



Use of ICT in National Literacy Units: Writing

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Introduction

In National Literacy Units at National 3, National 4 and National 5, scribes are not permitted as a reasonable adjustment for disabled learners when they are required to show evidence of their writing skills.

However, the use of information and communication technology (ICT), including word processors and other assistive technologies, can minimise the disadvantage faced by some disabled learners in attaining the National Units in Literacy,

A range of ICT support is available for the assessment of writing for all learners, and examples are shown in the Unit support notes. There is more tailored ICT support available for disabled learners or learners with identified additional support needs (ASN).

This document illustrates how ICT can be used to support the assessment of writing skills in National 3, National 4 and National 5 Literacy Units and also provides guidance on some of the assistive technologies that disabled candidates could use.

This information has been produced in partnership between SQA and CALL Scotland.

A companion guide on using ICT for assessing reading is also available from SQA's website¹.

The support of the school's technical services or ICT coordinator may be useful to access

¹ www.sqa.org.uk/cfeliteracysupport

Assessment in the National Literacy Units

The National Literacy Units assess reading, writing, listening and talking skills. The assessment of these skills is not conducted under exam conditions; it is expected to be carried out in class as part of the learning and teaching programme, without time limits. Work is marked by the class teacher and quality assured by SQA.

Meeting the standard for National Literacy Units – writing

SQA has published Unit Specifications for the National Literacy Units, which detail the required Outcomes. The required Outcomes for the assessment of writing are:

National 3 Literacy Unit

Outcome: The learner will write simple, technically accurate texts by:

- ◆ selecting and using appropriate language
- ◆ organising writing appropriately
- ◆ using appropriate spelling, punctuation and grammar

National 4 Literacy Unit

Outcome: The learner will write straightforward technically accurate texts by:

- ◆ selecting and using appropriate language
- ◆ organising writing appropriately
- ◆ using appropriate spelling, grammar and punctuation

National 5 Literacy Unit

Outcome: The learner will write detailed technically accurate texts by:

- ◆ selecting and using appropriate language
- ◆ organising writing appropriately
- ◆ using appropriate spelling, grammar and punctuation

Further information on the Outcomes and Assessment Standards for National Literacy Units is contained in the Unit Specifications. These are available from the Literacy and Numeracy subject page² on SQA's website.

² www.sqa.org.uk/browsecfesubjects

Assessment of writing skills

For the National 3 Literacy Unit, learners are expected to write simple, technically accurate texts that:

- ◆ contain a few ideas or a set of ideas
- ◆ contain familiar vocabulary
- ◆ use simple expression
- ◆ are more than 80 words in length

For the National 4 Literacy Unit, learners are expected to write straightforward, technically accurate texts that:

- ◆ contain several ideas or a set of ideas
- ◆ contain supporting detail
- ◆ contain straightforward vocabulary
- ◆ use straightforward expression
- ◆ are more than 300 words in length

For the National 5 Literacy Unit, learners are expected to write complex, technically accurate texts that:

- ◆ contain complex ideas or sets of ideas
- ◆ contain considerable detail
- ◆ contain complex vocabulary
- ◆ use complex expression
- ◆ are more than 500 words in length

Examples of how a teacher might obtain evidence of a learner's writing ability are provided in the *Approaches to assessment and gathering evidence* section of the Unit Support Notes. These are available from the Literacy and Numeracy subject page on SQA's website.

SQA has published three packages of Unit assessment support for National 3 and National 4 Literacy Units. These contain sample texts and questions that teachers may use, and also provide guidance on assessment. Teachers may use the assessments provided, adapt them to suit, or use them as a basis to produce their own assessments.

Unit assessment support packs are held securely and teachers can arrange access to them through their SQA Coordinator.

For the assessment of writing skills, learners can write their text by:

- ◆ handwriting
- ◆ using a computer/laptop/tablet/etc. (with spellchecker)
- ◆ using speech recognition software or other assistive technology

When writing, learners can also use a number of other supports³. For example, some learners might need more time than others to show their writing skills, and some may need the help of a prompter or a practical assistant.

³ www.sqa.org.uk/

Writing with ICT

A range of ICT support, such as word processors, can be used by **all** learners for the assessment of writing. More examples are shown in the Unit support packs. There is more tailored ICT support available for disabled learners or learners with identified additional support needs (ASN).

