Harnessing Technology schools survey 2007

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Summary

This report presents findings from the Harnessing Technology Schools Survey conducted among primary and secondary schools in England by the National Centre for Social Research (NatCen) on behalf of Becta.

School leadership on ICT issues

- Nearly all schools had a written strategy for ICT. The ICT strategy was embedded within the whole-school development or improvement plan in around two-thirds of primary and secondary schools.
- Most schools involved the headteacher, ICT co-ordinator and the school leadership team in the development of the ICT strategy. Nearly all schools reviewed the ICT strategy at least annually.
- The most common source of information and advice when developing the ICT strategy was the local authority (used by 94 per cent of primary schools and 83 per cent of secondary schools). Becta had been a source of information and advice for 45 per cent of primary schools and 63 per cent of secondary schools, while around three-fifths of primary and secondary schools used information or advice from the Department for Education and Skills (DfES).
- Most schools had an acceptable use policy for pupils, and the majority had such a policy for staff. Most schools also had a data protection policy.
- The median percentage of the school budget spent on ICT in the 2006-07 financial year was three per cent in both primary and secondary schools.
- Rises in expenditure on technology in future years were expected by 47 per cent of primary schools and 56 per cent of secondary schools. Fewer than one-tenth of schools expected expenditure on technology to fall.
- Primary schools purchased ICT hardware and network equipment through the local authority, their ICT suppliers or other independent sources. Secondary schools purchased equipment either from their ICT suppliers or other independent sources. Primary schools were most likely to obtain ICT support and advice from the local authority; some obtained advice from their ICT supplier and from other sources. Secondary schools obtained support and advice from the local authority, ICT suppliers or other sources.
- The headteacher was involved in purchasing decisions for ICT in nearly all primary schools, while the ICT co-ordinator was involved in at least three-quarters of primary schools. Purchasing decisions in secondary schools most often involved the ICT co-ordinator, while the headteacher was involved in decisions in around three-fifths of schools.
- Collaborations were most common for joint curriculum and resource development. A third (34 per cent) of primary schools and nearly half (46 per cent) of secondary schools had collaborated in this way with other schools.

- The majority of schools (60 per cent of primary and 85 per cent of secondary schools) were planning to invest in the network's current infrastructure in the next 12 months.

- The most common priority for ICT spending in the next three years in primary schools was technical support. Laptops were more likely than other form of hardware to be a priority for spending in primary schools. The most common high priorities for ICT spending in secondary schools were technical support, display technologies and learning platforms.

- The most common priorities for using technology in the next three years in both primary and secondary schools were recording learners' progress, promoting independent learning and supporting personalised learning, although secondary schools were more likely than primary schools to say that these were high priorities.

ICT resources and infrastructure

- Nearly all primary and secondary schools reported having access to desktop computers, laptops and interactive whiteboards. The average numbers of interactive whiteboards had risen since the third Curriculum Online study in 2005 among both primary schools (8 interactive whiteboards compared with 6.1 in 2005) and secondary schools (22 compared with 18).

- Primary schools had an average pupil-to-computer ratio of 6.6:1, while the average ratio in secondary schools was 3.6:1. These ratios were similar to those seen in the third Curriculum Online study in 2005.

- Forty per cent of primary schools and around half (47 per cent) of secondary schools reported the availability of assistive technology devices to help pupils with special educational needs.

- Across both primary and secondary schools, ratings for fitness for purpose of resources were high and similar to figures recorded for the 2005 Curriculum Online survey.

- Levels of satisfaction with the quantities of resources available were generally high among primary ICT respondents. Among secondary ICT respondents, levels of satisfaction were more varied with around half saying they had fewer desktops (48 per cent of respondents), interactive whiteboards (49 per cent), data loggers (57 per cent) and tablet PCs (52 per cent) than needed.

- Across both primary and secondary schools, ICT respondents had few problems finding relevant software for school curriculum use and rated it highly for fitness for purpose. Primary and secondary teachers expressed a high level of satisfaction with curriculum-related software for fitness for purpose and technical quality.

- Approximately two-thirds (69 per cent) of primary schools and nine-tenths (90 per cent) of secondary schools reported that all school computers

could access a network. The proportion of primary schools with all computers networked had increased from 51 per cent in the third Curriculum Online study in 2005.

- Forty-three per cent of primary schools and around a fifth (19 per cent) of secondary schools reported that they had replaced all network cabling in the past five years. Around three-fifths (62 per cent) of primary schools and four-fifths (82 per cent) of secondary schools reported that the majority or all of their network cabling was Cat 5(e).

- Half (50 per cent) of primary schools and more than four-fifths (82 per cent) of secondary schools made at least some use of wireless network technology. The proportions of primary and secondary schools using wireless technology had increased since the third Curriculum Online study in 2005.

- Around two-thirds of primary ICT respondents (65 per cent) and secondary ICT respondents (67 per cent) reported that the internet connections at their schools were fast enough for most or all of their requirements.

- Updating of virus protection software was done automatically online in around three-quarters (74 per cent) of primary schools and 90 per cent of secondary schools.

- Local authority managed firewalls were the type of firewall most commonly used in both primary and secondary schools.

- Around four-fifths (79 per cent) of primary schools and 72 per cent of secondary schools monitored the performance of their networks on an ad hoc basis according to need.

- Primary schools employed an average of 0.8 members of technical support staff, while secondary schools employed 3.0. Six per cent of primary schools and nearly a quarter (23 per cent) of secondary schools provided technicians to other educational institutions.

Role of ICT in organisational management and effectiveness

- Nearly all primary and secondary schools used electronic systems for their financial management. Systems developed outside the school were used much more commonly than those developed within the school.

- Electronic systems of recording pupil attendance had been implemented in 51 per cent of primary schools and 84 per cent of secondary schools (including 15 per cent and 48 per cent respectively which were integrated electronic registration systems). Most headteachers reported that electronic systems improved the effectiveness of attendance monitoring.

- Nearly all primary and secondary schools used pupil data (whether electronic or paper) in setting performance targets and measuring progress.

- Seventy-two per cent of primary schools and 92 per cent of secondary schools had a website. Websites were used for a variety of purposes of which the most common were communicating school news, enabling document access and providing resources for parents. In secondary schools, websites were also commonly used for providing lesson resources, communicating performance information and uploading or downloading homework.

- A quarter (25 per cent) of primary schools and about two-thirds (65 per cent) of secondary schools had an intranet. Intranets were generally used by both teachers and parents.

- Eleven per cent of primary schools and 46 per cent of secondary schools had a learning platform. These were used by teachers for a wide variety of purposes. However, few learning platforms were linked with school management systems.

- Three per cent of primary schools and 18 per cent of secondary schools had an extranet. Among secondary schools which had an extranet, about half restricted access to staff and pupils, while about half extended use to groups such as governors and parents.

- Ten per cent of primary schools and 41 per cent of secondary schools allowed remote access to their networks. More than a quarter (27 per cent) of secondary schools allowed pupils remote access.

- Staff were allowed remote access to any of the school's ICT resources through secure login areas in 52 per cent of primary schools and 66 per cent of secondary schools. Pupils were allowed this access in 38 per cent of primary schools and 53 per cent of secondary schools.

- Sixty per cent of primary schools and 100 per cent of secondary schools provided pupils with personal secure areas where they could electronically store their work. This facility was generally hosted by the school.

- About four-fifths (79 per cent) of ICT respondents in secondary schools said that their schools encouraged the use of e-portfolios.

- Although paper messages remained the predominant mode of communication with parents, electronic methods were also commonly used. Seventy per cent of primary schools and 86 per cent of secondary schools made some use of email, and nine per cent of primary schools and 36 per cent of secondary schools made some use of text messages.

- Nearly all secondary schools and three quarters of primary schools provided access to ICT facilities for pupils outside lessons, most commonly through after-school and lunchtime clubs.

- Twenty-eight per cent of primary schools and 60 per cent of secondary schools allowed some use of their ICT facilities by the local community. Adult learning and evening classes were the most common forms of community use. Around one-fifth of secondary schools provided daytime

drop-in access to their internet or other ICT facilities, while this was much less common in primary schools.

Uses of ICT in teaching and learning

- Digital resources were widely used in teachers' lesson planning. Fifty-six per cent of primary teachers used websites to plan at least half of lessons, while 35 per cent used other websites, and 40 per cent used software on CD-ROM or DVD. Among secondary teachers, the resources most commonly used to plan at least half of lessons were software on CD-ROM/DVD (36 per cent), websites for teachers (34 per cent) and other websites (30 per cent).

- Digital resources were used on average for 43 per cent of primary teachers' lesson planning and 34 per cent of secondary teachers' lesson planning. The average proportion of lesson planning using digital resources had increased since 2005, continuing an upward trend seen since 2002.

- The majority of teachers (58 per cent of primary and 65 per cent of secondary teachers) created their own digital learning resources. Most teachers who created resources did so at least every two to three weeks.

- Digital learning resources created by other teachers were used at least once a week by 44 per cent of primary teachers and 34 per cent of secondary teachers. Most teachers adapted digital learning resources created by other teachers to suit their needs.
  Primary teachers tended to make frequent use of ICT resources in lessons, with most (86 per cent) using display technologies in at least half of lessons, and a majority using computer packages (56 per cent) and internet-based resources (54 per cent) in at least half of lessons.

- Display technologies were used in at least half of lessons by nearly two-thirds (64 per cent) of secondary teachers, while about one-third used computer packages (36 per cent) and internet-based resources (33 per cent). Two-fifths (41 per cent) of secondary teachers made use of subject-specific software applications in at least half of lessons.

- In lessons, teachers were more likely to use ICT for whole-class activities than for small-group or independent activities. Most primary teachers (80 per cent) and more than half (53 per cent) of secondary teachers used ICT for whole-class activities in at least half of lessons. About two-fifths (43 per cent) of primary teachers and a fifth (21 per cent) of secondary teachers used ICT for small-group activities in at least half of lessons.

- The most common way in which teachers used ICT to help pupils learn was for gathering information. More than half of primary teachers used ICT with pupils in at least some lessons for analysing information, being creative and problem solving, while fewer than half of secondary teachers used ICT in lessons in these ways.

- For assessment, teachers most commonly used ICT to enable pupils to demonstrate their learning, with nearly half of primary and secondary teachers doing this at least once a term. Electronically held pupil-assessment information was most commonly used by teachers to share information with other staff, with three-fifths (59 per cent) of primary teachers and four-fifths (79 per cent) of secondary teachers using electronic information in this way at least once a term.

- Teachers were generally positive about the impact of ICT on productive time. More than half of primary teachers and just under half of secondary teachers reported that they saved time by using interactive whiteboards and online resources. Three-quarters (74 per cent) of primary teachers thought that using ICT in lesson planning saved them time, while 54 per cent reported time savings in lesson delivery. Around half of secondary teachers reported time savings from using ICT for lesson planning and lesson delivery (47 per cent and 50 per cent respectively).

- Expectations of future impacts on productive time were also positive. Three-fifths (62 per cent) of primary teachers and two-fifths (41 per cent) of secondary teachers expected to save time over the next year by using interactive whiteboards, while 64 per cent of primary teachers and 53 per cent of secondary teachers expected to save time using online resources.

- Most teachers occasionally experienced technical problems which prevented the delivery of their lessons, but the majority did not experience such problems frequently. The problems experienced by primary teachers were most likely to be with printers and computers used by pupils, with just over half (53 per cent) of primary teachers encountering such problems at least once a month. The technical problems experienced by secondary teachers were most likely to be with computers used by pupils, with nearly half (46 per cent) of secondary teachers experiencing problems at least once a month.

