ICT and Pupils with Special Educational Needs

There are a number of ways that ICT can specifically help children with special needs. These may not be confined to the ICT lesson - a child with a statement may be given a laptop, communication device or other equipment which they take from lesson to lesson. Some of the main types of help are detailed below. Further information may be found in the links at the end of the web-page for this session.

Motor

A wide range of alternative inputs devices are available for students with motor impairments.

MOUSE REPLACEMENTS – many students with fine motor control problems find a trackerball much easier to use than a mouse. Some students find a joystick better even better. Both are available with buttons which replicate click and hold function on a mouse so that they can use them to drag and drop ('sticky key' functionality is not always supported by software). In most cases the existing software can be used with no modification.

SWITCHES – some students with profound motor impairment may not be able to use trackerballs or joysticks. In this case switch input may be used. Usually specialised software is used where one switch is used to move a cursor and the other to select. For example a two switch work processor works like this:

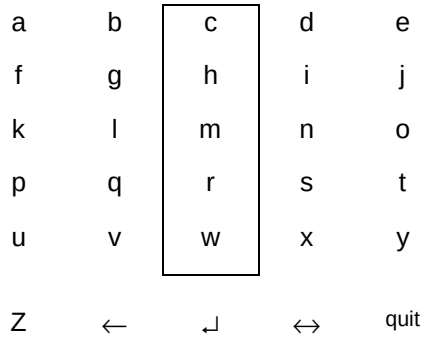

Fig. 1. User chooses the column by hitting one switch to shift the cursor. When it is over the column with the letter they want they hit the other switch.

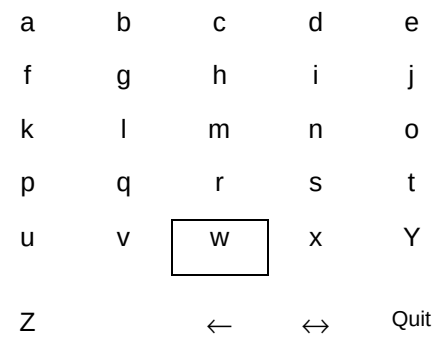

Fig 2. User chooses the row with the letter in the same way. When it is over the letter they hit the other switch to insert in the document.

Single switch software works by having the cursor scan along choices waiting for the user to select one.

Switch based input can be set up using any reliable movement anywhere in the body. Typical examples include head switches, puff/suck switches and pressure switches.

Other tools which may help include predictive word processors, which guess what word is being typed and speech recognition software.

For further information on alternate input devices see the document "Switches and Interfaces" from the ACE Centre in Oxford (in links).

Sensory

Most users with sensory impairment need alternate output devices. Access to technology for people with visual impairment may be assisted by magnifying screens or text readers which give synthesised speech output from text based materials (see section on web based design below) and Braille printers. On the input front Braille keyboards are available.

Deaf users may be assisted by ensuring that auditory materials are also presented in a visual format, for example some tutoring software which rewards correct responses with music leaving deaf users wondering what is going on as the software pauses to play a tune. With advances in video technologies in computers more examples can be found of sign language being used in presentations.

Learning Difficulties

A wide range of software, of variable quality, is available for students with a range of learning difficulties. These range from programs facilitating abilities such as cause and effect or sequencing in young children to targeting specific aspects of numeracy or literacy in older students. The most common example in schools in the UK is SuccessMaker from RM. Although many schools use SuccessMaker with all students it is most often used with special needs students and is often located on a separate network in learning support sections.