Where resources permit, centres should use technology as much as is needed to support learning, teaching and assessment.

For the assessment of writing in the National Literacy Units, this could include the following tasks:

- ◆ compiling and maintaining e-portfolios
- ◆ conducting web-based research
- ◆ interactive language tasks, such as cloze passages in electronic format
- ◆ word processing / proof-reading
- ◆ listening and responding to webcasts
- ◆ creating webcasts
- ◆ games-based learning
- ◆ using virtual learning environments (VLE)
- ◆ writing formal blogs
- ◆ reading and responding to e-mails
- ◆ submission of assessed work through VLE / e-mail, or online quizzes / tests

Keyboards

Many learners with visual, physical or specific learning difficulties can use a keyboard to overcome difficulties with handwriting or spelling. For example:

- ◆ Learners who experience pain or fatigue when writing by hand may be able to write more text, write faster, and with less effort, by typing using a keyboard.
- ◆ Learners with specific learning difficulties can more easily edit and correct errors, and so produce a higher standard of work as a result.
- ◆ Learners with very poor handwriting can produce more legible work, which is of benefit to both the learner and the teacher, as their work will be easier to read.
- ◆ Learners with poor handwriting can improve esteem through production of clearer and better looking work

Specialised alternatives to keyboard or mouse

Learners who cannot use a standard keyboard or mouse due to with physical disabilities may be able to write using an alternative method of access such as speech recognition, a mini or large keyboard; or an on-screen keyboard controlled with a mouse, trackball, joystick, head-operated mouse, eye-gaze or switches.

Finding the most efficient and effective method of access usually requires specialist assessment and a trial of different options from external organisations such as CALL Scotland (www.callscotland.org).

Spellcheckers

All learners can use a spellchecker. Learners should be supported to spell words accurately, using a range of strategies and resources to do so. Commonly available support, such as an electronic spell checker and other technical support, is acceptable for on-screen writing.

Learners with dyslexia or other reading difficulties can use built-in support tools such as spellchecker and AutoCorrect.

Microsoft Word's spellchecker underlines words that may be misspelled. This draws attention to these words and, more importantly, it helps the learner to confirm which words have been spelled correctly, as many dyslexic learners spend time going over words which they have actually spelled correctly.

Solubility and Saturated Solution
When a solute is added to a solvent a solution is formed. How much solute we can dissolve depends on temperature of the solvent, the solvent used and the volume of the solvent. When a solution contains as much solute as it possibly can at that temperature, we say the solution is saturated. No amount of stirring or shaking will allow more solute to dissolve. Only by heating the solution or adding more solvent is it likely that more solute will dissolve.

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Figure 1: A comparison of handwritten and typed text from a student with dyslexia

To spellcheck using Microsoft Word:

- ◆ Right-click on a word; if you see the correct spelling, click on it to replace it, or
- ◆ Click **Review > Spelling and Grammar**, or
- ◆ Press **F7**.

Auto-correct

The Microsoft Word AutoCorrect tool corrects spelling or typing mistakes automatically. This can be extremely helpful for learners who make common spelling or typing mistakes. For example, it will replace 'teh' with 'the'; 'geting' with 'getting'; 'tecnical' with 'technical', and so on. Many learners use AutoCorrect without thinking or realising they are doing so.

To turn on AutoCorrect:

- ◆ Click **File > Options > Proofing > AutoCorrect Options** and tick **Replace Text as you Type**.

However, AutoCorrect can also be adapted or 'taught' to correct a writer's own personal spelling errors. For example, if a learner with dyslexia cannot spell 'enough', and always types it as 'enuf' or 'anuf', both of these misspellings can be added to the Word AutoCorrect dictionary so that both are automatically corrected when the learner types.

To add words to the AutoCorrect dictionary:

- ◆ Click **File > Options > Proofing > AutoCorrect Options**. Type in the incorrect spelling (enuf) under 'Replace', and the correct spelling (enough) under 'With'. Repeat for any other common misspellings of the same word.

Adding words one at a time in this way may seem like additional work but, over time, it can become an extremely effective tool for helping learners with dyslexia.

Talking Spellchecker

To use a spellchecker, the learner must be able to identify the correct word in the list of words presented. Some learners who experience difficulties with reading or word recognition may have difficulty choosing the correct word from the list, and so they benefit from having the word read out by the computer.