- Teachers generally thought that ICT had positive impacts on pupils' motivation. Primary and secondary teachers were more likely to agree strongly that ICT had a more positive impact on the motivation of boys than girls. Most teachers also thought that ICT could have positive impacts on attainment, although they were less likely to agree strongly with this than agree strongly that ICT had a positive impact on motivation.

Role of ICT in professional development

- Teachers at 85 per cent of primary schools and 86 per cent of secondary schools were able to attend training courses at the school in the use of technology. Eighty-seven per cent of primary schools and 77 per cent of secondary schools made training courses held at other venues available.

- Almost all primary teachers (98 per cent) and more than half (55 per cent) of secondary teachers indicated they had received some form of training in

ICT. The most common forms of training were formal training courses delivered in person and informal training in person.

- Primary teachers were more likely than secondary teachers to have positive views of ICT training. Two-thirds (66 per cent) of primary teachers and nearly half (47 per cent) of secondary teachers thought that the amount of ICT training available was very good or quite good. Three-quarters (75 per cent) of primary teachers and 56 per cent of secondary teachers rated the quality of internal training as very good or quite good, while 67 per cent of primary teachers and 39 per cent of secondary teachers gave the same ratings for the quality of external training.

- Most teachers thought they needed some development in using technology. The areas in which primary teachers were most likely to think they needed development were creating digital materials, using digital video and camera equipment, and supporting pupils' use of technology. Most secondary teachers also thought they needed development in supporting pupils' use of technology and creating digital materials, and similar proportions thought they needed development in using technology with pupils and using particular software packages.

- Most headteachers and ICT respondents thought that teachers in their schools were quite confident in using ICT to deliver the curriculum. The majority of teachers rated themselves as quite effective or very effective in using ICT to support learning and teaching in the classroom, with primary teachers more likely than secondary teachers to see themselves as very effective.

Introduction

1.1 Background

This report presents the findings of the Harnessing Technology Schools Survey conducted by the National Centre for Social Research (NatCen) on behalf of Becta.

The purpose of this study was to gather data on key indicators of e-maturity and ICT usage in schools. The DfES strategy document Harnessing Technology sets out the need for a more strategic approach to the future development of ICT in education, skills and children's services. This approach is intended to:

- transform teaching and learning and help to improve outcomes for children, young people and adults through shared ideas, more exciting lessons and online help for professionals
- engage hard-to-reach learners with special needs support, more motivating ways of learning and more choice about how and where to learn
- build an open, accessible system with more information and services online for parents and carers, children, young people, adult learners and employers, and more cross-organisation collaboration to improve personalised support and choice
- achieve greater efficiency and effectiveness with online research, access to shared ideas and lesson plans, improved systems and processes in children's services, shared procurement and easier administration.

1.2 Survey objectives and methodology

The Harnessing Technology Schools Survey had the following objectives:

- To provide indicators of progress across the transformational themes of the Harnessing Technology strategy
- To identify progression towards institutional and practitioner e-maturity
- To provide measures of teachers' use of ICT to improve productive time.

The survey was conducted in maintained primary and secondary schools in England between October 2006 and January 2007. Data was collected using paper self-completion questionnaires distributed and collected by NatCen interviewers. The survey included three different instruments:

1) Leadership questionnaire

This questionnaire was aimed at headteachers and collected data on school strategies relating to e-learning and the use of ICT in school management.

2) ICT infrastructure questionnaire

This questionnaire was aimed at ICT co-ordinators (or equivalents) and collected data on the school's ICT resources, network, technical support and other infrastructure issues.

3) Teacher questionnaire

At primary schools, three teacher questionnaires were placed for subject co-ordinators in maths, English and science. At secondary schools, six questionnaires were placed for heads of department in maths, English, science, modern languages, geography and music. The teacher questionnaires collected data on how ICT resources were used in lesson planning and delivery and pupil assessment, and on training and development needs and the perceived impacts of ICT.

1.3 Analysis

1.3.1 Weighting

The sample of schools was weighted, firstly to correct for unequal selection probabilities. Non-response analysis was then carried out to compare the profile of the achieved sample of schools to the profile of the population of schools in England, and this revealed some differences in response by school size and region. Response weights were therefore applied to the sample so that the profile of the schools in the survey matched the profile of the population of schools. The final weighted sample of schools can therefore be said to be representative of schools in England.

A more detailed account of the weighting procedures used for this survey is provided in the accompanying technical report.

1.3.2 Interpetation of tables

Tables and figures in this report show weighted percentages and means and unweighted sample sizes.

Percentages in tables have been rounded. Therefore percentages may not sum to 100 per cent exactly.

It is important to note the unweighted bases at the foot of tables and figures when drawing comparisons. The table below gives an indication of the confidence intervals to apply to different percentage results for different sample sizes within this report. These 95 per cent confidence levels are the levels within which one can be 95 per cent confident that the true answer will lie (in other words there is only a one in 20 chance that the true answer will lie outside this range).

Sample size	Approximate 95% confidence limits for percentage result of:		
	10% or 90%	30% or 70%	50%
	+/–	+/–	+/–
50	8	13	14
100	6	9	10
250	4	6	6
500	3	4	4
1,000	2	3	3

To take an example from the table, for a percentage result of 50 per cent on a sample of 500, there is a 95 per cent chance that the true result will lie within four per cent; that is, between 46 per cent and 54 per cent. (These confidence limits assume a simple random sample, and no adjustment has been made for the effects of clustering. Such an adjustment would increase the confidence limits slightly.)

The following symbols have been used in tables in this report:

[ ]   to indicate a percentage or mean based on fewer than 50 respondents

*   to indicate a percentage value of less than 0.5 per cent

–   to indicate a percentage value of 0.

1.3.3 Time-series data

Throughout this report, comparisons are made with data from the three school surveys conducted as part of the Curriculum Online evaluation with a panel of schools in 2002, 2003 and 2005. The Harnessing Technology Schools Survey closely followed the methodology used for the Curriculum Online surveys, so comparisons of the data provide a useful indication of trends over time. Although the two studies used different samples of schools, both samples were designed to represent the population of schools in England, and so comparisons between the results of the studies will be valid.

1.4 Respondents' characteristics

In most participating schools, the leadership questionnaire was completed by the headteacher (97 per cent of primary schools and 83 per cent of secondary schools). In three per cent of primary schools and 14 per cent of secondary schools, a deputy headteacher completed the leadership questionnaire.

In the majority (69 per cent) of primary schools, the ICT infrastructure questionnaire was completed by the ICT co-ordinator (Table 1.1). In 14 per cent of primary schools, the role of the individual completing the infrastructure questionnaire was ICT subject leader. The ICT infrastructure questionnaire was completed by the

headteacher in five per cent of primary schools and by a deputy head in six per cent of primary schools.

In secondary schools, the ICT infrastructure questionnaire was most often completed by the ICT co-ordinator (29 per cent) or the head of ICT (33 per cent). The infrastructure questionnaire was completed by the ICT manager in 15 per cent of secondary schools and by the ICT subject leader in 13 per cent.

Table 1.1 Roles of ICT respondents

Role	Primary school (%)	Secondary school (%)
ICT co-ordinator	69	29
ICT subject leader	14	13
Head of ICT	–	33
ICT manager	3	15
ICT teacher	2	–
Headteacher	5	–
Deputy/assistant head	6	6
Other	1	2
Not answered	*	2
Base: all ICT respondents	234	258

The majority of respondents for the subject teacher questionnaires in primary schools were subject co-ordinators (63 per cent), while in secondary schools most subject respondents were heads of department (79 per cent) (Table 1.2). A quarter (25 per cent) of subject respondents in primary schools and seven per cent in secondary schools described themselves as class or subject teachers.

Table 1.2 Roles of subject respondents

Role	Primary school (%)	Secondary school (%)
Department head	3	79
Subject co-ordinator	63	10
Class teacher	25	7
Headteacher	1	–
Deputy/assistant head	5	1
Key stage co-ordinator	1	1
Not answered	*	2
Base: all subject respondents	621	1,200

1.5 Report structure

Chapter 2 presents findings on school leadership and policies on ICT issues, including procurement and priorities for future expenditure. Chapter 3 describes the

ICT infrastructure in schools, including quantities of resources, networking and internet connections. Chapter 4 examines how ICT is being used at the school level to improve operational effectiveness – that is, to improve efficiency, communication and exploitation of school resources. Teachers' use of technology for lesson planning and delivery is examined in Chapter 5, while Chapter 6 looks at professional development issues relating to technology – for example, access to training.

School leadership on ICT issues

This chapter presents findings about school leadership and policy on ICT issues which relate to the Government's priority to 'provide a leadership and development package for organisational capability in ICT'.

The chapter begins by examining school ICT strategies and how these are developed. It then describes the kinds of policies that schools have around the use of ICT. The chapter goes on to look at procurement issues, including spending on ICT and purchasing decisions. The chapter also describes the technological collaborations schools have and concludes by examining strategic priorities for future spending on ICT and the development of e-learning.

2.1 Development of ICT strategy

Most schools had a written strategy for ICT. For the majority of schools (71 per cent primary and 65 per cent secondary) this strategy was embedded within the whole-school development or improvement plan, while just over a quarter (26 per cent primary and secondary) had a separate ICT strategy (Figure 2.1). A minority of schools (two per cent primary and nine per cent secondary) did not have a written ICT strategy.

It appeared that larger secondary schools (those with 1,000 or more pupils) were more likely than smaller schools to have a separate written ICT strategy, but the difference was not statistically significant.

Figure 2.1 Whether schools had written strategy for ICT
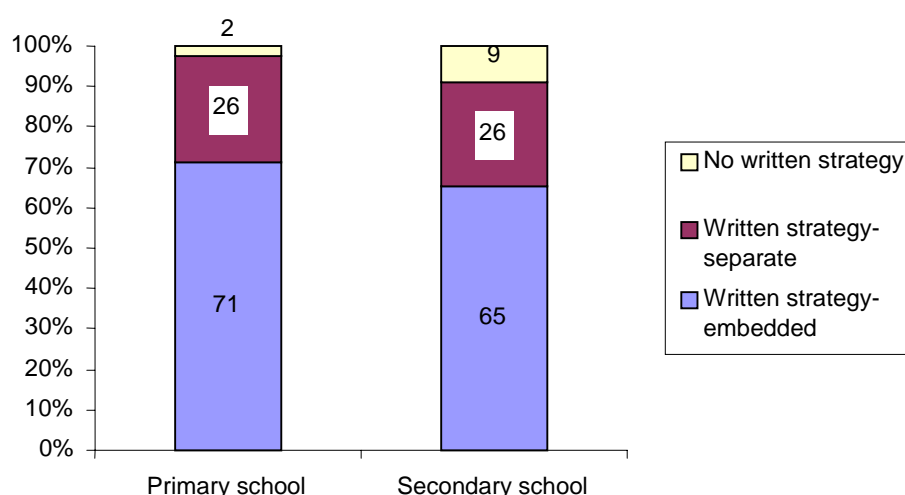
Base: all school leaders answering (primary: 209, secondary 179)

The profile of who was involved in the development of the whole-school development strategy or plan for improvement differed between primary and secondary schools. In most primary schools, the headteacher (90 per cent) and ICT co-ordinator (87 per cent) were involved in the development of the strategy (Table 2.1). The school leadership team (77 per cent) and governors (78 per cent) were also involved in the majority of primary schools. Just under half (45 per cent) of primary schools had ICT technical staff who were involved in developing the ICT strategy.

