



**Office for Standards
in Education**

2004 Report: ICT in schools – the impact of government initiatives

Special schools

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Introduction

This report is based on subject-specific evidence from visits to special schools, made as part of the inspection of the impact of government ICT initiatives between April 2002 and December 2003, and supplemented by evidence from other school visits where appropriate. This contributed to the main report, *ICT in schools*, which is available from the Ofsted publications centre (07002 637833) or via the Ofsted website (www.ofsted.gov.uk).

Main findings

- Pupils' achievements and the quality of teaching in ICT are improving in line with other schools. However, pupils' achievements in ICT in all key stages remain slightly lower than in most other schools.
- There is a widening gap between schools in the extent to which ICT is used and there is still a small minority of schools where ICT is little used and where staff are reluctant to develop its use.
- Teachers are making increasing use of ICT, but this has yet to make a significant impact on pupils' achievements. Few teachers have reached the stage where they are able to think as imaginatively about ICT applications as they do about the deployment of traditional resources.
- Where practice with ICT is good, pupils with the most severe learning and communication difficulties are reaching standards which have far surpassed those of similar pupils prior to the introduction of ICT. The quality of their learning and the high achievements of some of these pupils are entirely dependent upon their access to ICT.
- Pupils' access to up-to-date and reliable equipment and software continues to improve.
- ICT initiatives are most successful in schools which already have at least an element of good practice and where ICT is well led.
- Effective leadership in ICT and, particularly, the personal involvement of the headteacher are crucial to schools' success in the take-up of new technology.

The impact of the initiatives

Teaching and learning

ICT remains one of the less well taught subjects for all age groups in special schools. This is particularly so at Key Stage 1. The quality of teachers' planning is lower than for most other subjects, notably at Key Stages 1 and 2. The programmes of study for ICT

are less likely to be delivered in full for primary aged pupils than in any other subject, although this contrast is less distinct for secondary aged pupils.

The recent initiatives have increased the amount of professional ICT use by teachers, many of whom are now more confident with ICT. However, few teachers have yet reached the stage where they can think innovatively about their ICT use in class, or be sure that the activities they are selecting will stretch the pupils' abilities or provide new insights within the subject being taught.

In all schools, New Opportunities Fund (NOF) training has exposed teachers to email use, and usually also to the use of the internet. Most schools now have teachers who make some use of the internet, and in some schools extensive internet use has greatly enhanced the quality and immediacy of resources in lessons. Pictorial material is generally the most successful aspect of such teaching and learning resources. However, given the difficulties associated with many sites, such as dense blocks of text and the general lack of awareness of the most appropriate sites, there is a widespread unmet need for guidance on subject- and topic-related sites for pupils with special needs.

It is also very rare for teachers to use the internet to find professional material related to specific educational needs or medical conditions, despite the wealth of information of this kind which is available. So too, the potential for the internet to support the exchange of teaching materials (particularly ICT-based material) is almost completely unexploited as yet. As a result, most of the schools with the best practice hold valuable stocks of thoughtfully developed ICT-based teaching materials which are not shared with other schools facing the same challenges in developing well-matched materials.

Many special schools now have one or more interactive whiteboards. Only a small proportion of these are being used to full effect as often few, if any, staff in the school have had sufficient training to gain confidence in their use or to take any imaginative steps in using the new technology to meet the special needs of their pupils. When they are used well, lessons across the whole range of subjects are transformed, particularly where abstract concepts are illustrated with animated representations on the board. Whiteboards are most often used well in literacy lessons where pupils are able, for example, to label items on the screen and to manipulate text as their peers watch:

In a school for pupils with a wide range of learning disabilities, Year 5 and Year 6 pupils in a small class took turns to match speech bubbles to the characters on the screen by dragging the bubbles about the screen. The scene represented an episode from a commercial reading scheme in use with the class. All the pupils could see the possibilities for a variety of matches and this provoked a good level and quality of discussion. The teacher was pleased that so much of the discussion was between pupils rather than with adults.

The use of whiteboards to demonstrate activities such as accessing the internet in ICT lessons supports pupils' learning well.

