Effective practice guide

Information and Communication Technology (ICT) and complex needs

About this guide

This guide focuses on Information and Communication Technology (ICT) for children with a visual impairment and complex needs. This guide is written by Dave Wood, Qualified Teacher of the Visually Impaired, and formerly an Independent Consultant in Special Educational Needs and ICT. In this guide Dave explores the use of ICT, drawing on his experience of training staff in Children's Centers in Leicester on ensuring that children with special needs have equal access to ICT.

It is part of our **Complex Needs** series. At the end you will find the full series listed, and details of where to find them.

Contents:
1. Why use ICT?
2. Switches
3. Switch output devices
4. Speech output devices
5. Software programs
6. Creating the ICT environment
7. Sourcing ICT equipment
8. Further guides

1. Why use ICT?

All children gradually develop the means to influence others, and this usually evolves through trial and error and the copying of others. Many children with complex needs and visual impairment have fewer opportunities for incidental learning and therefore benefit from help in organising their experiences, and creating opportunities for them to communicate their preferences and choices.
ICT in all its forms can help to:

- shape understanding of cause and effect
- present opportunities to exercise a choice
- take part in a group activity
- control the actions of others
- gain access to recreational activity.

2. Switches

Many children with complex needs using ICT, start to access it using a switch. Switches can take many different forms, from push-button types of varying sizes, shapes and textures, joystick-shaped switches, toggles, beams of light which can be broken by movement of the hand or arm, and many more. If a child has some level of independent movement, it is likely that there will be a switch that can be found which will use that movement to operate the switch.

Positioning a switch
Positioning a switch correctly can be equally as important as choosing the right type of switch for the child. It is important to consider the range of movements of the child, and use of any residual vision, and to find a switch position that enables the child to have the best control and most comfortable use of their own movement when they access the switch.
It is also worth considering if the hand or arm is necessarily the best body part for the child to use in accessing the switch. In some cases head movement, or use of the feet or legs is preferable.
Switches can be positioned:
- in front of the child on a wheelchair tray or table
- to the side of a child or higher than table level, using a mounting stand
- in the headrest of a wheelchair
- on the floor for a child lying down or using positioning wedges
- near or around the feet

3. Switch output devices

Switches can then be connected to a variety of output devices, giving the child control of an object, computer programme, toy or game. Most electronic products with an on/off capacity can be adapted for use with a switch.

Some multi-sensory activities, for example using a switch-adapted battery fan can be presented almost anywhere, and be made available for the person to use when they want.

The "**waker shaker**" with switch adaptation provides a strong vibration and can be fun putting it on feet, chin, up sleeves (for those with poor grip) or on the back of the neck. Response to this are usually very apparent, but be cautious of surprise responses being misinterpreted as dislike.

A battery toothbrush, (with brush removed) is a gentler source of vibration, and they often come with a twist mechanism to stop/start that provides another example of control.

There is also a large number of switch adapted toys available that enable the user to cause a lion or a pig or a butterfly to perform a small action by using the switch.

4. Speech output devices

Interactions with adults and other children can be enabled by speech output devices, which are often more fun if they tell a joke, or ask for a bit of peace and quiet, or enable a child to give one (repeating) word of a story.

There are many varieties, and cost varies from the Talking Tin lids (3 for £20), through to the BIGmack (approx £90 rrp).

Speech output devices can be used:

- as a prompt for speech
- as a memory aid for someone shopping (older children and adults)
- communicating a choice of activity or food etc.
- to involve the child during circle time or a story-telling activity
- saying a prayer in assembly
- reminding the child of work they have done out of class with a therapist.

5. Software programs

More sophisticated interaction becomes available with the wide variety of software now available which together with touch screens and very large plasma touch monitors give larger target areas for touch, and the chance to engage in a group activity. These can help to develop understanding of cause and effect, and choice-making possible for children working at the earliest levels. Some programmes only ask that the user engages visually and to help them the images are presented clearly against backgrounds with a good contrast. Some now provide the means to change colours to suit individuals and to graduate the speed of action. Switch access to the computer is usually by a "switch interface", a box that plugs into the back of the PC and has a jack socket for the switch.

6. Creating the ICT environment

Presenting the hardware
Using different height, or even height-adjustable tables can enable a desktop PC can be presented at different heights and angles. A simpler solution however, can be to use a laptop with children who spend time on the floor and in standing frames or side-lyers, and switch use is often enabled because children do not have to concentrate on keeping their balance.

The visual environment
Before the child is asked to engage, remember to check that there are no reflected lights or highly coloured wall displays that are seen by the child at the angle at which they are looking. Place yourself at their height to check that you can understand the set-up from their perspective. Some children also find the screen too bright, and a sheet of pink, green, blue, yellow Perspex draped over the monitor can reduce glare enough to allow a child with light sensitivity to see the images presented.
Remember that many children adopt a preferential looking position that may be as much as a right angle to the image presented. It is known that some effects of nystagmus can be reduced by

achieving a "null" point where vision is least affected, and many other children with visual field losses will want to be in a position where they can see best. Midline, upright, facing the screen may only be a good position for a few.

7. Sourcing ICT equipment

There are a number of different companies which offer ICT equipment. These can be found online using a standard search engine such as google. Companies include:
- Inclusive Technology
- Liberator Ltd (AAC)
- and more…

8. Further guides

The full **Complex Needs** series of guides includes:

- Special Schools and Colleges in the UK

Assessment
- Functional Hearing Assessment
- Functional Vision Assessment

Communication
- Becoming a sensitive communication partner
- Promoting communication with children with complex needs
- Alternative & Augmentative Communication (AAC)
- Using Touch with children with complex needs
- Objects of reference

In the classroom
- Developing Play
- Creative and Musical sessions for children with complex needs
- Sensory Stories
- Information Communication Technology (ICT) for children with complex needs

- Multi-sensory Learning Environments

The staff Team
- The role of the Intervenor
- The role of the QTVI and other professionals:

1) Best of Both: Visual impairment and Physiotherapy
2) Best of Both: Visual impairment and Occupational therapy
3) Best of Both: Visual impairment and Speech and language Therapy
4) Best of Both: Visual impairment and Specific medical needs and medication
5) Best of Both: Visual impairment and orthoptics (clinical and functional vision assessment)

Understanding complex needs
- Attachment, development and children with sensory needs
- Sensory Integration

In addition, you may also be interested in the following series of guides, all of which are relevant to children, young people and families:

- Supporting Early Years Education series
- Removing barriers to learning series
- Teaching National Curriculum Subjects series
- Complex needs series
- Further and Higher education series

We also produce a number of stand-alone guides, on a range of topics, which may be of interest, please contact us to find out what we have available.

All these guides can be found in electronic form at www.rnib.org.uk/guidanceonteaching For print, braille, large print or audio, please contact the RNIB Children, Young people and Families (CYPF)Team at cypf@rnib.org.uk or call on 0121 665 4235.

For further information about RNIB

Royal National Institute of Blind People (RNIB), and its associate charity Action for Blind People, provide a range of services to support children with visual impairment, their families and the professionals who work with them.
RNIB Helpline can refer you to specialists for further advice and guidance relating to your situation. RNIB Helpline can also help you by providing information and advice on a range of topics, such as eye health, the latest products, leisure opportunities, benefits advice and emotional support.

Call the Helpline team on 0303 123 9999 or email
helpline@rnib.org.uk

If you would like regular information to help your work with children who have sight problems, why not **subscribe to "Insight",** RNIB's magazine for all who live or work with children and young people with sight problems.

Information Disclaimer

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