The development of whole-school strategies in secondary schools most often involved the school leadership team (91 per cent), the ICT co-ordinator (87 per cent) and the headteacher (84 per cent). Three-quarters (75 per cent) of secondary schools had ICT technical staff who were involved in developing the ICT strategy. School governors were involved in developing the ICT strategy in 61 per cent of secondary schools.

Table 2.1 People involved in the development of the school's whole-school development strategy

	Primary schools (%)	Secondary schools (%)
Headteacher	90	84
ICT co-ordinator	87	87
School leadership team	77	91
Governors	78	61
ICT technical staff	45	75
Base: all school leaders	211	183

Schools varied in the ways that decisions about the use of digital learning resources were made. Just over half (51 per cent) of primary schools said that decisions were governed by a whole-school policy and teachers and subject heads made decisions

within its guidelines (Figure 2.2). Nearly a third (31 per cent) of primary schools said that decisions were mainly a matter for individual teachers to decide with input from others, while 19 per cent said that decisions were mainly a matter for subject heads to decide with input from teachers.

In secondary schools, decisions about the use of digital learning resources were more likely to be made by subject heads, with 52 per cent saying this was the case, while 40 per cent of secondary schools said that decisions were governed by a whole-school policy. Just eight per cent of secondary schools said that decisions were mainly a matter for individual teachers.

Figure 2.2 How schools make decisions on the use of digital learning resources
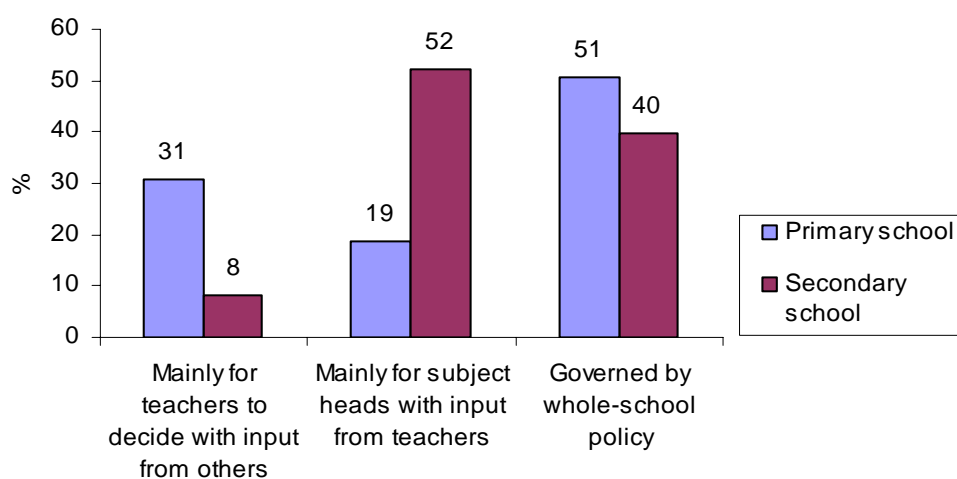
Base: all school leaders answering (primary: 196, secondary: 180)

School leaders were asked about sources of information and advice that had influenced the school's e-learning strategy. The local authority was the most common source of information and advice, used by 94 per cent of primary schools and 83 per cent of secondary schools (Table 2.2).

Schools' e-learning strategies were also commonly influenced by government bodies. The DfES was a source of information and advice for two-fifths (60 per cent) of primary schools and 56 per cent of secondary schools, while 45 per cent of primary schools and 63 per cent of secondary schools had received information and advice from Becta.

Information and advice from the Specialist Schools and Academies Trust (SSAT) had been used by almost three-fifths (59 per cent) of secondary schools. Other sources of information and advice which had influenced schools' e-learning strategies included ICT consultants (used by 60 per cent of primary schools and 48

per cent of secondary schools) and teachers from other schools (used by 58 per cent of primary schools and 54 per cent of secondary schools).

Table 2.2 Sources of information and advice influencing the development of the school's e-learning strategy

	Primary schools (%)	Secondary schools (%)
Local authority	94	83
DfES	60	56
OFSTED	19	28
QCA	41	28
National College for School Leadership (NCSL)	45	41
Specialist Schools and Academies Trust (SSAT)	5	59
Becta	45	63
ICT supplier	38	35
Other ICT consultants	60	48
Governors	22	18
Teachers in other schools	58	54
Unions	4	1
Base: all school leaders	211	183

Most schools with a written ICT strategy or improvement plan (85 per cent primary and 87 per cent secondary) said that this strategy allowed for the replacement of equipment.

ICT strategies or improvement plans were reviewed at least annually in most schools (88 per cent primary and 90 per cent secondary). Nine per cent of primary schools and five per cent of secondary schools said that ICT strategies were reviewed every two years, while the remaining schools (two per cent primary and six per cent secondary) said that strategies were reviewed about every three years – no schools said that strategies were reviewed less often than this.

2.2 ICT policies

2.2.1 Data protection policy

Most schools had some form of data protection policy. Eighty-four per cent of primary schools and 86 per cent of secondary schools had a data protection policy for pupils' personal information (Table 2.3). Slightly fewer primary schools compared with secondary schools had a data protection policy that covered the staff's personal information (71 per cent compared with 83 per cent). More than three-quarters of schools had a data protection policy which covered school management information (76 per cent primary schools and 84 per cent secondary). More than a third (36 per

cent) of primary schools and 41 per cent of secondary schools said they had a data protection policy that covered other information.

Table 2.3 Whether school has data protection policy

	Primary schools (%)	Secondary schools (%)
For pupils' personal information	84	86
For staff's personal information	71	83
For school management information	76	84
For other information	36	41
Base: all school leaders	210	183

2.2.2 Acceptable use policy

The majority of schools had an acceptable use policy (AUP) which provided guidelines on how to use ICT equipment and the internet. Secondary schools were more likely than primary schools to have an AUP for staff (75 per cent compared with 59 per cent) (Table 2.4). Four-fifths (80 per cent) of primary schools and 90 per cent of secondary schools had an AUP for pupils. Only a fifth (20 per cent) of primary schools and 29 per cent of secondary schools said they had an AUP for adult or community users.

Table 2.4 Whether school has acceptable use policy

	Primary schools (%)	Secondary schools (%)
For staff	59	75
For pupils	80	90
For adult or community users	20	29
Base: all school leaders	210	183

2.2.3 Use of pupils' own hardware

It was not common in primary schools for pupils to be able to bring their own resources into school or use them in lessons. Few primary schools allowed pupils to bring their own mobile phones (two per cent), handheld computers (five per cent) or laptops (six per cent) to school (Table 2.5). Similar proportions allowed the use of these devices in lessons. Just one per cent of primary schools said that pupils could link their laptops or handheld computers to the network.

As might be expected, more secondary schools allowed pupils to bring their own hardware into school. More than two-fifths allowed mobile phones (41 per cent) and handheld computers (43 per cent) to be brought in, while almost three-fifths (59 per cent) allowed laptops to be brought in. More than half (57 per cent) of secondary schools allowed laptops to be used in lessons, although fewer schools (18 per cent) said that pupils could link their laptops to the network. Thirty-one per cent of secondary schools allowed pupils to use their own handheld devices in lessons and seven per cent said these could be linked to the network. The use of mobile phones in lessons was permitted by six per cent of secondary schools and just one per cent allowed mobile phones to be linked to the network.

Table 2.5 Permitted use of pupils' own hardware

	Mobile phones		Laptops		Handheld computers	
	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)
Bring in to school	2	41	6	59	5	43
Use in some lessons	*	6	7	57	5	31
Link to network	*	1	1	18	1	7

2.2.4 Other policies

Fewer than a third of schools had a written policy on the safe disposal of ICT equipment (27 per cent of primary and 30 per cent of secondary schools). A minority of school leaders (eight per cent in primary and 17 per cent in secondary schools) did not know whether the school had a written policy on safe disposal.

Four-fifths (80 per cent) of secondary schools had a documented process for backing up data, while just over half (54 per cent) of primary schools had one. Almost a fifth (19 per cent) of ICT respondents in primary schools did not know whether their schools had a documented process.

2.3 Procurement

2.3.1 ICT expenditure

Schools had spent only a small proportion of their overall budget on ICT (including equipment, software, connectivity and support) in the 2006-07 financial year. The median percentage spent was three per cent in both primary and secondary schools. A third of primary schools spent two per cent or less of their budget on ICT, while a third spent five per cent or more. Among secondary schools, a third spent two per cent or less of their budget on ICT, and a third spent four per cent or more.

Most schools expected technology expenditure to rise or stay the same in future years, with secondary schools more likely than primary schools to anticipate increases in expenditure. Nearly three-fifths (56 per cent) of secondary schools expected expenditure to rise, compared with nearly half (47 per cent) of primary schools (Figure 2.3). Primary schools were more likely than secondary schools to expect expenditure to remain the same (41 per cent compared with 32 per cent). Fewer than one-tenth of schools (nine per cent primary and secondary) expected technology-related expenditure to fall.

Figure 2.3 School leaders' expectations of technology-related expenditure
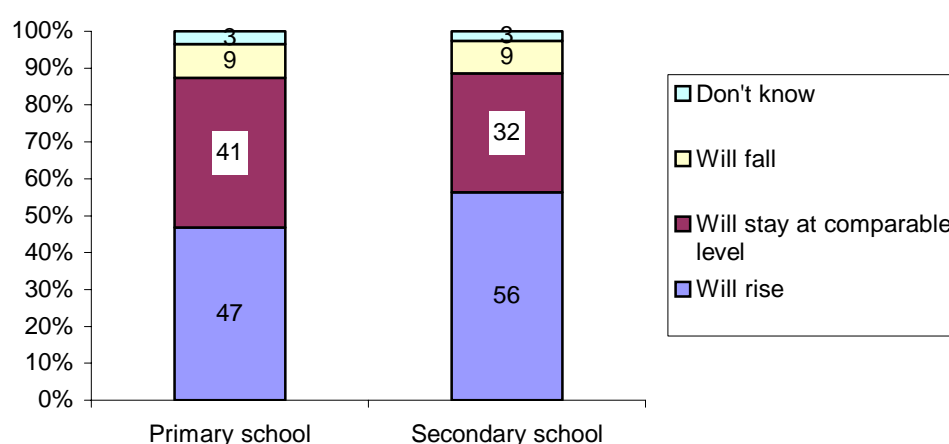
Base: all school leaders answering (primary: 207, secondary: 182)

2.3.2 Procurement of ICT equipment and services

Primary schools tended to purchase ICT equipment through their ICT suppliers, the local authority or other independent sources. Hardware was purchased through the local authority by almost a third (32 per cent) of primary schools, and just over a third (34 per cent) purchased network equipment and cabling through the local authority (Table 2.6). Thirty per cent of primary schools purchased ICT hardware from their ICT suppliers, and 29 per cent purchased network equipment and cabling from their ICT suppliers. Thirty-eight per cent of primary schools purchased hardware from other independent sources, and a similar proportion (36 per cent) purchased network cabling from other independent sources.

Most secondary schools purchased ICT equipment through their ICT suppliers or other independent sources. Just over two-fifths (41 per cent) of secondary schools purchased ICT hardware from their ICT suppliers and 37 per cent purchased network cabling and equipment from them. Hardware was purchased from other independent sources by nearly half (47 per cent) of secondary schools and more than half (54 per cent) purchased network cabling and equipment in this way. The local authority was used by only a small minority of secondary schools for

purchasing equipment (11 per cent for hardware and nine per cent for network equipment).