When pupils use ICT, the quality of their learning is usually enhanced. Most often, pupils work with a greater degree of independence. This is the case in a wide variety of settings. A young pupil may focus for a long period of time on a matching activity, for example, or an older pupil who is a reluctant writer may be willing and confident to work for a long period at the word processor. The use of computer-printed symbols enables

many children who are at a very early stage in developing literacy to take an independent part in literacy lessons and in reading instructions and recording outcomes in other lessons. For pupils with physical disabilities which preclude handwriting and handling printed material, the effective use of ICT transforms their learning experience. In schools with the most advanced practice, such applications have moved on from supporting independent writing to enabling pupils to work independently at such activities as searching the internet and editing still images and video.

Pupils have little access to some other practical activities with ICT such as the use of control technology and data-logging. This is unfortunate. Pupils with emotional, behavioural and social difficulties (EBS) often respond particularly well to such practical activities, while those with physical disabilities can experience a unique degree of personal control of objects in their environment through the use of control technology. Data-logging can enable pupils with learning difficulties to gain an insight into a variety of situations, such as changing light and temperature conditions, which they otherwise have difficulty in grasping.

Although ICT is losing its novelty, pupils still find its use engaging and motivating. Especially when images are projected on to a large screen, pupils attend well and are prepared to engage in discussion of what they see. The use of digital images involving classmates and familiar locations is particularly successful in drawing pupils into discussion. Although facilities of this kind are limited in schools for pupils with EBS, these pupils often respond very well to opportunities for discussion and exploration of ICT images.

Pupils make very little use of email. Where there are email links, these are generally on a whole-class basis with other schools, as a result of personal links on the part of teachers. Few schools have links with schools abroad, so that the potential for exchange of information on topics as varied as culture and climate is not realised.

Where pupils have open access on their computers to a wide range of software and facilities, teachers are facing new challenges in managing pupils' use of ICT. With the youngest pupils, for example, this may involve pupils in finding their way back to desktop or menu pages and selecting activities other than those planned for the lesson. Older pupils can have equal difficulty in staying on task when they are aware of a whole range of other options for activity on their computers.

Fewer than half of schools are able to provide a clear account of pupils' current attainments in ICT, and fewer still can present a profile of pupils' progress over time. Where records are maintained over a period of time, they tend to adopt different formats from year to year so that comparisons are difficult, or they focus on pupils' experiences with ICT rather than their acquisition of key skills and knowledge.

The use of ICT in the assessment and recording of pupils' progress across all subjects is developing steadily, but it remains the exception rather than the rule for the use of ICT to have replaced handwritten records across all subjects and age groups. Where senior managers make use of spreadsheets or other commercial software systems to analyse pupil performance data, the findings generally reveal trends within the school which were not previously suspected, and provide valuable data for the further development of the school and improvements in standards. The widespread adoption of commercial

assessment systems with their associated software to collate pupil performance data, especially for the lowest-attaining pupils, is enabling schools to exchange information and to compare their performance with similar schools.

Standards and achievement

While NOF training has increased teachers' and pupils' use of ICT, it has not improved the quality of teaching sufficiently to have had a recognisable impact on standards of ICT capability in special schools. While pupils' achievements across the key stages in ICT have improved in the last year in line with other subjects, they remain slightly lower than in most other subjects.

Where ICT is used well, the standards pupils can reach in other subjects are clearly enhanced. However, the full potential of ICT has yet to be realised in most schools. The use of generic and subject-specific software is limited and often fails to challenge pupils and extend their achievements. Machines are too often to be found switched off in lessons where they could be contributing strongly to the achievement of individuals, especially reluctant writers.

There is a particularly strong contrast in schools for pupils with EBSD between pupils' levels of skill as seen in ICT lessons and the expectations of teachers as to their capabilities with ICT in other subjects. It is not unusual for older pupils to be undertaking such advanced activities as website design in ICT lessons and yet to be making little use of ICT across the curriculum.