Talking spellcheckers are provided by many literacy support programs. Dependent on the particular program, learners can click on words in the spelling list to hear them read out, and also find and listen to synonyms.

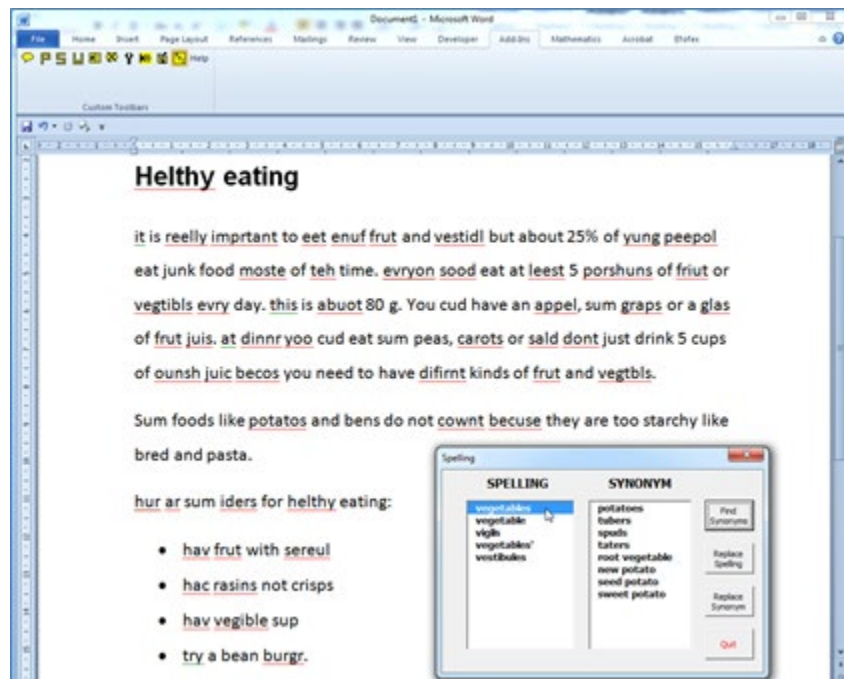


Figure 2: WordTalk Talking Spellchecker

Example of using a spellchecker

The following example shows a piece of written text about healthy eating. One version has been typed with the use of AutoCorrect and the Word spellchecker, and one without.

Helthy eating (without AutoCorrect or spellchecker)

it is reelly imprtant to eet enuf frut and vestidl but about 25% of yung peepol eat junk food moste of teh time. evryon sood eat at leest 5 porshuns of friut or vegtibls evry day. this is abuot 80 g. You cud have an appel, sum graps or a glas of frut juis. at dinnr yoo cud eat sum peas, carots or sald dont just drink 5 cups of ounsh juic becos you need to have difirnt kinds of frut and vegtbls.

Sum foods like potatos and bens do not cownt becuse they are too starchy like bred and pasta.

hur ar sum iders for helthy eating:

- hav frut with sereul
- hac rasins not crisps
- hav vegible sup
- try a bean burgr.

Healthy eating (with AutoCorrect and spellchecker)

It is really important to eat enough fruit and vestidl but about 25% of young peepol eat junk food most of the time. Everyone sood eat at least 5 portions of fruit or vegetables every day. This is about 80 g. You cud have an apple, sum grapes or a glass of fruit juis. at dinner you cud eat sum peas, carrots or salad don't just drink 5 cups of ounsh juice becos you need to have different kinds of fruit and vegetables.

Sum foods like potatoes and bens do not count because they are too starchy like bred and pasta.

hur are sum ideas for healthy eating:

- have fruit with cereal
- hac raisins not crisps
- have vegible sup
- try a bean burger.

Through using the spellcheckers, the number of errors in the text is reduced from 50 to 9. However, there are also eight 'real world errors' such as 'cud' instead of 'could'; 'sum' instead of 'some'; 'bred' instead of 'bread'; and 'sup' instead of 'soup'.

This example helps illustrate the types of spelling mistakes that can be addressed using the readily available Microsoft Word tools. Some learners with spelling difficulties find they can use these tools to greatly improve their spelling accuracy. However, others with more severe literacy difficulties may find that spellchecking tools are not particularly helpful. They may require other supportive software such as word prediction or speech recognition. Therefore, schools need to conduct an assessment of ability and need, to determine the most suitable tool for the individual learner.