Table 2.6 How schools purchase ICT equipment

	ICT hardware		ICT networking equipment and cabling	
	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)
Through regional broadband consortium (RBC)	–	1	*	–
Through the local authority	32	11	34	9
Through another school/group of schools	1	*	2	*
Through ICT supplier	30	41	29	37
Through other independent sources	38	47	36	54
Base: all ICT respondents answering	218	258	216	253

Primary schools were most likely to obtain ICT technical support and maintenance from the local authority (46 per cent), while 26 per cent obtained it from other independent sources, and 16 per cent from their ICT suppliers (Table 2.7).

Secondary schools obtained ICT technical support and advice from the local authority (28 per cent), their ICT suppliers (26 per cent) or other independent sources (23 per cent). More than a fifth (22 per cent) of secondary schools said they did not obtain this service.

More than half (55 per cent) of primary schools obtained advice about designing ICT infrastructure through the local authority. Seventeen per cent obtained this advice from other independent sources, while 13 per cent obtained it through their ICT suppliers.

Secondary schools obtained advice about designing ICT infrastructure from the local authority (26 per cent), independent sources (26 per cent) or their ICT suppliers (18 per cent). Twenty-nine per cent of secondary schools did not obtain this service.

Table 2.7 How schools obtain ICT support and advice

	ICT technical support and maintenance services		Advice about designing school's ICT infrastructure	
	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)
Through regional broadband consortium (RBC)	1	2	1	*
Through the local authority	46	28	55	26
Through another school/group of schools	11	–	7	1
Through ICT supplier	16	26	13	18
Through other independent sources	26	23	17	26
Do not obtain	1	22	6	29
Base: all ICT respondents answering	223	256	217	248

Primary schools were most likely to purchase internet access through the local authority, with three-quarters (76 per cent) purchasing in this way (Table 2.8). The majority of primary schools also used the local authority to purchase content filtering for the internet (75 per cent) and content filtering for email (72 per cent). Nearly a fifth (17 per cent) of primary schools purchased internet access through the regional broadband consortium (RBC), and similar proportions used the RBC to purchase content filtering for the internet (18 per cent) and content filtering for email (15 per cent).

While more than half (52 per cent) of secondary schools purchased internet access through the local authority, a substantial proportion (39 per cent) purchased it through the RBC. The local authority was used to purchase content filtering for the internet by nearly half (49 per cent) of secondary schools and to purchase content filtering for email by 42 per cent. More than a third (36 per cent) of secondary schools purchased content filtering for the internet through the RBC and 26 per cent purchased content filtering for email through the RBC.

Table 2.8 How schools purchase internet services

	Internet access		Content filtering for internet		Content filtering for email	
	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)
Through RBC	17	39	18	36	15	26
Through the local authority	76	52	75	49	72	42
Through another school/group of schools	-	*	-	-	*	-
Through ICT supplier	5	3	6	6	4	6
Through other independent sources	1	5	1	8	2	15
Do not obtain	1	1	1	1	7	11
Base: all ICT respondents answering	218	253	208	253	204	248

2.3.3 Purchasing decision-making

Purchasing decisions for ICT in primary schools usually involved the headteacher and the ICT co-ordinator. Ninety-three per cent of primary schools said the headteacher was involved in making purchasing decisions about ICT hardware, and similar proportions said the headteacher was involved in decisions about network equipment and cabling (91 per cent) and technical support and maintenance services (94 per cent) (Table 2.9). The ICT co-ordinator was involved in purchasing decisions in the majority of primary schools for ICT hardware (86 per cent), network equipment (79 per cent) and technical support (75 per cent). School governors were involved in purchasing decisions about hardware in nearly two-fifths (38 per cent) of primary schools and involved in decisions about network equipment in 36 per cent of primary schools.

In secondary schools, purchasing decisions about ICT most often involved the ICT co-ordinator, and the headteacher was involved in the majority of schools. More than three-quarters (77 per cent) of secondary schools said the ICT co-ordinator was involved in purchasing decisions about ICT hardware, while 64 per cent said the headteacher was involved. ICT co-ordinators were involved in purchasing decisions about network equipment and cabling in nearly three-quarters (74 per cent) of secondary schools, while 57 per cent said the headteacher was involved. Similarly, 68 per cent of secondary schools said that ICT co-ordinators were involved in purchasing decisions about technical support, and 60 per cent that headteachers were involved. Bursars were involved in purchasing decisions in some secondary schools, with around a third saying that bursars were involved in decisions about ICT hardware (35 per cent) and technical support (32 per cent). Department heads were involved in purchasing decisions about hardware in 29 per cent of secondary schools, but only eight per cent involved department heads in decisions about purchasing network equipment and cabling or technical support and maintenance.

Table 2.9 Who was involved in making purchasing decisions about ICT equipment and services

	ICT hardware		ICT networking equipment and cabling		ICT technical support and maintenance	
	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)
Headteacher	93	64	91	57	94	60
ICT co-ordinator	86	77	79	74	75	68
Department heads	11	29	4	8	4	8
Bursar	10	35	10	28	10	32
Governors	38	18	36	10	27	9
Base: all ICT respondents answering	230	246	225	237	227	239

Purchasing decisions for curriculum-related software in primary schools were most often made by teachers submitting requests, and a senior staff member such as the headteacher or ICT co-ordinator making a decision (72 per cent of primary schools said decisions were made in this way) (Figure 2.4). In nearly a fifth (18 per cent) of primary schools, all software was selected centrally by the headteacher, ICT co-ordinator or other senior staff member. These proportions were similar to those found in the third Curriculum Online survey in 2005, in which 71 per cent of primary schools said that teachers submitted requests and 16 per cent that a senior member of staff made decisions.

The majority (61 per cent) of secondary schools also said that software purchasing decisions were made by teachers submitting requests, while 30 per cent said that departments selected software independently. Again, these proportions were similar to those found in the third Curriculum Online survey (68 per cent said teachers submitted requests and 26 per cent that departments submitted independently). This indicates that the shift towards more centralised procedures for purchasing software seen between 2002 and 2005 in the Curriculum Online evaluation has been maintained.

Figure 2.4 Procedures for purchasing software in schools
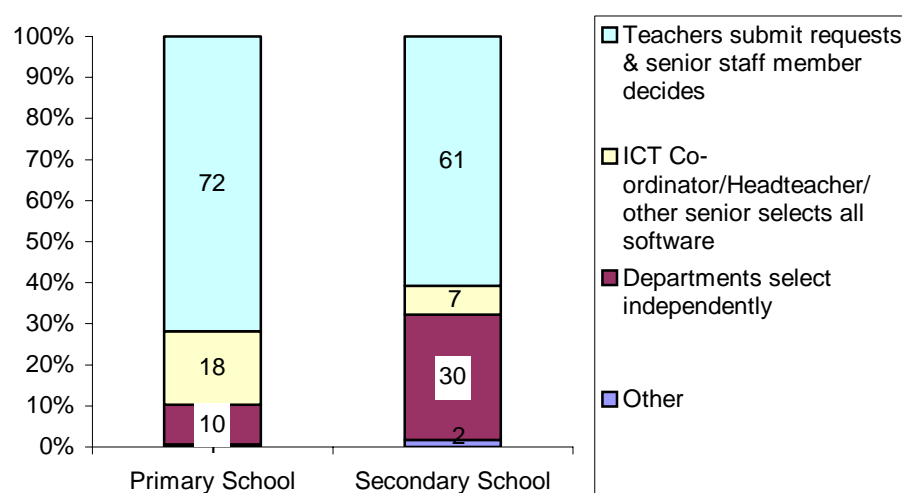
Base: all ICT respondents answering (primary: 232, secondary 255)

2.4 Technological collaborations

School leaders were asked whether their schools used technology to collaborate with other organisations for joint curriculum and resource development, joint learning and teaching activities, and continuing professional development.

Half (50 per cent) of primary schools indicated they used some form of collaboration for joint curriculum and resource development. More than a third (34 per cent) collaborated in this way with the local authority or RBC, while the same proportion (34 per cent) collaborated with other schools (Table 2.10). Thirteen per cent of primary schools used technology to collaborate with professional associations for joint curriculum and resource development.

Primary schools were less likely to have used technology to collaborate for joint learning and teaching activities than for other forms of collaboration. Three-tenths (30 per cent) primary schools indicated they had used technology for collaboration in joint learning and teaching activities. These collaborations tended to be with other schools (20 per cent) with fewer primary schools saying they collaborated in this way with the local authority or RBC (12 per cent) or professional associations (six per cent).

Just over two-fifths (41 per cent) of primary schools indicated that they used technology to collaborate with other organisations on continuing professional development. One- fifth (20 per cent) of primary schools had used technology to collaborate with other schools on continuing professional development, and similar proportions had collaborated in this way with the local authority/RBC (22 per cent) and professional associations (23 per cent).

Table 2.10 Primary schools' use of technology for collaborations

	Joint curriculum and resource development (%)	Joint learning and teaching activities (%)	Continuing professional development (%)
With schools	34	20	20
With local authority/RBC	34	12	22
With professional organisations	13	6	23

For secondary schools, using technology to collaborate with other organisations was more common for curriculum and resource development than for joint learning and teaching activities or for continuing professional development. Nearly three-fifths (58 per cent) of secondary schools used technology for some form of collaboration on joint curriculum or resource development. The majority of these collaborations were with other schools, with nearly half (46 per cent) of secondary schools saying they used technology to collaborate in this way (Table 2.11). Twenty-nine per cent of secondary schools used technology for joint curriculum or resource development with the local authority or RBC, while smaller proportions collaborated with professional associations (10 per cent) and further education colleges (eight per cent).

Nearly two-fifths (38 per cent) of secondary schools used technology for some form of collaboration on teaching and learning activities. Again, these collaborations were in most cases with other schools, with 34 per cent of secondary schools saying they used technology for joint learning and teaching with other schools. A minority of secondary schools used technology to collaborate on joint learning and teaching with the local authority or RBC (10 per cent) and further education colleges (five per cent).

Half (50 per cent) of secondary schools used technology to collaborate with other organisations on continuing professional development. Thirty-one per cent of secondary schools used technology to collaborate with other schools on continuing professional development, while a quarter (25 per cent) used technology for collaborations with the local authority or RBC, and a fifth (20 per cent) did so with professional associations. Using technology to collaborate with further education colleges on continuing professional development was less common, with just nine per cent of schools doing this.

Table 2.11 Secondary schools' use of technology for collaborations

	Joint curriculum and resource development (%)	Joint learning and teaching activities (%)	Continuing professional development (%)
With schools	46	34	31
With FE colleges	8	5	9
With local authority/RBC	29	10	25
With professional organisations	10	3	20

Secondary schools were thus more likely than primary schools to use technology to collaborate with schools, but not more likely than primary schools to use technology to collaborate with other organisations.

2.5 Strategic priorities

2.5.1 Investment in infrastructure

The majority of schools were planning to invest in the network's current infrastructure in the next 12 months. Secondary schools were more likely than primary schools to be planning this kind of investment (85 per cent of secondary schools compared with 60 per cent of primary schools).

2.5.2 Priorities for ICT spending

School leaders were asked to indicate their schools' levels of priority for investment for different kinds of ICT spending over the next three years.

