

## **8 ICT in schools**

### **ICT in the curriculum**

Bearing in mind the increasingly important role of ICT in education and the massive investment currently being made by museums in such things as digitisation programmes and website development, a short report on the current regional “state of play” was commissioned as part of the EPDP research. The report provides an overview of the status of ICT in schools. Teachers views on their use of ICT in teaching were also collected through the EPDP focus groups.

There have been numerous schemes and initiatives to develop the use of ICT in schools since the early 1980s. In 1988 Information Technology (IT) was first introduced into the school curriculum as part of Design & Technology. It later became a subject in its own right, incorporating the ‘communications’ element as Information & Communications Technology (ICT).

In England and Wales, ICT is now a statutory non-core foundation subject, taught at all four Key Stages (pupils aged 5 - 16) as a discrete subject. There are also National Curriculum statutory requirements relating to the use of ICT to support teaching and learning across the curriculum.

### **Funding for ICT**

In 1997 the incoming Labour administration set out challenging targets for the use of ICT in teaching and learning through a consultation paper. The proposed National Grid for Learning (NGfL) would be:

*A mosaic of inter-connecting networks and education services based on the Internet which will support teaching, learning, training and administration in schools, colleges, universities, libraries, the workplace and homes.<sup>1</sup>*

The consultation paper recognised the need to develop teacher skills and confidence in the use of ICT, as well as investment in hardware and software. The valuable role of museums was noted. Amongst others, Tullie House Museum and Art Gallery in Carlisle was cited as pioneering a multimedia package (tape, video and CD-ROM) for schoolchildren.<sup>2</sup> The Government has committed unprecedented levels of financial support for ICT in schools since 1997, including £1.367 billion through grants administered by LEAs known as the Standards Fund.<sup>3</sup> With matched funding from LEAs, this may be estimated as approximately £1.8 billion over the last seven years.

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<sup>1</sup> DfEE, *Connecting the Learning Society: National Grid for Learning consultation* (1997)

<sup>2</sup> DfEE, *Connecting the Learning Society: National Grid for Learning consultation* (1997)

<sup>3</sup> DfES *Transforming the way we learn: a vision for the future of ICT in schools* (2002) p22

Since 1998, over 100,000 teachers have received a computer through DfES-funded initiatives, such as the Portables for Teachers and Computers for Teachers schemes.

Since 1999 the £250 million New Opportunities Fund (NOF) initiative has aimed to provide training in the use of ICT in teaching and learning for all serving teachers and school librarians. OFSTED have highlighted some weaknesses of the scheme which include: its reliance on the use of distance learning materials, poor levels of support, irrelevant and uninspiring resources, lack of time and lack of senior management support in schools.<sup>4</sup> ICT has been part of all initial teacher training courses since 1999.

The most recent DfES *ICT in Schools Survey*<sup>5</sup> shows that computers are used in schools for two distinct and sometimes separately managed purposes: teaching and learning, and management and administration. Over 99% of all schools are connected to the Internet. The following figures relate to computers used mainly for teaching and learning:

#### *Primary schools*

- The computer:pupil ratio is now 1:7.9
- Average numbers of computers per school have increased from 13.3 in 1998 to 28.6 in 2003
- 87% of teachers are now reported as feeling confident using ICT (compared to 65% in 1998)

#### *Secondary schools*

The computer:pupil ratio is now 1:5.4

Average numbers of computers per school has increased from 100.9 in 1998 to 192.7 in 2003

82% of teachers are now reported as feeling confident using ICT (compared to 61% in 1998)

#### *Special schools*

The computer:pupil ratio is now 1:3.0

Average numbers of computers per school have increased from 18.5 in 1998 to 31.3 in 2003

86% of teachers are now reported as feeling confident using ICT (compared to 63% in 1998)

### **How do schools use ICT? The national picture**

The National Grid for Learning (1998-2002) has been replaced by the ICT in Schools Programme at the DfES. The NGfL achieved a great deal, mainly in ensuring that schools now have a sound technology base in terms of hardware and connectivity as shown in the figures above. It is important to remember, however, that many children

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<sup>4</sup> OFSTED, *ICT in Schools: Effects of government initiatives* (2002)

<sup>5</sup> DfES, *ICT in Schools Survey* (July 2003)

and their teachers have access to more superior ICT resources at home than in school.