Effectiveness of spellcheckers in practice

The example given above illustrates that a spellchecker is unlikely to help a learner correct all spelling mistakes, because spellcheckers:

- ◆ may ignore heterographs (for example *sum* for *some*)
- ◆ do not always offer the correct spelling for an error

Because the candidate may not identify the correct word in the list offered by the checker, only a proportion of spelling errors will be corrected. However, there are some spellcheckers that are designed to check heterographs as well as misspelled words.

Specialist Spellcheckers

There are several 'specialist' spellcheckers that are designed specifically for learners with spelling difficulties. These may give better results than the Word spellchecker, depending on the type of spelling mistakes that the learner typically makes.

Call Scotland⁴ has produced a comparison of these programs, which is available on its website.

Assistive software

Disabled learners and learners with additional support needs (ASN) can use assistive software, such as:

- ◆ **Text to speech software** – many learners find this very helpful for proof-reading their work. By having the text read back to them, learners can identify any misspelled words and improve sentence structure and meaning.
- ◆ **Word prediction** – many learners with physical difficulties find this helpful as it can reduce the number of keystrokes needed to type and so reduces effort. Many learners with spelling difficulties find this helpful because they need only type the first few letters of a word and then select it from the list of words offered.
- ◆ **Word banks** – many learners with spelling difficulties or physical difficulties find this helpful because it allows them to write longer or more difficult words and also can allow them to work faster if their typing is slow and laborious
- ◆ **Speech recognition** –this can be used to help learners with spelling difficulties or physical difficulties, to create text.
- ◆ **Mind mapping software** – this can be used to help learners to plan their written work.

Text-to-speech software

Many learners with reading / writing difficulties find it very helpful to use text-to-speech software both when reading, and when writing to read back their text. While writing, some text-to-speech programs can speak each word or sentence as it is typed, which can help the writer to identify misspellings. Reading back the text with text-to-speech may help the writer to improve punctuation, sentence structure, vocabulary or meaning.

There are many text-to-speech programs that can be used to read text from a Word document. Text-to-speech programs need voices installed on the computer. A computer will usually have one or two voices already installed, but the standard voices have American accents.

Scottish computer voices can be obtained from The Scottish Voice⁵. These are high quality male ('Stuart') and female ('Heather') voices that work with almost all text-to-speech programs on Windows and MacOS computers, and they are available free. These voices are licensed for school and home use, for learners in Scotland. Many local authorities have installed them on all school computers as a reasonable adjustment under Equality and Accessibility legislation, and also as a tool for all learners.

⁴ www.callscotland.org.uk

⁵ www.thescottishvoice.org.uk

Word prediction

Learners who experience more significant difficulties with literacy may benefit from word prediction tools. Most of these are available both as Windows programs and also as tablet applications.

Word predictors analyse text as it is being typed on the computer and try to 'predict' the words that the learner is intending to use; using a dictionary or lexicon of words. The learner types or selects a letter and the program offers them a list of the most common words beginning with that letter. If the required word is presented on that list, the learner selects it with the mouse, keyboard or other access tool. If the word is not on the list, the learner types the next letter and a different choice of words is offered.

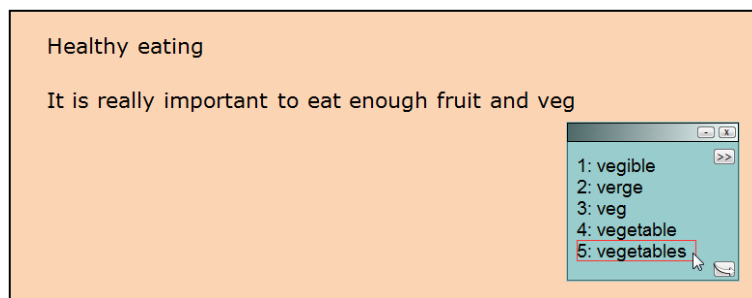


Figure 3: Writing with word prediction

Word prediction can reduce the number of keystrokes needed to type by up to 50%, and so learners with physical disabilities can use them to reduce effort and increase endurance, therefore increasing the amount of text that they can produce in one session.