In primary schools, the most common high priority was investment in technical support, identified as a high priority by more than half (55 per cent) of primary school leaders, and as a medium priority by two-fifths (40 per cent) (Table 2.12). Most primary school leaders thought that technology-related training was a priority for investment, with 35 per cent rating it as a high priority and more than half (54 per cent) rating it as a medium priority. Spending on software to support teaching and learning was rated as a high priority by 32 per cent of primary schools and as a medium priority by almost three-fifths (59 per cent).

Laptops were more likely than other forms of hardware to be rated as a high priority for investment by primary schools, with 37 per cent saying they were a high priority, and 40 per cent a medium priority. Desktop computers were rated as a high priority for spending by more than a fifth (21 per cent) of primary schools, while nearly a quarter (24 per cent) rated display technologies a high priority.

Primary schools were divided in the priority ratings given to spending on network infrastructure. A third (33 per cent) of primary schools rated the network

infrastructure as a high priority, while more than a quarter (26 per cent) rated it a medium priority, and 38 per cent a low priority. More than a quarter (26 per cent) of primary schools rated learning platforms as a high priority for investment.

Table 2.12 Primary schools' priorities for ICT spending in next three years

	Low priority (%)	Medium priority (%)	High priority (%)	Don't know (%)	Base: all primary school leaders answering
Desktop computers	36	44	21	–	196
Laptops	20	40	37	3	204
Display technologies	57	19	24	–	200
Handheld computers	64	15	6	15	197
Learning platforms	33	28	26	13	195
Network infrastructure	38	26	33	3	198
Technical support	4	40	55	1	206
Technology-related training	11	54	35	*	199
Software for teaching and learning	9	59	32	–	203

Among secondary schools, learning platforms and display technologies were high priorities for the majority of school leaders, with three-fifths (60 per cent) rating display technologies as a high priority and 57 per cent rating learning platforms a high priority (Table 2.13). Technical support was also a common priority for investment with 61 per cent of secondary school leaders saying this was a high priority. Half (50 per cent) of secondary school leaders rated network infrastructure a high priority. Software to support teaching and learning was seen as a high priority for investment by nearly half (46 per cent) of secondary school leaders. Similar proportions of secondary school leaders rated laptops (46 per cent) and desktop computers (38 per cent) as high priorities.

Table 2.13 Secondary schools' priorities for ICT spending in next three years

	Low priority (%)	Medium priority (%)	High priority (%)	Don't know (%)	Base: all secondary school leaders answering
Desktop computers	12	49	38	1	175
Laptops	15	39	46	1	180
Display technologies	16	24	60	*	180
Handheld computers	71	19	7	3	174
Learning platforms	9	33	57	1	180
Network infrastructure	8	41	50	1	180
Technical support	5	32	61	1	180
Technology-related training	6	49	44	1	181
Software for teaching and learning	5	48	46	1	180

2.5.3 Priorities for using technology

School leaders were also asked to rate the level of priority of different ways of using technology to support learning in their schools over the next three years.

More than half of primary school leaders (55 per cent) rated recording learners' progress as a high priority for using technology, while a third (34 per cent) thought it was a medium priority (Table 2.14). However, significantly fewer primary school leaders (34 per cent) thought that assessing learner progress was a high priority for using technology, and more than a quarter (27 per cent) said that it was a low priority.

Using technology in relation to independent learning was a priority for most primary school leaders. Fifty-three per cent said using technology for promoting independent learning was a high priority, and 44 per cent said it was a medium priority. Nearly half (48 per cent) of primary school leaders rated using technology to support personalised learning as a high priority, and 43 per cent thought this was a medium priority. Using technology to extend learning beyond the classroom was a high priority for 43 per cent of primary school leaders.

Improving communication with parents was not a high priority for technology for the majority of primary school leaders, with 34 per cent rating it as a high priority and 17 per cent saying it was a low priority.

Table 2.14 Primary schools' priorities for using technology in next three years

		Low priority	Medium priority	High priority	Don't know	Base: all primary school leaders answering
To assess learners' progress	%	27	39	34	-	207
To record learners' progress	%	10	34	55	-	209
To support personalised learning	%	8	43	48	2	209
To promote independent learning	%	4	44	53	-	208
To extend learning beyond the classroom	%	18	33	43	6	206
To improve communication with parents	%	17	49	34	-	207

Secondary school leaders were more likely than primary school leaders overall to say that the different ways of using technology were a high priority for the school in the next three years. More than three-quarters (77 per cent) of secondary school leaders rated using technology to record learners' progress as a high priority (Table 2.15). Using technology to assess learners' progress was rated as a high priority by the majority of secondary school leaders (63 per cent).

Almost three-quarters of secondary school leaders rated promoting independent learning (74 per cent) and supporting personalised learning (73 per cent) as high priorities for using technology. More than three-fifths (62 per cent) of secondary school leaders rated extending learning beyond the classroom as a high priority for using technology.

Improving communication with parents was less likely than other ways of using technology to be rated as a high priority, with under half (45 per cent) of secondary school leaders saying it was a high priority.

Table 2.15 Secondary schools' priorities for using technology in next three years

		Low priority	Medium priority	High priority	Don't know	Base: all secondary school leaders answering
To assess learners' progress	%	5	31	63	–	180
To record learners' progress	%	2	20	77	–	182
To support personalised learning	%	2	25	73	1	183
To promote independent learning	%	*	26	74	–	182
To extend learning beyond the classroom	%	2	34	62	2	182
To improve communication with parents	%	9	46	45	–	182

2.6 Summary

- Nearly all schools had a written strategy for ICT. The ICT strategy was embedded within the whole-school development or improvement plan in around two-thirds of primary and secondary schools.
- Most schools involved the headteacher, ICT co-ordinator and the school leadership team in the development of the ICT strategy.
- Nearly all schools reviewed the ICT strategy at least annually.
- The most common source of information and advice when developing the ICT strategy was the local authority (used by 94 per cent of primary schools and 83 per cent of secondary schools). Becta had been a source of information and advice for 45 per cent of primary schools and 63 per cent of secondary schools, while around three-fifths of primary and secondary schools used information or advice from the DfES.
- Most schools had an acceptable use policy for pupils, and the majority had such a policy for staff. Most schools also had a data protection policy.
- The median percentage of the school budget spent on ICT in the research period was three per cent in both primary and secondary schools.
- Rises in expenditure on technology in future years were expected by 47 per cent of primary schools and 56 per cent of secondary schools. Fewer than one-tenth of schools expected expenditure on technology to fall.
- Primary schools purchased ICT hardware and network equipment through the local authority, their ICT suppliers or other independent sources. Secondary schools purchased equipment either from their ICT suppliers or

other independent sources. Primary schools were most likely to obtain ICT support and advice from the local authority; some obtained advice from their ICT supplier and other sources. Secondary schools obtained support and advice from the local authority, ICT suppliers or other sources.

- The headteacher was involved in purchasing decisions for ICT in nearly all primary schools, while the ICT co-ordinator was involved in at least three-quarters of primary schools. Purchasing decisions in secondary schools most often involved the ICT co-ordinator, while the headteacher was involved in decisions in around three-fifths of schools.

- Collaborations were most common for joint curriculum and resource development. A third (34 per cent) of primary schools and nearly half (46 per cent) of secondary schools had collaborated in this way with other schools.

- The majority of schools (60 per cent of primary and 85 per cent of secondary schools) were planning to invest in the network's current infrastructure in the next 12 months.

- The most common priority for ICT spending in the next three years in primary schools was technical support. Laptops were more likely than other forms of hardware to be a priority for spending in primary schools. The most common high priorities for ICT spending in secondary schools were technical support, display technologies and learning platforms.

- The most common priorities for using technology in the next three years in both primary and secondary schools were recording learners' progress, promoting independent learning and supporting personalised learning, although secondary schools were more likely than primary schools to say that these were high priorities.

ICT infrastructure and resources

This chapter examines ICT infrastructure and resources in schools. The majority of data was collected from ICT coordinators. Firstly, this chapter looks at levels of resources, how resources are made available within the school, and satisfaction with these resources. The chapter goes on to look at the types of network used as well as internet access and internet security. Finally the chapter reports on maintenance of networks and responsibility for technical support.

Comparisons are made where possible with findings from the surveys of schools conducted for the Curriculum Online evaluations in 2002, 2003 and, most recently, in 2005.

3.1 ICT hardware

3.1.1 Availability of hardware

Almost all primary schools that provided details of resources had desktop computers (98 per cent), while 100 per cent had interactive whiteboards, with an average of 28 desktop computers and eight interactive whiteboards per school (Table 3.1). Laptops were available in nine-tenths (92 per cent) of primary schools, with an average of 14 per school.

Forty-six per cent of primary schools had access to data loggers, while fewer than one-tenth had access to handheld computers (six per cent) and tablet PCs (six per cent).

There had been a steady increase in the proportion of primary schools with interactive whiteboards since the Curriculum Online baseline study in 2002. Ninety-eight per cent of primary schools reported having interactive whiteboards for the E-learning in Schools study compared with 39 per cent for the first Curriculum Online survey in 2002, and 91 per cent for the third Curriculum Online survey in 2005. The average number of interactive whiteboards in primary schools had risen from 6.1 in 2005 to 8.0 in 2007 (Figure 3.1).

Table 3.1 Mean levels of resources available in primary schools

	2002 (*n*)	2003 (*n*)	2005 (*n*)	2007 (*n*)
Desktop computers	24.1	25.3	28.4	27.6
Laptops	3.9	6.7	11.6	13.8
Interactive whiteboards	0.7	1.5	6.1	8.0
Handheld computers	0.6	0.9	0.8	0.3
Data loggers	0.8	0.8	1.4	1.1
Tablet PCs	n/a	n/a	n/a	0.3
Base: all schools	236	236	236	234

All secondary schools that provided details of their resources had desktop computers, while most had laptops (99 per cent) and interactive whiteboards (98 per cent), with an average of 261 desktop computers, 77 laptops and 22 whiteboards per school (Table 3.2).

Fewer than half of secondary schools who provided numbers of resources had handheld computers (29 per cent) and tablet PCs (40 per cent) with an average of four handheld computers and four tablet PCs per school. Data loggers were available in 60 per cent of secondary schools, with an average of six devices per school.

There had been a significant increase in the average numbers of interactive whiteboards available in secondary schools since the 2005 Curriculum Online survey (22 compared with 18). The average numbers of other devices had not changed significantly.

Figure 3.1 Mean number of interactive whiteboards per school, 2002–07
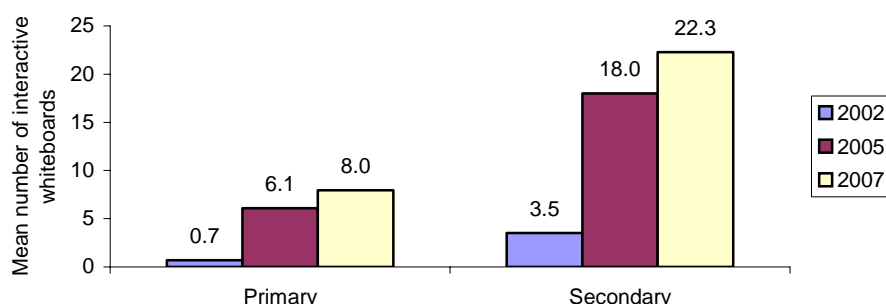
Base: all schools (primary: 234, secondary: 258)

Table 3.2 Mean levels of resources available in secondary schools

	2002 (*n*)	2003 (*n*)	2005 (*n*)	2007 (*n*)
Desktop computers	174.4	198.6	242.4	260.6
Laptops	22.8	34.4	75	76.9
Interactive whiteboards	3.5	5.4	18	22.3
Handheld computers	1.5	2.2	4.3	4.3
Data loggers	7.2	7.1	7.5	6.3
Tablet PCs	n/a	n/a	n/a	4.0
Base: all schools	195	195	195	258

Primary schools had an average pupil-to-computer ratio of 6.6:1, while the average ratio in secondary schools was 3.6:1 (Figure 3.2). These ratios were similar to those found in the third Curriculum Online survey in 2005, although there had been a slight increase in the average number of pupils to each computer in primary schools (from 6.0:1 to 6.6:1).