The majority of secondary schools and many primary schools now have well-equipped ICT suites providing 20 – 25 networked workstations, intranets, Internet connections and 'clusters' or stand-alone machines around the school. However, despite increased access to technology both at school and home, the majority of teachers use ICT resources in less than half of lessons and generally prefer to rely on paper-based sources for lesson planning, rather than making use of the Internet. Conversely, the most common use of ICT across all subjects is using the Internet for research.<sup>6</sup>

Many teachers recognise the learning opportunities offered by the Internet, but do not always provide sufficient support for children in how to undertake web-based research or make effective use of search engines. Where teachers introduce structured models of research, using the Internet and CD-ROMs with other software applications, children develop transferable skills. The use of email and video-conferencing to support teaching and learning is not well-developed.<sup>7</sup> Developing research and investigation skills is an area where museums could provide excellent packages of material, published online or on CD-ROM, drawing on their collections to support specific curriculum areas as well as creative and cultural education.

The DfES is now planning its next stage of ICT development, the aims of which will be to ensure that for all schools:

ICT makes a significant contribution to teaching and learning across all subjects and ages, inside and outside the curriculum;  
ICT is used to improve access to learning for pupils with a diverse range of individual needs, including those with SEN and disabilities;  
ICT is used as a tool for whole-school improvement;  
ICT is used as a means of enabling learning to take place more easily beyond the bounds of the formal school organisation and outside the school day; and  
ICT capabilities are developed as key skills essential for participation in today's society and economy.'<sup>8</sup>

### **How do schools use ICT? Results of the EPDP teachers research**

As part of the research for the EPDP, teachers were asked about their use of ICT. The questionnaire yielded detailed information about teachers' access to ICT

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<sup>6</sup> DfES, *Evaluation of Curriculum Online* (2003)

<sup>7</sup> DfES, *Learning at home and school: Case studies* (2002)

<sup>8</sup> DfES, *Fulfilling the Potential: Transforming teaching and learning through ICT in schools* (2003)

hardware and resources, both at home and at school; it was also designed to elicit information about how regularly certain kinds of technology are used in the classroom. Some of the main findings from the questionnaire are as follows:

- 65.6% of primary teachers have access to an electronic whiteboard; 33.3% use it regularly.  
43.3% of secondary teachers have access to an electronic whiteboard; 27.3% use it regularly.
- 43.8% of primary teachers have access to personal email at school.  
64.5% of secondary school teachers have access to personal email at school.  
There is a close correlation between availability and regular use.
- A large majority of primary and secondary teachers have access to curriculum-related software, but while 89.7% of primary teachers use it regularly, only 23.1% of secondary teachers make regular use of it.

The focus group discussions gave a mixed picture of attitudes to and use of ICT. Many teachers complained about lack of training and the unreliability of hardware. They do not appear to use the internet or email as a source of information about what's on, but they do use websites as a research tool. Several commented favourably on the BBC, Tate and British Museum websites. None of them had heard of initiatives like the 24 Hour Museum website.

In general, they favoured websites over CD ROMs, since websites can be updated and do not require a network in order to be accessible to several users at once. However, many teachers highlighted the issues of reliability and authenticity raised by web-based resources. In this respect, CD ROM is regarded as more trustworthy. Teachers with SEN (Special Educational Needs) responsibilities noted the presentational benefits of ICT and the usefulness of self-correcting programmes for children with learning difficulties.

Interactivity emerged as an important theme. For example, one group of teachers wanted simple collections of video, images and text, objects to rotate, 'drag and drop' activities and the like. They liked the idea of being able to generate questions as well. Altogether, computer-based resources were seen as a potentially useful way of preparing for a museum visit or consolidating the experience after the event.

A few teachers, however, were sceptical about the intellectual benefits of using computers at all and wanted "the real thing" as opposed to virtual experiences. They saw museums as offering a necessary antidote to the highly mediated experiences that television and computers provide.

*I doubt its impact on learning.*

*This generation that we're teaching has grown up with computers. It's much more of a novelty for them to see a real painting or to hold some Roman artefacts. Then they think, hey, wow!*