It is exceptional for pupils to make regular use of the internet. Most use is made in ICT lessons. The greatest use of the internet by pupils is made in schools for those with EBSD, but even here, the most frequent use is made within specific ICT lessons and in lessons in other subjects where the teacher happens to have enthusiasm for ICT. Where pupils in all kinds of schools have regular access to the internet, they often develop surprisingly high levels of skill and insight into its use.

The regular and appropriate use of ICT can greatly raise the expectations of teachers and parents as to the potential of very young pupils and those with severe disabilities:

In a nursery class, a three-year-old girl with communication and learning difficulties was part of a group working with the teaching assistant, being supported in using a digital camera to take photos around the room for a later group discussion session. In a play period after this session, she chose a large toy camera to play with. She took great care arranging a large doll in one of the specialised seats, fastening the safety straps. She then moved around the seated doll, studying it through the camera viewfinder and pretending to take pictures. This was far more complex play behaviour than might have been expected.

Given suitable access systems, older pupils with physical disabilities can far exceed their expected levels of achievement:

A Year 7 pupil with little control of her limbs used a chin-switch to control a laptop. She was editing a sequence of video clips which she had shot earlier in the term. The pupil was sorting out the best order for the clips and selecting sound effects from a

collection within the editing program to replace the random noises from the classroom which formed the original soundtrack. While the pupil was able to control the computer quite readily via an access program, the video camera had not yet been adapted to her control. A recent leaver at the same school had gained an A at GCSE for work in the same field, filming with a video camera clamped to his electric wheelchair or mounted on a head-strap.*

The potential for the use of pupils' own digital images to accompany their writing is not often realised. Where pupils have learned to integrate their own pictures and those taken from sources such as the internet into their writing, some of the most reluctant writers have surprised their teachers by their willingness. When pupils learn to use presentational software, this often extends their willingness to write and to share their work with other members of the class. This has been particularly successful in the small number of schools for pupils with EBSD where it is used.

Good use was made of digitised film in music lessons in a school for pupils with moderate learning difficulties:

A computer and a video projector were used in a music lesson to play a clip from a silent film. At the beginning of the lesson, the pupils previewed the film clip and discussed the sound effects they had developed in earlier lessons, and the timing of the effects relative to the film. A small group of pupils took responsibility for handing out percussion instruments around the class. When the film was played again, pupils accompanied the action very competently with their chosen instruments. They paid close attention to the events of the film so as to time their contributions perfectly.

In all kinds of school, older pupils find nationally accredited courses strongly motivating. This is particularly the case in schools for pupils with EBSD, where accredited courses help to provide structure to the planning for pupils' work and to ensure progression across the age range.

Implementation in schools

Leadership and management

The leadership of ICT has improved, so that it is no longer the least well-led subject. A major factor in this improvement has been the increasing personal use of ICT by headteachers and other senior staff, so that they feel more confident in overseeing and directing the work of the ICT co-ordinator. This is in contrast to the earlier situation where headteachers often left the management of ICT entirely to the co-ordinator on the grounds that 'they knew what they were doing'.

The close involvement of headteachers often brings a broader view of the place of ICT development within the curriculum. It can also bring the determination to move any reluctant teachers towards more effective use of the computers in their classrooms, not least in order to see that expensive equipment is deployed well. The positive attitude of the headteacher towards NOF training, and their active participation in the training, were often decisive factors in schools where NOF was successful.

It is rare for even the best co-ordinators to see the promotion or discussion of curricular issues as a key part of their role, which is generally perceived to be more one of facilitator and provider of information. While most co-ordinators would claim to know how well each of their colleagues is using ICT, less than a third of co-ordinators undertake any formal monitoring of teachers' use of ICT.

In schools where neither the headteacher nor the co-ordinator takes a strong lead with ICT, the quality of practice can be extremely variable. In such a school one department had won a national award for work in ICT while some teachers in other departments made little or poor use of computers. The quality of practice in schools and the use of particular aspects of ICT are vulnerable to changes in staffing. Several schools had developed interesting practice in earlier years, for example use of videoconferencing or imaginative use of a school website to communicate with parents, but these initiatives had faded with the departure of a key member of staff. A number of schools were in effect 'coasting' as they had failed to move further forward from the early establishment of good practice.