Word prediction can also help learners with severe spelling difficulties, because the learner only needs to type the first few letters of the word and then select it from the list of words offered. The learner can usually then select the word to have it read out, to make sure it is the correct word.

Some literacy skills are necessary in order to use word prediction effectively. Learners must be able to decide what they want to say, to reasonably guess and type the first few letters of the word, and then recognise the word on the list. Some learners are unable get the first letters right, while others may miss the word when it is offered in the list, or choose a different one by mistake. Some learners also find that shifting attention between the text, the keyboard and the predicted list interrupts their flow of thought and slows them down.

Using word prediction in the assessment of writing

Most word predictors offer 'next word prediction', where words are offered automatically after the previous word. This means that the learner does not need to type any letters at all as the software is suggesting words for them. When assessing the learner's writing ability, this function should be turned off. Similarly, the predictor should be set up to offer only single words, not phrases.

Speech Recognition

Speech recognition software⁶ is regarded as a reasonable adjustment for assessing writing in the National Literacy Units. Speech recognition software allows the learner to speak instead of writing or typing. When the learner speaks, the computer or device recognises the speech and converts it into text. Speech recognition is provided free with Windows 7 and 8, recent versions of MacOS, and is also built in to some tablets. Some programmes are designed specifically for writers with literacy difficulties and integrate speech recognition, word prediction and text-to-speech.

Nowadays, speech recognition software is far more accurate, and requires far less training, than its predecessors. However, learning to use speech recognition does require time, effort and support, and good ICT and language skills. The learner must be able to compose satisfactory English and to dictate clearly and accurately. Learners with strong dialects or regional accents, or unclear speech, may not be able to use the software. Speech recognition is also unlikely to be 100% accurate, and so the writer must be able to read back the dictated text and identify and correct any words that have not been picked up correctly.

CALL Scotland⁷ has produced the following guides on speech recognition software:

- ◆ Speech Recognition in National Assessments
- ◆ Speech Recognition Software in SQA Assessments

Microsoft Word writing tools

There are tools and options within Microsoft Word that can help learners with spelling or writing difficulties. Illustrative examples of these tools are shown below. These are taken from Word 2010, however, other versions share similar accessibility features.

Making text larger or smaller

Many learners with visual impairment or a reading difficulty, including dyslexia, benefit from a bigger font size both for reading text and when writing. The following options will make the text appear larger:

- ◆ click **View > Zoom** to zoom in and make the text appear larger
- ◆ use the slider on the bottom right corner of the screen to increase the size (%) of the text on screen
- ◆ click **View > Web Layout** and then zoom in to choose a large font size. Web layout will adjust the text so that you do not need to scroll left and right to read the text when you have high levels of magnification

⁶ British Dyslexia Association - <http://bdatech.org/what-technology/speech-recognition>

⁷ www.callscotland.org.uk

Changing the colour of the page background and/or text

Learners who have visual stress or dyslexia may find text on a coloured background easier to access. Some learners with visual impairment may need a high contrast colour scheme (eg yellow on black) as well as magnification.

- ◆ Click **Page Layout > Page Colour** and choose a different page background.
- ◆ Select all the text (CTRL-A), click the **Home** ribbon and choose a different text colour.

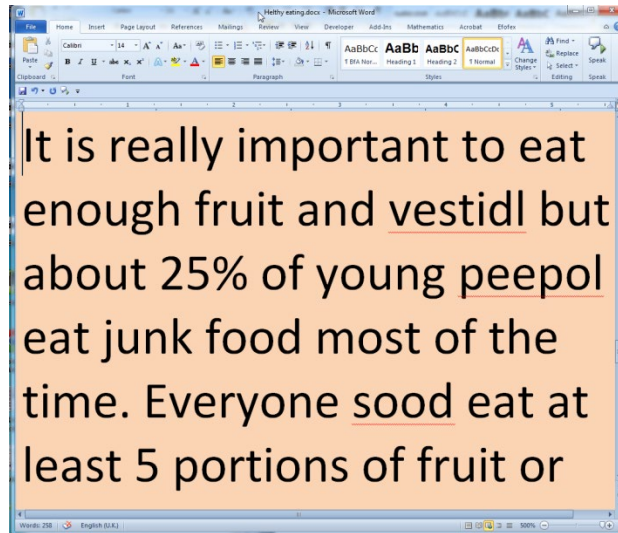


Figure 4: “Web layout” with zoom at 500%, pale orange background and black text

Change the font, text size and line spacing

Some learners find it easier to read text in particular fonts, or to see a larger font size:

- ◆ Select all the text (CTRL-A), click **Home** and choose a different font and/or font size.

