL Centre University of Edinburgh

LAPTOP USE BY DYSLEXIC PUPILS IN THE SECONDARY CLASSROOM

A Practical Guide for Subject Teachers

Be prepared

- Make sure that laptop users sit near power points to avoid dead batteries
- Beware of trailing cables – issue safety rules
- Check that pupils' desks are big enough – laptop use may need 2 desks together
- Make sure the rest of the class know that no-one else may use the laptop;
- Arrange printing details in advance
- If possible, insist the laptop is set up before the start of the lesson to avoid distractions
- Make sure the pupil has a subject template already saved with name and subject, already there
- Ensure each day's work is labelled and saved at the start of the lesson and updated regularly
- If the lesson involves drawing diagrams, plan the method in advance with the pupil – e.g. do by hand and scan; draw onto the screen etc.
- If the lesson requires tables to be completed, make sure there is a template available
- If the pupil has screen reading software, keep a spare headset available
- Insist that all sound effects are turned off when no headset is used
- Arrange how homework will reach you – e.g. e-mail; saved on school network in prearranged file; printed and handed in etc.

Decide:

- When a lesson will not be suitable for a laptop and tell the pupil in advance
- How you want work to be set out – give the pupil an instruction sheet at first
- How you want completed work stored – electronically or hard copy

Encourage the pupil:

- To use the laptop for all writing and reading if a text reader is used
- To sit correctly – both feet on the floor, back straight, two hands on the keyboard etc.
- To take proper care of the laptop and have a routine for dealing with it as hardware
- To elaborate on text later – adding various features not part of the standard layout
- To organise all work in properly labelled folders

Beware of:

- Games – forbid them and get parents to co-operate
- The possibility of pupils 'sharing' work, especially for homework – develop rules
- Pupils' love of strange fonts, bold text and odd colour combinations – have rules for these
- Greater concentration on the laptop than on the lesson content
- Other pupils' resentment of laptop use – point out it is the equivalent of wearing glasses and arrange for e.g. whole class sessions in a computer lab
- 'Technical' excuses for incomplete or 'lost' work

Accept:

- That the novelty will soon wear off and other pupils will get used to the laptop use
- That laptop screen will be seen by other pupils – so walk behind the user often to discourage inappropriate displays

EXAMPLES OF AVAILABLE 'DYSLEXIA FRIENDLY' SOFTWARE:

Reading/spelling

Kurzweil 3000	Scans, reads text aloud, reads the Web.
Read & Write Gold	textHELP! (text to speech)
Start to Finish Books	Don Johnson
Wordshark	White Space
Starspell 2.2	Fisher Marriott
Earobics	Cognitive concepts
Cloze Pro	Crick
Gamz Player	Gamz Literacy Resources
Spin Out Stories	4mation

Writing software (including text to speech software)

Solo (includes)	Don Johnson
CoWriter, Write Out Loud, Draft builder	
Writer's Toolkit	Learning & Teaching Scotland
Inclusive Writer	Inclusive Technology
Clicker 5/Word Bar (vocabulary toolbox)	Crick
Textease	Softease Ltd
Read & Write/Wordsmith	textHELP!
Type & Talk	textHELP!

Memory/Study Skills

Inspiration/ Kidspiration	Inspirations Software
Wordswork	Alphabetics
Nessy	Brain booster
Study Wiz	Inclusive Technology

Maths/number

Numbershark	White Space
Interactive Calculator	Inclusive Technology
Maths Mania	Topological Software
Maths Circus	4mation

Speech Recognition

Via Voice	IBM
Naturally Speaking Preferred 9	Scansoft

Keyboarding

Typing for Fun/ Type to Learn	Sunburst
Expert Typing	Microprose
Touch type	Iota software
Magictype	Magictype Ltd
KAZ Typing Tutor	KAZ

DYSLEXIA INDICATORS AT THE SECONDARY STAGE

Dyslexia is more than an isolated defect in reading or spelling. The problem may be perceptual, auditory receptive, memory-based or a processing deficit.

Subject teachers are not expected to be able to diagnose these difficulties as such, but some general indications are listed below. If several of these are observed frequently in the classroom, please tick the relevant boxes and enter details of the pupil concerned and pass to the Support for Learning team for further investigation.

Pupil Name: _____ Class: _____ Date: _____

- Quality of written work does not adequately reflect the known ability of the pupil in the subject
- Good orally but very little written work is produced – many incomplete assignments
- Disappointing performance in timed tests and other assessments
- Poor presentation of work – e.g. illegibility, mixed upper and lower case, unequal spacing, copying errors, misaligned columns (especially in Maths)
- Poor organisational skills – pupil is unable to organise self or work efficiently; carries either all books or wrong ones; frequently forgets to hand in work
- Sequencing poor – pupil appears to jump from one theme to another, apparently for no reason
- Inability to memorise (especially in Maths and Modern Languages) even after repeated practice
- Inability to hold numbers in short-term memory while performing calculations
- Symbol and shape confusion (especially in Maths)
- Complains of headaches when reading; sometimes see patterns in printed text; says that words move around the page or that text is glaring at them
- Unable to carry out operations one day which were previously done adequately
- Unable to take in and carry out more than one instruction at a time