Figure 3.2 Mean number of pupils per computer in schools, 2002–07
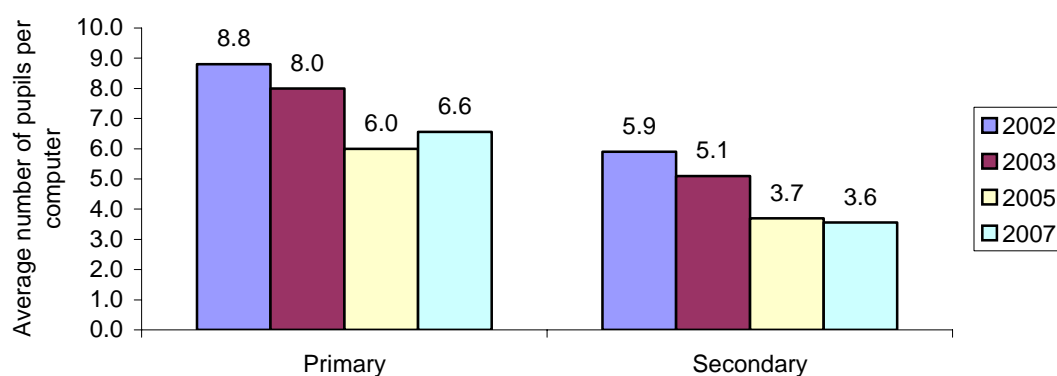
Base: all schools (primary: 234, secondary: 258)

Primary schools varied in the ways in which they made desktop computers available. In around half (51 per cent) of schools, desktops were located mainly in ICT rooms with some in classrooms (Table 3.3). The reverse was true in approximately a fifth (18 per cent) of primary schools, with desktops mainly located in classrooms and some in dedicated ICT rooms. Desktops were located only in classrooms in around a quarter (26 per cent) of primary schools.

There was far less variation in the way that laptops were made available, with the majority of primary schools keeping these either mainly or wholly in the classroom (96 per cent). In the remaining four per cent of primary schools, laptops were made available mainly or wholly in dedicated ICT rooms.

Table 3.3 Location of computers in primary schools

		Only in dedicated ICT room	Mainly in dedicated ICT room some class	Mainly in class also dedicated ICT room	In class not in dedicated ICT room	Base: all primary schools answering
Desktops	%	5	51	18	26	228
Laptops	%	1	3	19	77	212

Secondary schools tended to make desktops available in dedicated ICT rooms and laptops available in classrooms. In 86 per cent of secondary schools, desktops were available either mainly or wholly in dedicated ICT rooms (Table 3.4). The reverse was true of laptops, with a similar proportion (88 per cent) available either mainly or wholly in the classroom.

Table 3.4 Location of computers in secondary schools

		Only in dedicated ICT room	Mainly in dedicated ICT room some class	Mainly in class also dedicated ICT room	In class not in dedicated ICT room	Base: all secondary schools answering
Desktops	%	9	77	13	*	254
Laptops	%	4	9	18	70	227

3.1.2 Additional technology resources

Nearly all primary schools reported having access to digital cameras (97 per cent), while just under three-quarters had digital multimedia microscopes (73 per cent) and digital video cameras (70 per cent). Projectors (not including those used with

interactive whiteboards) were available in around half (53 per cent) of primary schools, and video-conferencing equipment in around one-tenth (12 per cent).

Fewer than one in 20 primary schools reported having graphics tablets (four per cent), voting pads (four per cent) or iPods or MP3 players (three per cent). Fewer than one per cent reported having location devices, and none of the primary schools in the survey reported having smartphones.

Primary schools had access to an average of five digital cameras, two voting pads, three digital video cameras, two projectors[1], and two digital multimedia microscopes (Table 3.5).

The majority of secondary schools reported having access to digital cameras (90 per cent), projectors (86 per cent) and digital video cameras (83 per cent). Around two-fifths had multimedia microscopes (42 per cent) and video conferencing equipment (43 per cent), while a third had graphics tablets (32 per cent) and voting pads (30 per cent).

Fewer than one-tenth of secondary schools had location devices (two per cent) or iPods and MP3 players (six per cent). None of the secondary schools in the survey had smartphones.

Secondary schools had access to an average of 23 projectors, 13 voting pads, 12 digital cameras, five digital video cameras, two graphics tablets and two digital multi-media microscopes.

Table 3.5 Mean levels of additional resources available in schools

	Primary (%)	Secondary (%)
Digital cameras	4.8	11.6
Digital video cameras	2.5	5.2
Projectors	2.4	23.1
Voting pads	2.0	12.9
Digital multimedia microscopes	1.6	1.8
Graphics tablets	0.2	2.4
Base: all schools	234	258

The availability of assistive technology devices to support pupils with special educational needs varied between primary schools. Forty per cent of primary schools reported owning at least one such device (Table 3.6). Around a fifth had devices designed to support physical access (21 per cent) and sensory access (21 per cent), while one-tenth had devices to support cognitive access (nine per cent).

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[1] Numbers of projectors did not include projectors used with interactive whiteboards.

Among secondary schools, the availability of technology to help pupils with special educational needs also varied. Approximately half of secondary schools said they had at least one such device (47 per cent). Around a third had devices to support sensory access (32 per cent), a quarter had devices to support physical access (26 per cent), and a fifth had devices to support cognitive access (18 per cent).

Table 3.6 Availability of special needs resources in schools

	Primary (%)	Secondary (%)
Devices to support physical access	21	26
Devices to support sensory access	21	32
Devices to support cognitive access	9	18
Any device	40	47
Base: all schools	234	258

3.1.3 Rating of hardware

Across both primary and secondary schools, ratings for fitness for purpose of resources were high and similar to figures recorded for the 2005 Curriculum Online survey.

Among primary ICT respondents, satisfaction with interactive whiteboards was particularly high, with almost all schools rating them quite good or very good in terms of fitness for purpose (99 per cent), while 94 per cent rated laptops as quite good or very good (Table 3.7). The fitness for purpose of desktop computers was thought to be quite good or very good by more than four-fifths (82 per cent) of primary ICT respondents. There had been no significant changes in levels of satisfaction since the third Curriculum Online survey in 2005.

Table 3.7 Rating of fitness for purpose of resources in primary schools (percentages rating resources as quite/very good)

	2002 (%)	2005 (%)	2007 (%)
Desktop computers	96	88	82
Laptops	95	91	94
Interactive whiteboards	93	97	99
Data loggers	85	84	78
Base: all with each type of resource answering	92-230	111-223	104-232

Among secondary ICT respondents, ratings were particularly high for desktop computers and interactive whiteboards, with 97 per cent and 95 per cent respectively saying these resources were either quite good or very good (Table 3.8). The

proportion of secondary ICT respondents rating the fitness for purpose of laptops as quite good or very good was high (86 per cent), although it was slightly lower than in the third Curriculum Online survey when 92 per cent gave these ratings.

Table 3.8 Rating of fitness for purpose of resources in secondary schools (percentages rating resources as quite/very good)

	2002 (%)	2005 (%)	2007 (%)
Desktop computers	96	95	97
Laptops	92	92	86
Interactive whiteboards	94	98	95
Handheld computers	n/a	n/a	63
Data loggers	81	81	77
Tablet PCs	n/a	n/a	61
Base: all with each type of resource answering	138–193	124–190	76–252

Levels of satisfaction with the quantities of resources available were generally high among primary ICT respondents and mixed among secondary ICT respondents.

Primary respondents tended to be satisfied with the quantities of resources available. Around a quarter (27 per cent) reported they had fewer desktops than were needed to deliver the curriculum adequately, 37 per cent thought they had fewer laptops than needed, and around a fifth (19 per cent) reported they had fewer interactive whiteboards than needed (Table 3.9). Satisfaction levels were much lower for data loggers, with more than three-fifths (63 per cent) reporting they had fewer devices than needed.

Table 3.9 Rating of quantity of resources in primary schools (percentages saying 'less than we need')

	2002 (%)	2003 (%)	2005 (%)	2007 (%)
Desktop computers	42	34	28	27
Laptops	75	63	38	37
Interactive whiteboard	67	72	33	19
Data loggers	63	64	63	63
Base: all with each type of resource answering	92–230	92–231	111–232	103–229

The proportion of primary schools reporting they had fewer interactive whiteboards than needed had fallen from 33 per cent in the third Curriculum Online survey in 2005 to 19 per cent, having previously fallen from 72 per cent in the 2003 survey. This reflects substantial increases in the availability of interactive whiteboards. Otherwise, satisfaction levels were in line with those found in the third Curriculum Online survey.

Among secondary ICT respondents, satisfaction levels were mixed, with many schools reporting insufficient resources to deliver the curriculum adequately. Fifty-seven per cent of secondary ICT respondents reported having fewer data loggers, 49 per cent reported having fewer interactive whiteboards, 48 per cent reported having fewer desktop computers and 42 per cent reported having fewer laptops than were needed (Table 3.10). Among the relatively small group of schools with handheld computers and tablet PCs, levels of satisfaction were similar to those for other devices, with 43 per cent reporting fewer handheld computers and 52 per cent reporting fewer tablet PCs than needed.

In line with the findings for primary schools, the number of secondary schools reporting fewer interactive whiteboards than needed had fallen from 65 per cent in the third Curriculum Online survey in 2005 to 49 per cent, having previously fallen from 84 per cent in the 2003 survey (Figure 3.3). There was also a fall in the proportion reporting fewer laptops than needed (from 54 per cent in the third Curriculum Online survey to 42 per cent).

Table 3.10 Rating of quantity of resources in secondary schools (percentages saying 'less than we need')

	2002 (%)	2003 (%)	2005 (%)	2007 (%)
Desktop computers	63	54	46	48
Laptops	77	64	54	42
Interactive whiteboard	87	84	65	49
Handheld computers	n/a	n/a	n/a	43
Data loggers	71	73	65	57
Tablet PCs	n/a	n/a	n/a	52
Base: all with each type of resource answering	146–192	139–195	139–192	70–256

Figure 3.3 Rating of quantity of interactive whiteboards in secondary schools (percentages saying 'less than we need') 2002–06
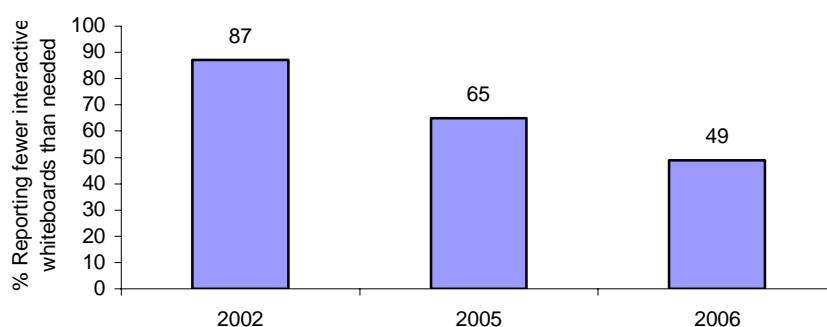
3.2 ICT software and digital learning resources

3.2.1 Experiences of using software

Across both primary and secondary schools, ICT respondents had few problems finding relevant software for school curriculum use and rated it highly for fitness for purpose. Eighty-nine per cent of primary ICT respondents reported finding it quite or very easy to find such software, and 91 per cent rated the fitness for purpose of such software as quite good or very good (Table 3.11, Figure 3.4). Among secondary respondents, 91 per cent of ICT respondents said they found it quite or very easy to find such software, and 96 per cent rated the fitness for purpose of such software as quite good or very good.

