

# Learning Difficulties and ICT



**British Educational  
Communications  
and Technology agency**

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## About this information sheet

This sheet aims to provide you with:

- an introduction to the growing emphasis on the place of information and communications technology (ICT) for pupils with learning difficulties (LD)
- details of some of the published sources of information and advice on ICT and LD
- a list of organisations, both voluntary and commercial, which provide information, advice, training, hardware or software relevant to students who have LD.

This sheet can be accessed on the Internet:

- in summary at: <http://www.becta.org.uk/technology/infosheets/html/learningdiffs.html>
- in full as a pdf file at: <http://www.becta.org.uk/technology/infosheets/pdf/learningdiffs.pdf>

## Introduction

The 1996 Education Act defines a student with a learning difficulty as one who has a significantly greater difficulty in learning than the majority of students of the same age. This definition covers a wide spectrum of need – ranging from learners with relatively mild or moderate difficulties (MLD) to individuals who have severe learning difficulties (SLD) or are profoundly and multiply handicapped (PMLD). Many of the more severely disabled will have visual and/or physical impairment as an additional difficulty. A variety of equipment can be useful, ranging from 'low-tech' aids such as tape recorders to 'hi-tech' solutions such as computers and peripheral equipment. There is no single solution: each case must be considered on an individual basis.

## What types of ICT can help?

There are a number of technologies that are of particular use when working with students with LD. Most notable of these are:

- adventure games
- information handling programs
- multimedia
- Logo
- overlay keyboards
- speech recognition systems
- spell checkers, glossaries and thesauri
- touch screens
- word processors, including predictive word processors and those with voice output.

Further details of what these technologies are and how they might help those with LD are given on the general *Special Needs and ICT* sheet.

## How can ICT help?

ICT can help where LD is the result of a specific cause or where there is a combination of causes. If a student falls into this latter category you may find it helpful to refer to one or more of Becta's other special needs information sheets cited at the end of this sheet. For individual cases where a child is gifted and talented (G&T) in maths and science, for example, but has LD in English and spelling, Becta's information sheet on G&T children may also be helpful.

ICT can provide a powerful resource to support and enhance curriculum experience, especially for students with mild LD, and this in turn encourages motivation and the development of skills.

There are often ways of using familiar equipment, as well as using additional or different resources, to create activities that enable the individual learner to respond more effectively to the demands of the curriculum. Devices such as hand-held spell checkers and calculators can support all learners who have difficulties with sequencing and memorising. Multimedia technology, which can present sounds, photographs and video, as well as text and graphics on the screen, gives new directions for working with all students who have LD. To be able to take a photograph and immediately display it on the computer screen, with a recorded message, gives opportunities for learning which are not so dependent on the written word.

There are more specific ways in which ICT can support students with different degrees of LD, and we look below at the particular equipment to help each level and the ways it can be used:

### ***Mild and moderate learning difficulties (MLD)***

The development of literacy can be aided by the use of supportive word processing: with spell checkers, word lists, and speech feedback. The use of overlay keyboards and on-screen grids, for whole-word, whole-phrase or even whole-sentence insertion, can also help.

For students with *moderate* LD, ICT can provide a means of reinforcing concepts and knowledge. Overlay keyboards or on-screen grids offer a means of presenting information clearly or giving additional support for writing. A word processor with a topic list or word bank can also help by providing instant access to specialist vocabulary. By selecting whole words, the student with moderate LD can build up his writing easily, concentrating on the content of the text rather than on the mechanics of the writing process. Speech feedback can offer additional support for accurate word processing, and help the pupil to become more independent in their learning.

Software designed to reinforce spelling, memory or numeracy work, where the exercises are chosen to target the teaching points that are the focus of current classroom work, can be valuable for mild and moderate problems. Language development can be encouraged using information-handling programs, with their emphasis on describing, classifying and analysing. Students with moderate LD can be enabled by the wide range of software available, to apply their learning across the curriculum in new situations or to practise newly found skills.