Almost all schools have development plans for ICT. However, these generally relate mainly to the acquisition and replacement of equipment, and few refer in any specific detail to developing either the ICT curriculum or the use of ICT in other subjects. It is very rare for development plans to express outcomes in terms of raised achievement. Overall, development planning for ICT is not contributing strongly to raising standards.

Teachers' competence in ICT is rarely a feature of performance management. Many headteachers and governing bodies have yet to regard ICT as a key teaching skill in this respect.

In residential schools, care staff generally make little use of ICT for planning and recording purposes. In a small number, residential teams have access to computers linked to the main school network. These provide new opportunities for communication and co-operation between care and classroom staff, and support all staff in their aim to provide a '24-hour curriculum' in which pupils' targets are shared between residents and school, and where activities in each setting complement each other.

Support from Local Education Authorities (LEAs) for the use of ICT in special schools is extremely variable. A very small number of LEAs have advisory staff who are able to offer well-targeted support to a range of special schools. Few LEAs have offered any degree of challenge to the development of ICT in their special schools. At the same time, few special schools have made demands on their LEAs in this respect. This is unfortunate as many of the observed weaknesses in special schools are perfectly accessible to advisory staff with generic expertise in ICT and in school management.

Almost all schools now have a scheme of work for ICT, though many require updating and refining to ensure that all aspects of the programme to study for ICT are covered, and that the planned progression has kept up with pupils' increased levels of skill in the early key stages. Although not yet general practice, it is becoming increasingly common for schemes of work for other subjects to incorporate references to the use of ICT. In schools where this is becoming established, there is often a very helpful role for the ICT co-ordinator in overseeing the effective incorporation of planning for ICT in the schemes

for each subject. This enables the ICT co-ordinator to provide additional suggestions for applications which may enhance pupils' learning.

Where practice is at its best, the ICT co-ordinator meets with other subject co-ordinators to plan to make the best use of ICT in their subject, to identify any necessary in-service training, and to ensure that the necessary skills are taught in ICT lessons before they are required for use in the subject. This has a further advantage in enabling the teaching of ICT skills in specific ICT lessons to use real subject applications instead of abstract exercises.

As the use of the internet increases in schools, staff are usually vigilant to ensure that protection is in place to prevent pupils from accessing inappropriate material. Occasionally, usually as a result of upgrading work on systems, the protection systems are unwittingly removed. Particularly in schools for pupils with EBSD, pupils are very quick to discover and exploit any such weakness. Where protection systems are not fully effective, pupils will seek to access sites which are allowed to slip through the filter, such as those operated by computer dating agencies. These are potentially extremely hazardous to pupils.

Staff development

All of the initiatives tended to be most successful in schools which already had at least an element of good practice and in which ICT was well led. NOF-funded training was largely self-directed and relied on the use of teachers' free time. As a result, teachers who could already see the possibilities of the extended use of ICT took the opportunity to extend further their skills and knowledge. They selected modules of study which extended their existing use of ICT. Teachers with little insight into the possibilities of ICT and little enthusiasm for its use, in schools which were poorly led in respect of ICT, selected modules for study which merely endorsed skills they already had. This has led to a wide variation in the success of NOF training, both between and within schools.

Overall, in about a quarter of schools the training has been a real catalyst for improvement. It has motivated all the staff to engage with ICT fully for the first time, or has encouraged a group of teachers with a long-standing aversion to ICT to take up its use. In about a third of schools, the training has clearly been unsuccessful. It has been seen as poorly matched to the needs of the pupils or as an ill-managed imposition on teachers' free time. In these schools it has often been largely abandoned and many staff have not completed their qualification. In the remainder of schools, the training has been accepted as a useful exercise and it has contributed to some greater use of ICT as teachers have been familiarised with the workings of generic software such as presentational programs or more specialised material such as software for printing communication symbols.

