### Supporting students with special educational needs

There are four aspects to the way in which ICT influences upon your work with students with special educational needs:

- how you teach ICT to students with special educational needs;
- how ICT supports your teaching of students with special educational needs;
- how ICT supports students’ learning; and
- how ICT supports your professional development with regard to special educational needs.

The first area, “how you teach ICT to students with special educational needs” is the principle domain of the specialist ICT teachers and trainees. As in all subjects, you have to consider the values and motivations in your subject area. In ICT, the key word is “capability” – it is ensuring that students become independent users of ICT, able to apply what they have learned to other situations. As in all subject areas, it is then important to understand the skills and needs of the learner. It is important to consider learning styles including the visual-auditory-kinaesthetic and deep/surface models of learning styles. A recommended read is Meeting SEN in the Curriculum - ICT by Mike North and Sally McKeown. Their book identifies the sorts of ICT activity that is associated with each style of learning. The book is a useful reminder that we might be neglecting some learners when we use one method of teaching all the time (North and McKeown, 2005, p72-74).

<table>
<thead>
<tr>
<th>Visual</th>
<th>Auditory</th>
<th>Kinaesthetic</th>
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<tbody>
<tr>
<td>screen images</td>
<td>spoken instructions</td>
<td>games (based upon joystick or key presses or mouse)</td>
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<tr>
<td>flow diagrams, time lines</td>
<td>talking word processor</td>
<td>control technology (programmable devices)</td>
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<td>spider graphs and mind mapping</td>
<td>sound effects</td>
<td>virtual reality</td>
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<tr>
<td>video clips</td>
<td>earcons (buttons that emit a sound when pressed)</td>
<td>authoring: animations, presentations, websites</td>
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<td>podcasts</td>
<td>podcasts</td>
<td>copying instructions and demonstrations</td>
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<tr>
<td>animated images, Flash files</td>
<td>“listen again” web features</td>
<td>skills development</td>
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<tr>
<td>web and video conferencing</td>
<td>MP3 audio player (including iPods)</td>
<td>note taking during your expositions</td>
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<td>emoticons (symbol based upon letters and punctuation)</td>
<td>MP3 audio recorder</td>
<td>Based upon North and McKeown, 2005, p73</td>
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<td>picons (icon based on a realistic picture)</td>
<td>presentations with audio</td>
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### Graphic no. 22 > ICT for different types of learner

A further principle associated with teaching the ICT curriculum to students with special educational needs is that it is NOT “watering it down” or “taking it slowly”. They are simply inappropriate and mis-guided approaches. The alternative curriculum, whether in ICT or your own subject area, must ensure that the students gain a sense of achievement in what they do. They should be presented with the same number of achievable goals per lesson reflecting those set for the whole class.

The provision for students with special educational needs is determined by the way that your local authority and your school interprets the Special Educational Needs and Disability Act 2001 [http://www.opsi.gov.uk/acts/acts2001/20010010.htm](http://www.opsi.gov.uk/acts/acts2001/20010010.htm)

### ICT supporting your teaching of students with special educational needs

Students with severe hearing loss are being integrated into secondary schools because of the availability of wireless hearing aids. You wear a microphone-transmitter device around your neck and the student has a receiver connected to their hearing aid. They are able to hear your voice without much of the distractions of noise from the rest of the class. Warning – they can hear what you are saying even when you go out of the classroom.

Students with milder hearing loss must also be catered for. The ICT room is a noisy place with computer and printer fans. There are many auditory distractions. The interactive whiteboard has returned the teacher to facing the wall when talking. All of these have a negative impact upon the student with a hearing loss. Make sure that you face the class when giving instructions or explaining concepts. It is important that students can see your lips when you are talking to them.