Table 3.11 Rating of how easy it is to find software for school curriculum use

	Primary (%)	Secondary (%)
Very easy	25	29
Quite easy	64	62
Not very easy	9	7
Not at all easy	2	2
Base: all ICT respondents answering	233	257

Figure 3.4 Rating of fitness for purpose of software for school curriculum use
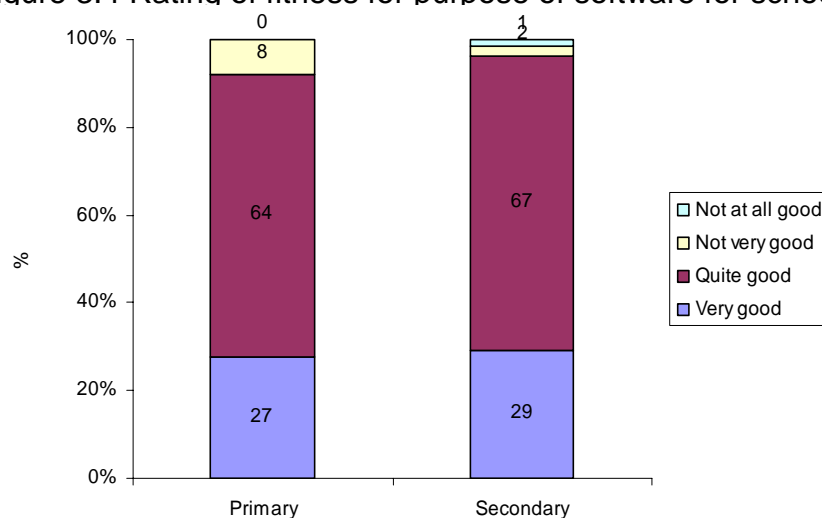
Base: all schools answering (primary: 233, secondary: 257)

Teachers were asked to rate available curriculum-related software for fitness for purpose and technical quality (for example, ease of use, robustness, and quality of visual design). A high level of satisfaction was expressed with both the fitness for purpose and technical quality of software.

Among primary teachers, 91 per cent rated the software either quite good or very good for fitness for purpose (Figure 3.4), while 87 per cent rated the technical quality quite good or very good.

While satisfaction levels were also high among secondary teachers, they were lower than those for primary teachers. Eighty-two per cent of secondary teachers rated software quite good or very good for fitness for purpose, and 81 per cent rated software quite good or very good for technical quality.

Among secondary teachers, those who taught English and music were most likely to be dissatisfied with the technical quality of the software.

3.2.2 Location of software

The location of teaching software resources varied among primary schools. Fifty-six per cent of ICT respondents reported they did not use any of the listed locations to store software. Of the categories listed, it was most common for software to be stored in a school 'cluster' repository (27 per cent), followed by the local authority repository (18 per cent) (Table 3.12).

Across secondary schools there was more consistency in where teaching software resources were stored. Nearly two-thirds of secondary schools used a school cluster repository (63 per cent), while 12 per cent used a local authority repository. Approximately a quarter did not use any of the listed locations (24 per cent).

Table 3.12 Location of teaching software resources in schools

	Primary (%)	Secondary (%)
School 'cluster' repository	27	63
LA repository	18	12
Regional repository	2	4
Repository at private provider	6	8
Other repository	13	9
None of these	56	24
Base: all answering	219	253

3.3 Network and equipment

3.3.1 Prevalence of networking and type of network

Across both primary and secondary schools, networking of computers was widespread. Since the third Curriculum Online survey in 2005 there had been some increases in the extent of networking.

Approximately two-thirds of primary ICT respondents reported that all school computers could access a network (69 per cent), with a further 26 per cent indicating

that more than half (but not all) could access a network (Table 3.13). The number of primary schools with all computers networked had increased from 51 per cent in the third Curriculum Online survey in 2005 and from 32 per cent in the first survey in 2002. (Figure 3.5).

Nine-tenths (90 per cent) of secondary schools reported that all computers could access a network. The remaining 10 per cent reported that more than half (but not all) could access a network. The proportion of secondary schools with all computers networked was significantly higher than for primary schools (90 per cent compared with 69 per cent).

Table 3.13 Proportion of computers that can access a network in schools

	Primary (%)	Secondary (%)
All	69	90
More than half	26	10
About half	4	–
Fewer than half	1	*
None	1	–
Base: all ICT respondents answering	231	258

Figure 3.5 Percentages of schools with all computers networked 2002–07
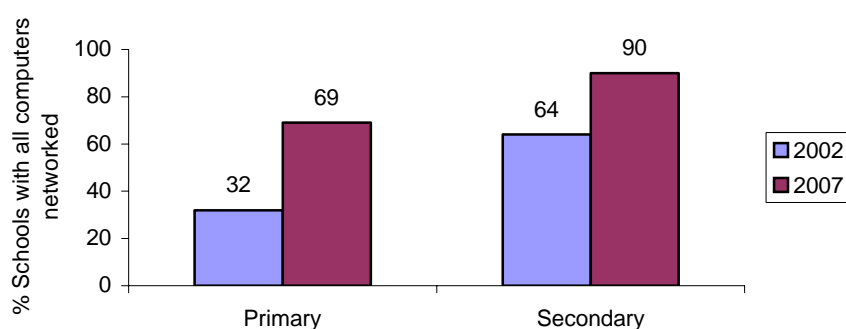
Base: all schools answering (primary: 231, secondary: 258)

Both primary and secondary schools tended to use either fat client or thin client networks.

Similar proportions of primary schools reported using thin clients (36 per cent) and fat clients (42 per cent), and a further 11 per cent said they used a hybrid of the two (Table 3.14). Among secondary schools, half opted for a fat client (50 per cent), with a further 38 per cent using a thin client and 14 per cent using a hybrid of the two.

Table 3.14 Types of network in schools

	Primary (%)	Secondary (%)
Peer to peer	14	1
Thin client	36	38
Fat client	42	50
Hybrid (mixture of fat and thin clients)	11	14
Other	1	4
No network	1	-
Base: all answering	226	254

3.3.2 Network cabling

Across both primary and secondary schools, the majority reported using Cat 5(e) network cabling. Around two-thirds (62 per cent) of primary ICT respondents reported that either the majority or all of their cabling was Cat 5(e), while 17 per cent said the majority or all of their cabling was Cat 6 (Table 3.15).

Among secondary ICT respondents, approximately four-fifths (82 per cent) said the majority or all of the cabling in their schools was Cat 5(e). Ten per cent said that the majority or all of their cabling was Cat 6.

Table 3.15 Types of network cabling in schools

	Primary (%)	Secondary (%)
All cabling is CAT 6	8	4
Majority cabling Cat 6, with some other	9	6
All cabling CAT 5(e)	49	43
Majority cabling CAT 5(e), with some other	13	39
Majority cabling CAT 5, with some other	14	8
Majority cabling is old coaxial cabling	–	–
Other	6	1
Base: all answering	143	241

Primary schools were more than twice as likely as secondary schools to have replaced all cabling in the past five years. Forty-three per cent of primary ICT respondents said that all their cabling had been replaced in the past five years, with a further 35 per cent reporting that more than half (but not all) of their cabling had been replaced during this period (Table 3.16). Four per cent of schools reported that none of their cabling had been replaced during the past five years.

Approximately a fifth (19 per cent) of secondary schools indicated they had replaced all cabling in the past five years, with a further 47 per cent saying they had replaced

more than half (but not all) during this period. All secondary schools had replaced some cabling in the past five years.

Table 3.16 Proportion of network cabling replaced in past five years in schools

	Primary (%)	Secondary (%)
All	43	19
More than half	35	47
Half	8	21
Fewer than half	10	14
None	4	–
Base: all answering	220	252

3.3.3 Wireless network technology

Half (50 per cent) of all primary schools and most secondary schools (82 per cent) reported making at least some use of wireless network technology.

Among primary schools, two per cent reported that their network was entirely wireless, around a fifth (21 per cent) reported that a substantial part of their network was wireless, and a quarter (26 per cent) reported that a small part of their network was wireless (Table 3.17). Since the third Curriculum Online survey in 2005, the number of primary schools saying they made at least some use of wireless technology had risen from 32 per cent to 50 per cent.

Among secondary schools, two per cent reported that their entire network was wireless, a fifth (20 per cent) reported that a substantial part of their network was wireless and three-fifths (60 per cent) reported that a small part of their network was wireless. Consistent with the findings for primary schools, there had been a significant increase in the numbers of secondary schools saying they made at least some use of wireless technology since the third Curriculum Online survey (82 per cent compared with 68 per cent).

Table 3.17 Use of wireless networking technology in schools

	Primary (%)	Secondary (%)
Our whole network is wireless	2	2
Substantial part of network is wireless	21	20
Small part of network is wireless	26	60
None of network is wireless	50	18
Base: all answering	233	257

3.3.4 Use of large files on the network

Secondary ICT respondents were asked whether their schools' networks allowed staff or pupils to work with large multimedia files (such as sound or video files). The

majority (59 per cent) of ICT respondents chose the answer 'Large files can be handled on the network but we do not encourage this on a large scale'. Most other ICT respondents (30 per cent overall) chose the answer 'There is no problem with handling files of this kind on the network'. Only 11 per cent of ICT respondents chose the answer 'The network has problems coping with this kind of usage'. Thus respondents indicated that most secondary schools had a reasonable capacity to cope with large multimedia files when the need arose.

3.4 Internet connections and access

3.4.1 Access to internet

When asked about internet access, primary ICT respondents most frequently reported that staff had full internet access while pupils had access only under supervision (63 per cent) (Table 3.18). In around a third (35 per cent) of schools, both staff and pupils had full access to the internet.

Secondary ICT respondents most commonly reported that both staff and pupils had full internet access (74 per cent). In a fifth (20 per cent) of secondary schools, staff had full access and pupils had access only under supervision.

Table 3.18 Internet access in schools

	Primary (%)	Secondary (%)
Staff and pupils have full access	35	74
Staff have full access, pupils access under supervision	63	20
Staff have full access, pupils no access	2	6
Neither staff nor pupils have access	–	–
Base: all answering	233	256

3.4.2 Satisfaction with internet connection

There was a high level of satisfaction with the speed of internet connections in both primary and secondary schools. Approximately two-thirds of primary ICT respondents (65 per cent) reported that their connections were fast enough for most or all of their requirements, and a further 26 per cent said they were fast enough for some of their requirements (Table 3.19). Nine per cent reported that connections were not fast enough for their requirements. Levels of satisfaction were similar to those reported in the third Curriculum Online survey in 2005.

Around two-thirds of secondary ICT respondents (67 per cent) indicated that their internet connections were fast enough for most or all of their requirements, and a further quarter (25 per cent) said that they were fast enough for some of their requirements. Eight per cent said they were not fast enough for their requirements.

Again, levels of satisfaction were similar to those found in the third Curriculum Online survey.

