

## ICT provision to help pupils with more complex support needs

Some pupils have support needs arising from more general learning difficulties. In some cases these may be severe and complex. Other pupils have more specific learning difficulties such as dyslexia or dyspraxia. Support needs arising from physical or sensory impairments, autistic spectrum disorders or behavioural difficulties may also be present.

### Does the pupil's difficulty lie in communication or interaction?

Refer to the ICT Advice Sheet *A guide to identifying ICT provision to help pupils with communication and interaction difficulties*.

### Does the difficulty lie in reading?

If the pupil has a reading difficulty as a result of a physical or sensory impairment, look at the ICT Advice Sheet on *ICT provision to help pupils with sensory or physical needs*. See also the ICT Advice Sheet *A guide to identifying ICT provision to help pupils with communication and interaction difficulties*.

### Children with complex support needs

On its own, ICT is not necessarily useful for children with the most complex learning support needs. Most success comes where ICT is linked in a meaningful way to the curriculum through activities that the pupil understands and / or finds motivating. In this way the effects are likely to last for longer. ICT is most likely to help when teachers:

- know in advance the pupil's preferences and motivations
- use technology to match these and to help the pupil be active and sociable
- introduce technology in the context of familiar play, social routines, early learning and communication development, rather than as something separate
- have in mind clearly defined aims for using ICT

### Using ICT to encourage interaction with people and objects

Multi-sensory environments offer one way of enhancing social interaction, where the environment can be carefully controlled so as to:

- increase opportunities for interaction to take place
- introduce stimuli gradually, and free of distractions
- increase opportunities for the pupil to make basic choices – to be with one person rather than another

Here the focus is on using ICT indirectly to support social interactions, establish and build up trust, with the longer term aim of improving relationships with people. As well as a distraction-free area, a basic multi-sensory environment might consist of a range of equipment to stimulate:

**Vision** e.g. variable lighting such as fibre-optic lights, bubble tube, slide projector with effects wheel, mirror ball, travelling light tube, shimmer curtain.

**Sound** e.g. cassette recorder, sound systems to produce music and sound effects, sound (and light) wall unit.

**Tactile** e.g. soft play equipment, vibrating mat, massage tube.

**Olfactory** e.g. aromatherapy diffuser box.

Such environments provide sensory stimulation and opportunities to interact socially with people and physically with objects. Suppliers of this and a whole range of other equipment include [TfHUK](#) and [SpaceKraft](#).

The various technologies brought together within multi-sensory environments can be adapted so that the pupil has some control over what happens. For pupils themselves to activate equipment in a multi-sensory environment, rather than it being operated for them, a balance needs to be struck. It can help the pupil to control the world of objects. But if too much opportunity for control is introduced at one time, ICT will offer little advantage and may even undo previous hard-won successes. A useful rule of thumb to follow in using ICT with children with the most complex support needs is to:

**start low** then **build up only slowly** and **make the activity social**

Continuing on the theme of using ICT in meaningful and motivating activities, adapted switches allow many children to participate in some everyday activities from which they would otherwise be excluded. Here the aim of using a switch is to give a degree of control and access to their environment. The aim should not be to use the switch for its own sake, especially when there may well be better ways of carrying out the activity. Examples include using switches to:

- Activate battery-operated toys, possibly via a timer unit to increase the range of opportunities to engage with battery operated toys.
- Operate mains powered devices such as radios, lamps, cassette recorders.
- Connect to single message voice output devices. Activating the switch produces a recorded message e.g. "Hi. Come and talk to me", "No. I've had enough."

#### Using switches to interact with computers

Switches are important not just because they make physical access easier, but also because it is easier for children to understand and interact with one object – a switch – than with multiple objects – such as all of the keys on a keyboard. For children with complex support needs to use switches effectively several considerations need to be borne in mind. These include: seating and positioning to identify the best site for the child consistently to operate the switch; types of prompts needed (e.g. verbal, visual, tactual); physical, cognitive, visual and auditory demands of operating the switch; how motivating and interesting the results are of activating the switch.

Assuming all of this is taken into account, and that an appropriate switch interface is in place to connect the switch to the computer, attention can turn to choice of software. A huge range of switch operated software is available [see example suppliers in the 'Where can I find out more' section]. A useful approach when selecting appropriate software is to think about what the software is to be used for. Is it to introduce or enhance understanding of cause-and-effect? Or to improve the child's timing in activating the switch? Or is to introduce choice making? We look briefly at each of these.