Many learners with a visual impairment, visual stress, visual tracking problems or dyslexia can read and write more comfortably and fluently when each line of text is spaced further apart:

Select all the text (CTRL-A), click **Home** and then the **Line and Paragraph Spacing** button, and choose the line spacing you want (try 1.5 or 2.0 for line-and-a-half, or double spacing).

Word Speak button

Word 2010 and 2013 have a free text-to-speech tool called ‘Speak’ that can be added to the toolbar.

With the Speak button, you can select the text you want to read and click '**Speak**', and then the text will be read out using the computer's default voice. The Speak button cannot read the text as you type.

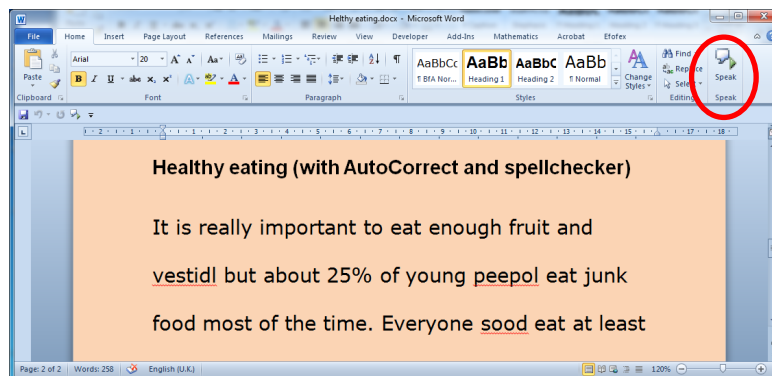


Figure 5: Reading text with Word's Speak button

If you want to change the default voice or the voice speed, open the **Speech Recognition Control Panel**⁸, click **Text-to-Speech**, and choose the voice and settings you want to use. If you cannot access the Control Panels, contact your technical service or school ICT coordinator.

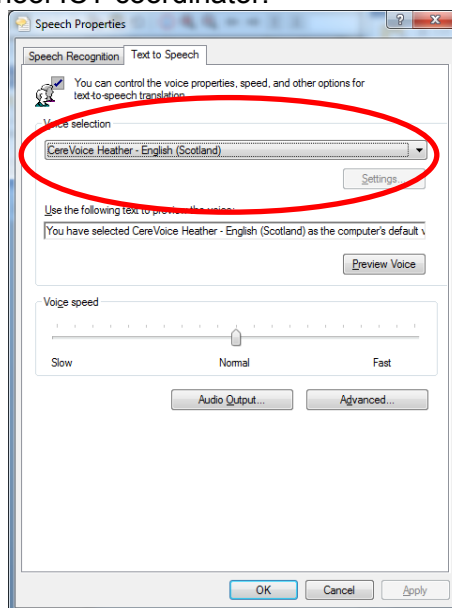


Figure 6: Changing the default computer voice for Word Speak button

WordTalk

WordTalk is a free add-on for Microsoft Word that provides more options and tools than the Word Speak button. For example, WordTalk:

- ◆ highlights text as it reads so the learner can track the text.
- ◆ allows you to change voices and voice speeds without needing to access the Control Panels
- ◆ can repeat each word or sentence as you type,

⁸ Control Panel is found in the menu of the PC in bottom left hand corner

- ◆ allows learners who have difficulty using a mouse to use keyboard shortcuts instead
- ◆ has a talking spellchecker
- ◆ allows you to text as audio files (for playing back on an iPod, for example).

WordTalk works with most combinations of Microsoft Word and Windows. It can be downloaded free from **www.wordtalk.org.uk**

Once you have WordTalk installed, click on the **Add-Ins** ribbon, place your cursor where you want to read, and click the relevant WordTalk button to read the paragraph, sentence, word, or the whole text.

Available software

There are other computer software packages available with accessibility features.

Current information on text readers, screen readers, word prediction and specialist spell-checkers, including links to a variety of free software applications, can be found on CALL Scotland's website at <http://www.callscotland.org>