Adventure games, subject-specific programs, and problem-solving software or hardware (for example floor turtles, robots, etc.) will encourage logic and thinking skills, decision-making, organisational and planning skills for students with both levels of difficulty. These problem-solving activities, such as giving the computer instructions to move a robot or turtle across the floor, provide students with moderate LD with the opportunity to extend their thinking skills in a practical setting with immediate feedback. Another example might be using a weather station attached to a computer for data logging to record rainfall. This provides a base of first-hand evidence on which to draw conclusions about the weather this week, and to compare it with last week's results.

### ***Severe learning difficulties (SLD)***

ICT can give learners with SLD a means by which they can take control of their learning. For example, pressing the space bar on the computer keyboard in order to change the picture on the computer monitor provides an experience of cause and effect. A touch screen to match objects on screen or to make choices gives a student immediate feedback on their actions. Speech recognition systems can provide an easier means of inputting information for some students. Speech feedback provides information without using text. Using the computer also offers students a route to independence. A word processor with an overlay keyboard, or an on-screen grid, that presents symbols and words together on the screen, can encourage youngsters to record their activities. In this way, tasks can be reviewed and remembered, or self-evaluation checklists can be completed and printed out.

### ***Profound and multiple learning difficulties (PMLD)***

These students often have more than one severe disability, and they include those who are multiply disabled and visually impaired (MDVI). Students with PMLD may require specialised equipment if they are to gain physical access to the computer. Variable height trolleys may be necessary to enable a computer to be positioned at the optimum height and distance from the student. It is particularly important for the computer monitor to be within comfortable view. Alternatively, the computer can be placed out of reach and the monitor positioned separately on an appropriate surface, by using a long monitor lead.

Touch screens allow students to make a direct link between a hand or pointer and what is happening on the screen. Joysticks and trackballs are alternative methods of access, used by those who can maintain consistent pressure or who have an accurate grip.

For those who have poor fine motor control, the solution may lie in using switches. A wide variety of switch designs is available, success depending on finding one which the student can activate with the part of the body which can be controlled best. By pressing a switch attached to the computer, learners can control what is shown on the screen. For example, using switch-operated software they can turn a sound on and off, they can match pictures, or they can choose and print out words and symbols. Learners can be encouraged to vocalise, sending messages to the computer by a sound-activated switch. Using suitable software and blowing or speaking into the microphone, they can change the picture on the screen or create patterns in response to their voices.

### **Additional considerations for learners with LD**

For some learners with complex LD, it is not easy to determine the dominant channel for learning, nor is it always easy to establish priorities and progress in a learning plan. If an ICT solution has been suggested, it is important to reach agreement over the educational objectives for the student as well as evidence of a rationale behind the choice of equipment, updating in line with the individual's changing needs.

Everybody who works with an individual will need to understand the small steps that contribute to progression, and the purpose and detail of those steps. They will need to ensure that progression is an integral part both of the educational objectives and of the technology that supports them. Recording and monitoring the young person's response is essential if we are to recognise the progress being made.

### **Publications**

You should check the Bookshops link under 'Internet sources' (below) for a wider range of publications.

#### ***Becta publications***

*Dyslexia and ICT information sheet*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/dyslexia.html>

*Emotional & Behavioural Difficulties and ICT*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/behav.html>

*Gifted and Talented Children and ICT*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/gatchild.html>

*Hearing Impairment & ICT*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/hearing.html>

*Physical Disabilities & ICT*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/physical.html>

*Special Needs and ICT information sheet*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/senict.html>

Details generic special needs and ICT information, in particular different types of software and hardware which can help, and lists of other sources of information such as organisations, publications and software.

*Speech and Language Difficulties and ICT*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/speech.html>

*Visual Impairment and ICT*

Becta, 2000, Free

<http://www.becta.org.uk/technology/infosheets/html/speech.html>

**Other publications**

*Approaches to teaching and learning* by Ron Babbage, Richard Byers (et al)

David Fulton Publishers, 1999 ISBN 1853465755

A practical guide to the teaching and learning methods needed to enable inclusion for pupils with LD.