### ***Cause-and-effect***

The emphasis here is on helping the child to become aware that switch activations make something happen. Some learners develop this understanding quickly, while others need practice across a wide variety of activities.

### ***Timing switch activation***

There is a huge leap to get to the next stage of pressing the switch at the right time. It is demanding in terms of both cognitive and physical skills, to activate the switch and to understand the activity.

### ***Making choices***

The third stage of switch control is the one that opens up the world of reading, writing, controlling wheelchairs, employment and leisure activities. It involves making choices through a process known as scanning, controlled by one, or often two switches.

### **Developing switching skills**

The fact that a huge range of switch operated software is easily available can on occasion introduce problems of its own. How do you choose the right software to match the child's needs? Few programmes offer an integrated developmental progression from cause-and-effect through to scanning. Examples that do include SEN Switcher and Biobytes [see Where can I find out more' section]

### **Other methods of interacting with computers**

For children whose support needs are not quite so complex as to depend on switches for accessing ICT, but who nevertheless cannot use a standard keyboard or mouse, alternative input methods are available. The following alternative input devices are commonly used.

- ***Touch screen*** This method of access is more direct than having to find and choose keys, transfer to using a mouse, and back to keyboard. Where different pupils will access a computer, some by touch screen some by mouse or other method, it's helpful to be able to easily turn off the touch screen function using a switch or option in the software. This is especially useful in school networks when it might be impossible to access software to turn off the touch screen settings.
- ***Tracker or roller ball*** Pupils with learning difficulties often find it easier to use a roller than a mouse because it stays in one place and as the ball moves so too does the cursor on screen.
- ***Overlay keyboard*** This can be used as an input device by restricting the choices offered on the overlay to those required by the activity.

### **Using pictures and symbols to support communication**

Pictures and symbols can help to form a bridge into literacy through words. Pupils supported in this way include those who can't make sense of any letter, right through to those who might be good readers and writers but perhaps need a few symbols on occasion to support them. Here we'll consider symbol support, which may be helpful for pupils:

- Who are learning English as a second language.
- Who have difficulty remembering, perhaps because of neurological damage.
- Who have dyslexia or difficulty in organizing material.

- Who are deaf or hearing impaired.
- Are beginning to read and write.
- With autism or are described as having autistic spectrum disorders [see ICT Advice Sheet 'A guide to identifying ICT provision to help pupils with communication and interaction difficulties']

Symbols offer support in the areas of:

- **Communication** – e.g. using symbols to make a communication book; producing cards for sorting and matching activities; making overlays for voice output communication aids or for overlay keyboards such as Intellikeys.
- **Accessing literacy** – e.g. reading and writing using symbols as prompts or by making grids with software such as Clicker and Writing with Symbols 2000.
- **Participation** – e.g. offering and making choices, thereby increasing involvement and inclusion.
- **Recording thoughts and self expression** – e.g. making Talking Books, writing stories and expressing thoughts, ideas and opinions.
- **Accessing information such as menus and leaflets** – e.g. making information about school, class and the curriculum accessible not just to people who read text but to those who are early readers.

ICT has opened up the use of symbols in three main ways:

- As equipment, usually in the form of voice output communication aids, to support individual pupils in personal communication e.g. an overlay keyboard or on-screen grid, prepared with symbol-supported text to support literacy.
- Providing software that pupils can use both to access the standard curriculum and to support adaptations to that curriculum e.g. symbol processor software to link symbols to words as they are typed, allowing teachers to produce reading materials with symbol support.
- Giving teachers, therapists and support staff ways of producing high quality graphic materials both to support the curriculum and to support personal communication e.g. Boardmaker, Writing with Symbols 2000 or Clicker to produce symbol support materials.

### Where can I find out more?

There is a person with responsibility for ICT and Additional Support Needs in most local authorities, and they are all part of a national network known as **ICT for Support for Learning in Scotland (ICTSLS)**. To see the full list and contact numbers, email addresses etc.:

[http://callcentre.education.ed.ac.uk/Useful\\_Links/Useful\\_Geo\\_Links/Scotland\\_ULA/ICTSLS\\_ULB/ictsuls\\_ulb.html](http://callcentre.education.ed.ac.uk/Useful_Links/Useful_Geo_Links/Scotland_ULA/ICTSLS_ULB/ictsuls_ulb.html)

### Multisensory environments

See additional guidance contained in:

[http://www.becta.org.uk/teachers/teachers.cfm?section=1\\_6\\_3&id=1036](http://www.becta.org.uk/teachers/teachers.cfm?section=1_6_3&id=1036)

Suppliers include:

<http://www.tfuk.com> and <http://www.spacekraft.co.uk/>

**Information about and / or suppliers of switch software can be found at:**

CALL Centre

<http://www.callcentrescotland.org.uk>

Inclusive Technology

<http://www.inclusive.co.uk> huge range e.g. SwitchIt! Series, also lots of useful guidance documents.