- Poor depth perception – e.g. clumsy and uncoordinated, bumps into things, difficulty judging distance, catching balls, etc.
- Poor self-image – lacking in confidence, fear of new situations – may erase large quantities of written work, which is acceptable to the teacher
- Tires quickly and work seems to be a disproportionate return for the effort involved in producing it
- Easily distracted – either hyperactive or daydreaming
- Other – please give details**

Teacher: _____ Subject: _____

Action requested:

- details of known additional needs
- investigation of problem and advice re support
- dyslexia assessment
- profile of additional needs
- suggest strategies for meeting additional needs
- advice re assessment arrangements

Dyslexia Scotland has supplied every secondary school in Scotland with a free copy of this publication. **All information contained in the 18 booklets and CD, including extra copies of dyslexia identification checklists, is available free to download from their website.**

www.supportingdyslexicpupils.org.uk

CD CONTENTS:

Worldwide dyslexia contacts

Identification & Assessment of dyslexia

Dyslexia checklist for subject teachers
Classroom Observation
Pupil Checklist for Dyslexia
Dyslexia - self esteem issues
Assessment Materials
Fine Motor Assessment (writing)
Visual Dyslexia
Strategies to meet identified needs
Example of a dyslexic profile
Personal Learning Plan: Example of an information page
Dyslexia glossary

Co-morbid conditions

ADHD - teachers' checklist
Visual Discomfort Meares-Irlen Syndrome
Dyspraxia
Dyscalculia
Dysgraphia

Teaching & Learning

Summary: Classroom management support strategies
Developing Social Skills - dyslexic learners
Dyslexia glossary of terminology
Modern Languages Grid

Study skills

Active Revision.
Techniques for improving memory
Study techniques Revision
Accessible Curricular Materials.
Writing support using ICT
CALL project Voice recognition –
Description for schools
Small and Portable Devices.

Examinations and assessments

SQA Guide for Candidates: Arrangements for
Disability Support
National Testing
Use of a calculator in Maths noncalculator exam papers
Modern Foreign Languages Writing
Glossary of Exam language
Active Revision
Stress reducing strategy

Resources

ICT resources to support developing numeracy
ICT resources to support developing literacy
ICT and Practising Literacy Skills
Further Reading suggestions
Learning & Teaching Scotland – downloadable resources
Barrington Stoke link
Dyslexia Shop catalogue link
iANSYST website link

Information for parents of dyslexic pupils

Enquire parent guide
Dyslexia Scotland Guide for Parents
Visual processing difficulties
Using ICT to support writing
ICT Starting Points
Small and Portable Devices
Alternative Therapies
Supporting and working with parents of dyslexic pupils
Contributory factors dyslexia
Homework Tips for Parents
Meeting the teacher - parent's guide
Information for parents - Alternative Assessment Arrangements
Suggested reading list for parents

Downloadable leaflets & information

What is dyslexia
DfES How to Identify Dyslexia
DfES Being Dyslexic
DfES Tips for Secondary School
BDA Secondary School Tips
A framework for understanding Dyslexia – DfES
Guidance to support pupils with dyslexia and dyscalculia - DfES
How Can Parents Help
Dyslexia Scotland Guide for Parents
Enquire Parents Guide to Additional Support for Learning
Help for Dyslexic student
Dyslexia Indications for Adults Checklist for Adults
Dyslexic adults assessments
Guide for Teachers
Help At Home.
Help with Reading and Spelling
How Can Parents Help
Help with Maths
Hints for Homework

Supporting Dyslexic Pupils in the Secondary Curriculum is a series of booklets for secondary school teachers throughout Scotland. They are intended to help them remove the barriers to learning that are often experienced by dyslexic pupils.

The pack of 18 booklets:

- Is an authoritative resource to help teachers meet the additional needs of dyslexic pupils as described in the Scottish Executive's ***Supporting Children's Learning Code of Practice (2005)***
- Provides subject teachers with advice and suggests strategies to enable them to minimise barriers to learning that dyslexic pupils might experience in the secondary curriculum and provide appropriate support
- Offers guidance for Support for Learning staff on the identification and support of dyslexia in the secondary curriculum and on advising subject colleagues
- Addresses the continuing professional development needs arising from national, local and school initiatives
- Is packed with practical information and tips for teachers on how to give dyslexic pupils the best chance of academic success
- Is supplemented with a CD crammed with practical and helpful downloadable material

Moira Thomson recently retired as Principal Teacher of Support for Learning at Broughton High School, Edinburgh, after 30+ years. She was also Development Officer for City of Edinburgh Dept of Children & Families; in-house CPD provider for City of Edinburgh Dept of Children & Families; Associate Tutor for SNAP; Associate Assessor for HMIE. Moira is an independent adjudicator for the Additional Support for Learning dispute resolution; educational consultant, providing CPD for secondary teachers; secretary of the Scottish Parliament's Cross Party Group on Dyslexia; member of Scottish Qualifications Authority focus groups and a committee member of Dyslexia Scotland South East.

"I truly hope that all teachers will embrace this publication. If they can put into practice the guidance offered it will make a fundamental difference to the way dyslexic children are taught in school today. Young people in Scotland deserve this chance."

Sir Jackie Stewart OBE, President of Dyslexia Scotland.



Dyslexia Scotland, Stirling Business Centre, Wellgreen, Stirling, FK8 2DZ
Registered in Scotland No. 153321; Scottish Charity No. SCO00951