

On: Keyboard skills in schools

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Definitions

The following definitions are used in this information sheet:

Keyboard skills

The set of skills required to operate a computer keyboard fluently.

Keyboard awareness

An understanding of the layout and general functionality of computer keyboards

Touch typing

The ability to use a keyboard to input text and commands accurately at high speeds, using designated fingering, learned by using a structured behavioural approach with concentrated repetition.

When and why do schools teach keyboard skills?

Schools teach keyboard skills or keyboard awareness when they feel that direct input would benefit their pupils. A variety of provision has evolved. Some schools use electronic typing tutors, while others encourage pupils to work on keyboard skills in break times or at home. Pupils do not need to be perfect touch typists, but they do need to become familiar with a keyboard so that their work with computers across the curriculum is not hampered. It may be especially important that lack of skill with a keyboard does not interfere with creative thinking.

To address this need, schools often adopt a systematic approach to teaching keyboard awareness, for example providing pupils with brief practice using a suitable software package and intermittent 'updates' to develop speed and fluency over time.

The Department of Education and Skills (DfES) Scheme of Work for IT suggests that children start to develop familiarity with the computer keyboard in Year 1.

This Information Sheet considers some of the issues for schools and identifies what has been found to be effective practice in teaching and learning.

What issues should schools consider?**Typing versus handwriting**

Handwriting is often the child's first means of recording ideas or creating text, and handwriting skills are taught and fostered in schools from an early age. It is of continuing importance that schools provide children with the means to communicate legibly using the simple and commonly available tools of pencil and paper. Information and Communication Technology (ICT) is now also in use to create, manage and edit text, but it may be slower for younger children to use a keyboard than to write by hand. Learning to locate keys and operate the keyboard fluently takes time which is hard to find within a school day, especially when there is competition for use of computers.

Keyboard skills tend to be acquired or polished as the computer is used in curriculum contexts, with perhaps some specific skills input before sustained writing tasks. Touch typing is seen as an advanced vocational skill which is not really appropriate for children, as long as they have a level of keyboard familiarity which will not slow down thinking and writing.

Keyboards are not generally designed for children's hands. Some keyboards have lower case letters to support younger learners. But a sense of purpose can motivate children to learn keyboard skills, in the same way that they can quickly grasp how to send text messages from mobile phones with much less accessible key pads.

Familiarity helps to ensure confidence and children who have unlimited access to keyboards can learn the layout fairly rapidly. Many children do not have computer access at home, and school provision is necessary to help overcome any potential disadvantage.

In learning situations, there is a profound difference between copy typing and typing while creating text. An inability to use a keyboard fluently is a major barrier to creative writing for many children, who concentrate on searching for letters rather than setting down their thoughts and ideas. Pupils may wish to hand write stories, accounts and reports until a functional level of keyboard fluency is achieved. However, hand written documents cannot be easily edited, re-organised and spell checked, which are all functions emerging writers find invaluable.

The Becta / Open University Report into the use of portable computers at Key Stage 2 points out that 'the question of the relative difficulty of using a keyboard and handwriting is complex' and makes the following points:

- Children can use word processors to produce legible and visually pleasing work. Young children may find typing easier than forming letters in handwriting and as a result can write more words.
- In contrast teachers may consider that, for children, generating text with word processors is no faster than generating text by hand, although redrafting is much easier.
- As long ago as the 1980s, evidence suggested that the lack of keyboarding skills interfered with the writing process.

- Different stages of developing handwriting are marked by different degrees of speed and ease. The same applies to keyboard skills. It is therefore probable that ease of use of the two approaches will vary from pupil to pupil, depending upon their relative skill with each at any given time. However, for younger and less able pupils, both approaches will have their problems.

(Also see Snyder, 1993).

Repetitive Strain Injury

Repetitive Strain Injury (RSI) presents a potential risk for anyone typing with only one or two fingers, usually their index fingers. RSI is a painful condition affecting the fingers, wrists and elbows and can cause irreversible problems. In extreme cases people with RSI must use voice recognition software, which although manageable and useful is not universally available and cannot be used casually and immediately as a keyboard can. For children with years of typing ahead of them, using the keyboard with index fingers only is highly risky, especially when there may be added strain from playing games on home computers. RSI is easier to prevent than cure.

Age

There is no consensus on the age at which it is 'best' to begin to learn keyboard skills or typing skills. Opinions vary from 'the sooner the better', with the view that by age ten it may be too late to overcome habits acquired earlier - to the idea that at 16+ when all work must be submitted in typed form, there is both the motivation and purpose to learn skills rapidly. Some schools have found that if basic keyboard skills are taught at an early stage then confidence and ease of use of the computer has a positive effect on the child's work throughout the curriculum. At any age, skills may be best taught within purposeful contexts.

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Voice Recognition

Voice Recognition (VR) technology is available for use in schools now, and may present an alternative method of input which does not require keyboard skills. This technology remains under-utilised. Some reasons for this are:

- considerable time must be invested in learning how to operate the software
- it is difficult to use VR for 'thinking aloud' type tasks
- VR software may be considered expensive
- even those who are adept at VR use may require keyboard skills, because VR is not universally available.

What practical techniques can be used for teaching keyboard skills?

There are various approaches to familiarising children with the keyboard and encouraging them to use all fingers on the keyboard.

Overlay keyboards

On traditional computer keyboards, the standard "QWERTY" format in upper case letters may appear confusing to younger children who are learning the alphabet in its traditional order. An overlay keyboard can be plugged into a computer and used in place of an ordinary computer keyboard. It can help to improve access and control and is particularly useful for young or early learners and people with special educational needs. Some models of overlay keyboards are designed in lower case format or in alphabetical order for ease of use. They can also be programmed to carry out a variety of functions such as producing letters, words, or entire phrases, generating sound or spoken word or moving the mouse pointer. Once a child has become familiar with using keyboards through the overlay, it can then be replaced by a conventional keyboard.