The NOF training has focused almost entirely on developing teachers' confidence in the use of particular pieces of software. There has been little focus or impact on the pedagogical issues of how best to use ICT within subjects. However, it was essential to build up the confidence of the majority of teachers in the use of a basic repertoire of software before they were ready to engage in more advanced discussions of how to apply ICT across the curriculum. In many schools, as a result of NOF, staff are now

ready to engage in discussion of the curricular issues, but there is no external mechanism to promote or support this discussion. Most teachers are now reasonably competent users of ICT, but few have reached the stage where they are able to think as imaginatively about ICT applications as they do about their use of traditional resources.

Factors which improved the effectiveness of NOF-funded training in all schools included the personal involvement of headteachers in the use of ICT and their participation in the training, encouragement and support for staff from the ICT co-ordinator, and any element of one-to-one tuition for staff from either the co-ordinator or the NOF tutor.

The training manuals associated with NOF have often been found valuable, even in schools where NOF training was regarded as unsuccessful. In a number of schools these have become reference documents which are in constant use by many of the staff.

The exclusion of teaching assistants from NOF training emerged as an anomaly in special schools as they are essential members of the teaching team. A small number of schools arranged for their teaching assistants to participate in the NOF training and some providers enabled this. Despite the overall increase in the number of teaching assistants involved in NOF over the last two years, this has had little impact in special schools. However, schools have come to recognise the value of training their teaching assistants in the use of ICT, and increasing numbers are undertaking courses, often provided by the LEA, local colleges or independent organisations. Trained staff are able to support pupils' use of ICT far more effectively. They can respond to pupils' changing needs by selecting suitable additional software or by changing options within the software. Trained teaching assistants have been especially successful in a number of schools in using ICT to produce teaching resources such as material printed in symbols, literacy games for home and school use, and specially adapted worksheets.

In one school, a teaching assistant had undertaken ICT training provided by the LEA.

Over time, the teaching assistant's role had evolved into that of a technician. This role had in turn evolved further. It had come to involve, for example, the production of very effective guides to ICT applications such as using the digital camera; liaison with the technician from the nearby secondary school; accessing training intended for mainstream schools and cascading this into the special school context, and seeking the best value from ICT suppliers.

A large LEA learning support service was included in the survey alongside special schools. As the service employed a large number of part-time teachers, not all were funded for NOF training. For the teachers who were able to take part in the training, under the guidance of the service ICT co-ordinator acting as mentor, NOF was very successful. Similarly, the Laptops for Teachers scheme provided machines which were very well used by support service teachers.

More generally, the Laptops for Teachers scheme has had a varied impact. In a minority of schools the machines have been allocated to senior staff who have made little use of them. In others, the laptops have often transformed the outlook of reluctant ICT users who have quickly come to rely heavily on the technology to reduce their workload and to improve the quality of preparation of materials and their assessment and reporting. In some of these schools, the benefits have been so evident that there has been a heavy

investment in the purchase of further laptops so that all the teachers have one. In almost all schools the laptops have been at least a welcome and flexible addition to the equipment available for teachers' use, and have contributed to wider and more effective use of ICT.

Resources and accommodation

Pupils' access to computers is not now a problem in the great majority of special schools, although some may face difficulties in the future when large numbers of machines require replacement over a short time period.

National Grid for Learning (NGfL) funding enhanced the hardware base in schools at a time when a lack of up-to-date resources was commonly restricting the development of ICT. This often led to a renewed enthusiasm for the use of ICT, although few school schools made a matching investment in software to make the best use of the new equipment. The initiative was most successful in schools which had a clear view of their way forward with ICT, and where there was already a measure of confidence with its use. They were able to select equipment and software which was well suited to the needs of their pupils. In a minority of schools, particularly those for pupils with severe learning difficulties (SLD), the insistence of some LEAs on installing ICT suites and networks in circumstances when these were not appropriate led to difficulties in using the new equipment.

Curriculum Online has had little impact as yet on special schools. Those schools which have been sufficiently aware of the initiative to investigate the materials available have found little of value for their pupils.

Computers are often very well used to produce symbol-based teaching and learning materials for pupils at a pre-literate stage. The use of symbol-based materials has been particularly influential in enhancing the teaching of pupils with autism, both for communication (including specially adapted timetables) and for curriculum access. When ICT is used to produce teaching material such as worksheets, these can be more quickly adapted to suit differing needs within a teaching group.