*IEPs: Learning difficulties* by Christopher Robertson and John Cornwall

David Fulton Publishers, March 2000 ISBN 1853465240

This book covers all the aspects of providing an effective individualised education programme (IEP) for all levels of learning difficulty, from moderate (MLD) to profound and multiple difficulties (PMLD).

*Pupils with learning difficulties in mainstream schools* by Christina Tilstone, Penny Lacey (et al)

David Fulton Publishers, 1999 ISBN 1853465860

This book is aimed at the newly qualified teacher, explaining learning difficulties and the current position concerning their education in the mainstream classroom. Practical help is given to assist them in providing, for example, access to the curriculum, in the inclusive situation.

**Journals**

Many of the organisations listed under 'Organisations' (below) also publish journals. One example is:

SLD Experience

BILD Publications, Frankfurt Lodge, Clevedon Hall, Victoria Road, CLEVEDON, Avon BS21 7SJ

Tel: 01275 876519.

Produced three times a year, this is available on subscription and is aimed at those involved in the education of students with SLD. It occasionally has articles on the use of ICT.

**Software**

You should check on Becta's Educational Software database for fuller details on any titles in this sheet and to obtain a wider range of software products: <http://vtc.ngfl.gov.uk/resource/esr/>

**Organisations****General**

Please note that, for brevity and ease of maintaining these sheets, the details of these organisations, central to the whole field of Special Needs, are given only in brief on this sheet, with the full details held on the main special needs information sheet entitled 'Special Needs and ICT'.

ACE (Aiding Communication in Education) Centre Advisory Trust

ACE (Aiding Communication in Education) Centre North

The Basic Skills Agency (formerly ALBSU)

CENMAC (Centre for Micro-Assisted Communication)

Inclusive Technology Ltd

National Association for Special Educational Needs (NASEN)

SEMERC (Oldham)

Symbol Users Advisory Group

**Specific to LD**

British Institute of Learning Disabilities (BILD)  
 Wolverhampton Road, KIDDERMINSTER, Worcestershire DY10 3PP  
 Tel: 01562 850251 Fax: 01562 851970 E-mail: bild@bild.demon.co.uk  
<http://www.bild.org.uk/>

As one of the leading organisations for people and professionals working in the field of LD, BILD co-ordinates a large number of conferences, courses and workshops. It also publishes a range of periodicals and books. BILD has an Information and Resource Centre which answers enquiries and provides a monthly bibliography as part of its Current Awareness Service.

The Foundation for People with Learning Disabilities  
 20/21 Cornwall Terrace, LONDON NW1 4QL  
 Tel. 020 7535 7400 Email: hmorgan@mhf.org.uk or dthompson@mhf.org.uk  
<http://www.mentalhealth.org.uk/fpld.htm>

This organisation is part of the Mental Health Foundation, and funds research and service development projects, as well as holding conferences, organising awareness programmes and providing information.

**Internet sources**

There are many Internet sources which may be of help, and the URLs are cited alongside the organisation, publication or other source to which the site pertains. This section is limited to sources believed to be available only via the Internet, or foreign sites where access will be greatly eased by making use of the Internet.

**General**

For brevity and ease of maintaining these sheets, the details of Internet sources central to the whole field of Special Needs are given on the 'Special Needs and ICT' sheet rather than repeating them on each specific sheet. Some of those general sources may also be able to provide you with assistance.

**Bookshops**

<http://www.takethat.co.uk/links.htm>

Index page giving access to a wide range of bookshops including, for example, Amazon, Internet Bookshop (WH Smith) and Book PI@ce.

**LD Sites**

<http://www.ldonline.org/>

A US Web site which is an "interactive guide to learning disabilities for parents, teachers, and children". It is full of helpful and professional information, with an interactive 'kidzone', and bulletin boards including an 'ask the expert' board.

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 URL: <http://www.becta.org.uk/> Ch4 Teletext Page 475