Coloured Gloves

For younger learners, coloured gloves can be used with keys marked to match: for example, right hand keys (hjkl;) and right hand glove yellow, left hand keys (asdfg) and left hand glove blue.

Marked vowel keys

Vowels can be marked with colours to help location. Some software titles may have other frequently used keys, which could be marked to help both software use and keyboard awareness.

Games

Pupils can be encouraged to develop fluency by simple word games, for example, one pupil suggests a three letter word which can be written with the left hand, and all pupils type it. This can be repeated with right hand and two handed words, numbers or simple sums, proper nouns which involve the use of capitals, and short sentences which involve use of symbols (e.g. I saw a * last night: I have £1.50: We like bread & butter, etc.).

Commercial software can be highly motivating and can make what might otherwise be a rather tedious task amusing and interesting.

Tutor Boards

Tutor boards are lifesize keyboards made of sturdy card with a write-on wipe-off surface. The 'keys' are colour coded (red for the ones pressed with the right hand and blue for the ones pressed with the left hand) to clarify which hand to use for which letters. The alphabet is also printed on the board, similarly colour codes, and two coloured pens are included to write in the 'key words' which can then be 'practice copy typed' using two hands. An advantage of tutor boards is that they are generally inexpensive and can be used in the classroom rather than taking time to develop familiarity in the computer suite. Aspects of the keyboard can be identified, such as function keys, shift keys for upper and lower case, the space bar and the delete key. Children can practice typing common words such as their name and password, or suitable anagrams. Tutor boards can help teachers to identify fluent and less adept children and provide the appropriate support.

Keyboard Tutors

Commercial software can be highly motivating and can make what might otherwise be a rather tedious task amusing and interesting. Packages are available which suit a range of aptitudes and interests. Skills are taught by providing much positive reinforcement, often with the help of a cartoon character that might appeal to younger learners. Many provide drill and practice opportunities at increasing skill levels, games and puzzles, ways to assess typing speed, and certificates of competence. Some trial or simple versions of keyboard tutors can be downloaded free from the Internet.

For example, KAZ (short for Keyboarding A-Z) aims to reduce the time to learn to touch-type the A to Z keys from around 15 hours to just 90 minutes, and make learning enjoyable. KAZ has been selected for use with the Open University's 65,000 students and is also widely used in schools with pupils aged 7 years and above.

Other sources of information

Becta

Becta Educational Software Database
<http://besd.becta.org.uk>

This online database contains educational software packages available in the UK targeted at the pre-school to further education market. The database includes software titles on keyboard skills.

Becta's Speech Recognition web site
<http://www.becta.org.uk/technology/speechrecog/>

Contains further information, ideas and case studies on how speech recognition systems can be used to enhance learning.

Speech Recognition Systems information sheet
<http://www.becta.org.uk/technology/infosheets/pdf/speechrec.pdf>

Becta 2001. Free

Internet

Computer related Repetitive Strain Injury
<http://www.engr.unl.edu/ee/eeshop/rsi.html>

DfES Standards Scheme of Work
<http://www.standards.dfes.gov.uk/schemes/it/itx1b#>

IT Unit 1B (Year 1).

General advice on RSI, symptoms, other links
<http://www.mousewatch.com/default.asp>

Guidelines on reducing the risks of computer-related repetitive strain injury in children
<http://www.rsihelp.com/children.shtml>

Guidelines on teaching Mouse and Keyboard Skills
http://www.educate.org.uk/teacher_zone/teaching/inschool/ict_mouse_keyboard_skills.htm

Inclusive Technology:
<http://www.inclusive-technology.com/infosite/rsi.shtml>

Information and links with reference to Special Educational Needs and alternative inputs.

RSI Information, Leeds University
<http://www.leeds.ac.uk/law/it/RSI/rsi.htm>

Voice Recognition
<http://www.out-loud.com/>

Software

ABClassroom and Kelsea's Classroom
<http://user.pa.net/~abc/>

Keyboard software for children.

Kaz Typing Tutor
<http://www.kaz.co.uk>

Keyboard crazy
<http://www.keyboardcrazy.co.uk/>

A game for Key Stage 1 and Key Stage 2 pupils teaching Keyboard Enhancement Skills.

Mouse and Keyboard Skills KS 1
<http://www.neptunect.co.uk/prodinfo/mak/introduction.htm>

Touch-Type, Read and Spell
<http://www.ttrs.co.uk>

Tutorboards
<http://www.tutorboards.com>

A low-cost product suitable for both mainstream and special needs schools at primary level up to KS3, Tutorboards trains pupils to type keywords using two hands from day one.

Other sources of information (continued)

Articles and Literature

Keyboarding Skills: When Should They Be Taught?
http://www.educationworld.com/a_curr/curr076.shtml
Education World, 1998, USA.

The KS1 Literacy Evaluation Project Using Low Cost Computers, by Open University, May 2000.

Not all fingers and thumbs
http://news.bbc.co.uk/hi/english/education/features/newsid_468000/468167.stm
BBC News, 5 November 1999.

Primary Keyboarding Skills
http://www.educationworld.com/a_tsl/archives/99-1/lesson0008.shtml

An American lesson plan for introducing children to keyboard skills.

Writing with word processors: a research overview, by Snyder I in Educational Research, 35(1), pp.49-68, 1993.

This sheet can be accessed in full text on the Internet in a choice of formats:

standard HTML: <http://www.becta.org.uk/technology/infosheets/html/keyboard.html>

PDF: <http://www.becta.org.uk/technology/infosheets/pdf/keyboard.pdf>

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