Digital cameras are proving to be a sound investment, as teachers readily find ways in which they can extend learning opportunities in and out of the classroom. Personalised reading books, picture cards with family members and pets on, and pictures interspersed in pupils' writing, are all highly motivating. Some schools make very good use of pictures to illustrate pupils' records of achievement, particularly when they annotate each picture to clarify the detail of the pupil's performance on that occasion. Only a very small number of schools have purchased A3 printers to enable teachers to produce large books for class use. While these are expensive to use, the resources they produce frequently support pupils' learning particularly well.

Schools which make a great deal of use of printed pictorial material are running into difficulties with the cost of printer ink. A school for only 52 pupils was spending £1,500 a year on ink, while one for 80 pupils spent £2,000 a year. Many schools are seeking more economical ways of producing printed material than allowing teachers to use small individual printers in classrooms.

Schools are eager to acquire interactive whiteboards, but the practicalities of their use often present a challenge. Difficulties include:

- problems in finding space to house the board, particularly in a room with excessive background light
- pupils standing in the way of the projected image when using boards which have front projection systems
- the need for a variable height screen, particularly for pupils using wheelchairs
- the difficulty of timetabling the use of one board in a fixed location by the whole school
- well-justified fears of the effects on reliability of dismantling and re-assembling a system in order to use it in different parts of the school
- insistence on the use of the board by large groups (with teaching assistants standing by unoccupied) so that pupils wait too long for their turn
- the lack of skills and insights to make good use of authoring systems able to provide truly interactive activities on the whiteboard.

Classes which include pupils with severe communication difficulties often make very good use of small programmable synthetic speech devices, usually in the form of large single switches. These enable pupils without speech to make a good contribution in activities such as class story reading sessions.

Where schools are developing very good practice in both the use of ICT-based communication aids and ICT to support learning, they are encountering difficulties in enabling pupils to use their communication aid at the same time as they use their personalised computer system to access schoolwork. In effect, pupils are cut off from their other forms of communication whenever they are using their computer system. One school in the survey was experimenting with a system which enabled a pupil to switch between her computer and communication aid at will.

The LEA learning support service included in the survey provides a laptop loan service to pupils with SEN. This enables equipment to be exchanged as pupils develop and their needs change, making good use of expensive resources.

Schools generally obtain very good value for money from technicians whom they employ solely to work within their own school or to work part-time between their own and other schools. Some schools for pupils with severe learning difficulties and for pupils with physical disabilities employ full-time technicians. Such appointments are generally very successful and support the schools' use of ICT very well. Technical support is at its weakest in schools for pupils with EBSD. This is a particular problem as such pupils often respond badly to equipment malfunctions. In addition, the energies of the ICT co-ordinator are often diverted from dealing with curricular issues when the post holder has to manage the network or provide general technical support.

Accommodation for ICT in special schools is often more spacious and flexible than that in mainstream schools. Spacious and well-planned accommodation supported pupils' access to ICT very well in more than half of schools. Pupils' access to ICT was impeded by features of the accommodation in one in six schools. For example, classrooms for the pupils with the most severe learning difficulties were badly cluttered with the plethora of specialist seating, standing frames, powered wheelchairs and communication aids which are essential contributors to the quality of pupils' education.

Some of the most highly organised accommodation is for the youngest pupils, where staff are well used to the notion of zoning teaching areas for a variety of practical activities:

In a special school with very well-developed nursery provision, the nursery ICT area itself was zoned into three bays for pupils using ICT at different levels. This allowed specialist software and access systems to be kept running at certain times of the day for immediate (and sometimes informal) access and enabled software and equipment to particularly well stored for easy access. Across the room from the ICT base one of the role play areas was a post office, with its own (dummy) computer.

Pupils in residential schools rarely have access to ICT for educational purposes after school. They are most likely to have access to playstations only out of school hours. This means that pupils cannot use ICT for homework or to extend their learning out of school hours. In order to make progress, classroom and residential staff will need to work together in order to plan for both physical access and for appropriate supervision.