The readability of teaching materials is an important issue of inclusion. The materials used in the computer room are frequently created using a word processor and it is possible that several versions can be produced. However, to reduce the workload burden of resource differentiation, the resources for all students should be clearly presented using a sans serif font such as comic sans at 12pt and with plenty of white space. You should always use a level of language that is accessible by all students. There are strategies like bullet points, lists, graphics and sequences of instructions. These will help the less able reader or those that find organising their own work difficult yet they do not impede the more able student.
The curriculum should be appropriate for all the students. At a simple but important level, are all the lessons conducted as if students will use contextual menus (right click) and the drop down menus or are keyboard shortcuts the way new techniques are introduced. The visually impaired user may prefer the latter whilst a student with a physical disability may prefer the former. Some students would benefit from being able to make notes as the teacher describes the activities whilst others would benefit from annotating a screen printout. Some learn through listening and questioning. Is the way the curriculum is taught inclusive? The National Strategy for ICT Capability has been particularly challenging for the teacher trying to meet the needs of all students. Many of the lessons are do-able by more able students but the necessary pace is inappropriate for less able students. You have to find alternative curriculum material and activities that enable students to succeed at an appropriate level. In some cases it is necessary to return to the National Curriculum and then devise new materials to enable them to achieve at their level of understanding.

ICT provides opportunities for you to easily differentiate activity, work and information sheets. The main methods are:

• changing font size and text colour for the visually impaired;
• breaking down the tasks into smaller steps for those with concentration and behaviour issues;
• presenting them in electronic form for students using screen readers; and
• converting an information sheet into a work sheet by making blank key words (cloze procedure).

ICT supporting special educational needs students' learning

There is a wide range of devices that are used by students with special educational needs to support their learning. The following items are those most commonly found in secondary schools.

Some students need support organising their studies and their learning. ICT provides a range of software packages that enable the students to plan and organise their studies. Concept mapping software, such as Inspiration, provides the means by which students can show what they understand and prepare the content of their studies for later revision.

There are different special educational needs where the student can benefit from having a recording of a lesson. Contemporary MP3 audio recorders are discrete, do not require tapes and have no moving parts. The recording can be easily transferred to a computer and copied to a CD for later use and archiving.

Spelling and grammar checkers enable students with writing difficulties (especially those with dyslexia) to check their work and be more confident in its public presentation. Some students find that handwriting is slow and the resulting text impossible to use for revision and review. They can use a range of text recording devices including tablet PCs, dedicated word processors and XDAs. In most cases, students have to copy their typing into a PC for further processing and archiving.

Practical task

During both school placements discuss with the special needs coordinator the provision for supporting pupils with learning difficulties and the gifted and talented. Identify the areas of their work makes a significant contribution including the use of computers to support their administrative work and continuing professional development.

ICT supports your professional development with regard to special educational needs

In your training and in the early stages of your teaching career you will continue to meet students with very specific educational needs. By establishing a good routine for obtaining information you will be aware of different special educational needs and the strategies used to best support the students. (Read the section on keeping up-to-date in the research chapter.)

www.direct.gov.uk/EducationAndLearning/Schools/SpecialEducationalNeeds the Direct Government portal for special educational needs

www.everychildmatters.gov.uk/ete/sen/ Every Child Matters and special educational needs

www.nasen.org.uk National Association for Special Educational Needs

inclusion.ngfl.gov.uk National Grid for Learning inclusion and special educational


www.teachernet.gov.uk/wholeschool/sen TeacherNet support
Summary of key points

• it is necessary to establish an inclusive teaching environment; when planning lessons it is important to ensure that not only is the curriculum and chronology issues are inclusive but also the context, environment and resources are also inclusive;

• the design of supporting resources, in particular, worksheets, activity sheets and information sheets can be enabled and enhanced through the use of ICT;

• your use of ICT provides many opportunities to enable inclusion but there are also challenges that must be met to ensure all students can participate in computer-based activities; and

• ICT provides opportunities for your continuing professional development and in particular in the context of diversity, inclusion, “Every Child Matters”, special educational needs and differentiation.

References