Meldreth Manor school website:

<http://atschool.eduweb.co.uk/meldreth/>

Northern Grid for Learning

<http://www.northerngrid.org/sen/intro.htm> (for SEN Switcher)

SEMERC

<http://www.semerc.com/> (several examples)

Widgit

<http://www.widgit.com> (for Biobytes, see also Widgit information on symbols in their Quick Links section).

### ACE Centre Advisory Trust

The ACE Centres provide specialist assessment for pupils with communication difficulties in England and Wales only, but their web sites provide many useful downloadable resources.

- Information about all the VOCAs supplied and supported in the UK.  
<http://www.ace-centre.org.uk/vocapages/main.asp>
- Communication Advice - Where do I Start? An introduction to communication difficulties.  
<http://www.ace-centre.org.uk/html/resources/comadvice/res01.html>
- Developing and Introducing Communication Books,  
<http://www.ace-centre.org.uk/html/resources/Combooks/res07a.html>

### ACE Centre North

- Developing and Introducing Communication Books  
<http://www.ace-north.org.uk/resources/resh.htm>
- Developing the use of an AAC system  
<http://www.ace-north.org.uk/resources/resa.htm>

### Communication Aids for Language and Learning (CALL) Centre

CALL has a national Scotland-wide remit to provide information and advice, assessments, loans and technical services, and research and development. The web site provides information and many useful downloadable resources (including several whole books or chapters of books, e.g. 'Communicating with Pictures and Symbols').

[http://callcentre.education.ed.ac.uk/About\\_CALL/Publications\\_CAA/Books\\_CAB/ACP\\_S\\_03\\_CAC/acp\\_s\\_03\\_cac.html](http://callcentre.education.ed.ac.uk/About_CALL/Publications_CAA/Books_CAB/ACP_S_03_CAC/acp_s_03_cac.html)

The CALL Centre site also has a huge number of useful links, specifically, see 'Useful Links'  
[http://callcentre.education.ed.ac.uk/Useful\\_Links/html/topic\\_ul.htm](http://callcentre.education.ed.ac.uk/Useful_Links/html/topic_ul.htm)

The CALL web site also provides information about Augmentative Communication in Practice Scotland and its publications.

#### Communication Matters

This is a national charitable organisation concerned with augmentative and alternative communication. It provides free information leaflets on AAC and runs a national conference annually.

<http://www.communicationmatters.org.uk/>

#### National Autistic Society (NAS)

This is a UK charity concerned with the education of pupils with autism; there are a number of branches and projects in Scotland, and Daldorch House School, a 52 week autism-specific residential school in Ayrshire.

National Officer Dawn Larmanon Tel: 0141 221 8090

<http://www.nas.org.uk/> <http://www.nas.org.uk/nas/jsp/polopoly.jsp?d=134>

#### Pyramid Educational Consultants UK Ltd.

This is the organisation that provides training in PECS (the Picture Exchange Communication System) used mainly with pupils with autism.

<http://www.pecs.org.uk>

#### Scottish Society for Autism

This is the leading provider of services for people with autism in Scotland. The Society also facilitates the **Autism Alliance for Scotland**, which includes the leading regional autism support groups across Scotland.

<http://www.autism-in-scotland.org.uk>

#### Symbol Forum

This is an on-line area where symbol users can exchange ideas and share work.

<http://www.symbolworld.com>

#### Widgit

Lots of useful information and resources as well as symbol software.

<http://www.widgit.com>

#### See also ICT Advice Sheet

*'A guide to identifying ICT provision to help pupils with communication and interaction difficulties.'*

*Special note*

This guide identifies particular ICT approaches and provision that you may consider using to support pupils' individual needs. The information should be used only as general guidance, since many pupils are likely to need specific solutions to meet their individual needs. Where pupils have particular disabilities or complex special educational needs, an expert assessment should be sought. Owing to the inter-linked nature of pupils' needs, you will be referred to other guides in this series for further information.