Table 3.19 Speed of internet connections in schools

	Primary			Secondary		
	2002 (%)	2005 (%)	2007 (%)	2002 (%)	2005 (%)	2007 (%)
Fast enough for all/most of our requirements	25	69	65	61	64	67
Fast enough for some of our requirements	45	20	26	26	31	25
Not fast enough for our requirements	30	11	9	13	6	8
Base: all answering	234	236	233	194	194	258

Both primary and secondary schools also tended to be satisfied with the number of available internet connections. Eighty-six per cent of primary ICT respondents thought that the number of connections was either about right or more than was needed to deliver the curriculum adequately (Table 3.20). Levels of satisfaction were similar to those reported in the third Curriculum Online survey in 2005.

Eighty-two per cent of secondary ICT respondents reported that the number of connections was about right or was more than needed. The proportion reporting they had more connections than required had increased from 15 per cent for the 2005 Curriculum Online survey to 24 per cent, while the numbers reporting they had fewer connections than needed remained unchanged.

Table 3.20 Number of internet connections in schools

	Primary			Secondary		
	2002 (%)	2005 (%)	2007 (%)	2002 (%)	2005 (%)	2007 (%)
More than we need	4	21	17	12	15	24
About the right amount	62	64	69	68	73	58
Fewer than we need	34	15	14	20	12	18
Base: all answering	231	235	232	189	189	252

3.4.3 Location of internet connections

In primary schools, internet access was most commonly available in classrooms (97 per cent) and in dedicated ICT rooms (74 per cent) (Table 3.21). Forty-four per cent of primary schools had access via portable technology (for example laptops or handheld computers), and approximately a quarter (26 per cent) had access in a library or learning resource centre.

In secondary schools, internet access was most frequently available in dedicated ICT rooms (96 per cent) and libraries (90 per cent). Eighty-three per cent reported internet access in classrooms and 73 per cent reported access via portable technology.

Table 3.21 Location of internet connections in schools

	Primary (%)	Secondary (%)
Dedicated ICT room	74	96
Library/learning resource centre	26	90
Classrooms	97	83
Portable technology, e.g. laptops	44	73
Base: all answering	233	257

3.5 ICT security (virus protection, firewalls and content filtering)

3.5.1 Virus protection

Across both primary and secondary schools, the vast majority of ICT respondents reported that all computers received a daily antivirus update in some form.

Seven per cent of primary schools and two per cent of secondary schools reported that some computers did not receive daily updates to their antivirus products (Table 3.22).

Updating was done automatically online in approximately three-quarters (74 per cent) of primary schools and 90 per cent of secondary schools. In 14 per cent of primary schools and seven per cent of secondary schools, updating was done manually on at least a daily basis.

Five per cent of primary ICT respondents and one per cent of secondary ICT respondents could not say which description best fitted the virus protection used by their schools.

Table 3.22 Virus protection in schools

	Primary (%)	Secondary (%)
All workstations/servers protected by antivirus product that updates automatically online	74	90
All workstations/servers protected by antivirus product that is manually updated at least daily	14	7
More than half of workstations/servers protected by antivirus product updated at least daily	4	1
Fewer than half workstations/servers protected by antivirus product updated on at least daily basis	3	1
Don't know	5	1
Base: all answering	225	257

3.5.2 Firewalls

Both primary and secondary schools most commonly used a local-authority-managed firewall. However, secondary schools were less likely than primary schools to report using a local-authority-managed firewall (46 per cent of secondary schools compared with 64 per cent of primary schools) and more likely to use a school-managed-software firewall (16 per cent compared with nine per cent of primary schools) (Table 3.23). Around a fifth (21 per cent) of secondary schools and 16 per cent of primary schools opted for a regional broadband consortium (RBC)-managed firewall.

Table 3.23 Firewalls in schools

	Primary (%)	Secondary (%)
School-managed software firewall	9	16
School-managed firewall built into switch/router	1	7
Local-authority-managed firewall	64	46
RBC-managed firewall	16	21
ISP-managed firewall	4	4
ICT-supplier-managed firewall	4	2
None – no firewall in place	1	*
School- and LA-managed firewall (spontaneous)	–	3
Base: all answering	207	256

3.6 Maintenance and technical support

3.6.1 Responsibility for maintenance of networks

In primary schools, responsibility for day-to-day maintenance of the schools' networks tended to belong to one of four groups: a teacher or ICT co-ordinator (27 per cent), an ICT technician shared with another school (27 per cent), a dedicated ICT technician (19 per cent) or a local authority support service (22 per cent) (Table 3.24).

In secondary schools, responsibility for such maintenance nearly always belonged to a dedicated school-based ICT technician (94 per cent of cases).

Table 3.24 Responsibility for network maintenance in schools

	Primary (%)	Secondary (%)
Teacher/ICT co-ordinator	27	1
Dedicated school based ICT technician	19	94
ICT technician shared with another school	27	2
Local authority support service	22	1
ICT supplier	5	2
Base: all answering	229	257

Primary schools with fewer pupils were significantly less likely to employ a dedicated school-based ICT technician. Seven per cent of primary schools with fewer than 200 pupils employed a dedicated school-based ICT technician, compared with approximately three times as many schools with 200-plus pupils (24 per cent).

Secondary schools with fewer pupils were also less likely to have a dedicated ICT technician. Eighty-nine per cent of schools with under 900 pupils employed a dedicated ICT technician, compared with 94 per cent of schools with 900 or more pupils.

Secondary schools with a greater pupil-to-computer ratio (desktops plus laptops) were also less likely to have a dedicated ICT technician. Schools with a ratio of fewer than four pupils to each computer were more likely to have a dedicated ICT technician (96 per cent) than those with four or more pupils to each computer (89 per cent). This suggests that a relationship exists between the availability of ICT hardware and the availability of ICT staffing resources in secondary schools.

3.6.2 Monitoring of network performance

Both primary and secondary schools tended to monitor the schools' networks on an 'ad hoc basis according to need'.

In primary schools, monitoring on an ad hoc basis according to need was carried out in around four-fifths (79 per cent) of cases (Table 3.25). In the remaining fifth (21 per cent) of schools, networks were monitored according to a pre-determined schedule.

In secondary schools, performance of the schools' networks was also monitored ad hoc according to need in the majority (72 per cent) of cases. In just over a quarter (28 per cent) of cases, secondary schools monitored their networks according to a pre-determined schedule.

Table 3.25 Monitoring of networks in schools

	Primary (%)	Secondary (%)
Monitoring *ad hoc* according to need	79	72
Monitoring to pre-determined schedule	21	28
Base: all answering	224	252

Schools that monitored the performance of their networks according to a pre-determined schedule were asked how often this maintenance was carried out. Primary schools monitored at least weekly in 30 per cent of cases. A further half (50 per cent) reported monitoring at least monthly (but not weekly), while a fifth (20 per cent) of schools monitored less often than monthly.

Among secondary schools, 59 per cent said they monitored at least weekly. A further 25 per cent monitored less often than weekly (but at least monthly), and 15 per cent monitored less often than monthly.

3.6.3 Technical support staff

Primary schools tended to employ fewer technical support staff than secondary schools. Primary schools employed an average of 0.8 members of technical support staff, while secondary schools employed 3.0.

On average, primary schools employed one member of technical support staff for every 265 pupils. The ratio was significantly higher among secondary schools at 1:472. Thirty-two per cent of primary schools and two per cent of secondary schools did not employ any technical support staff.

Primary schools tended to outsource technical support services either wholly or partly. More than four-fifths of primary schools outsourced data management (84 per cent), network support (85 per cent) and internet support (81 per cent) to some extent (Table 3.26, Figure 3.6). A smaller number of primary schools outsourced personal computing support to some extent (54 per cent). The lower number of

technical support staff employed by primary schools is reflected in primary schools' relative reliance on help from outside sources as well as a lower incidence of providing technicians for other educational institutions.

Table 3.26 Sourcing of technical support services in primary schools

	Data management and MIS support (%)	Network support (%)	Personal computing support (%)	Internet support (%)
Wholly in house	11	12	33	14
Partially outsourced	31	40	43	44
Wholly outsourced	54	45	10	37
We do not offer this type of support	5	3	14	6
Base: all answering	204	209	207	207

Secondary schools were significantly more likely than primary schools to source technical support services from inside the school, suggesting they are more self-sufficient in this respect. Despite this, the majority of secondary schools still outsourced data management (63 per cent) and internet support (66 per cent) to some extent (Table 3.27). A smaller proportion outsourced network support (40 per cent) and personal computing support (12 per cent).

Table 3.27 Sourcing of technical support services in secondary schools

	Data management and MIS support (%)	Network support (%)	Personal computing support (%)	Internet support (%)
Wholly in house	37	60	83	31
Partially outsourced	56	38	11	50
Wholly outsourced	7	2	1	17
We do not offer this type of support	–	–	6	3
Base: all answering	251	254	253	253

Figure 3.6 Sourcing of technical support services in schools (percentages saying wholly or partly outsourced)
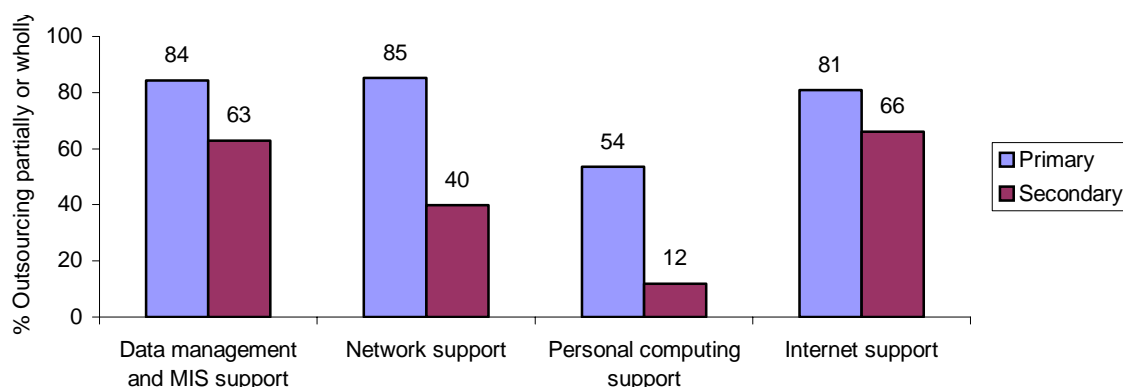
Just six per cent of primary schools provided technicians to other educational institutions, while nearly a quarter (23 per cent) of secondary schools did so.

Among secondary schools, those with a greater number of pupils were more likely to provide technicians to other educational institutions. Fourteen per cent of secondary schools with fewer than 900 pupils provided technicians for other institutions, compared with 26 per cent of schools with 900 or more pupils.

Among secondary schools, those that had spent the greatest proportion of their budgets on ICT in the past financial year were also most likely to provide technicians to other educational institutions. Twenty-two per cent of schools that had spent less than four per cent of their budgets on ICT provided technicians to other institutions, compared with 38 per cent of schools that had spent four per cent or more of their budgets on ICT.

3.7 Summary

- Nearly all primary and secondary schools reported having access to desktop computers, laptops and interactive whiteboards. The average numbers of interactive whiteboards had risen since the third Curriculum Online Study in 2005 among both primary schools (8 interactive whiteboards compared with 6.1 in 2005) and secondary schools (22 compared with 18).
- Primary schools had an average pupil-to-computer ratio of 6.6:1, while the average ratio in secondary schools was 3.6:1. These ratios were similar to those seen in the third Curriculum Online study in 2005.
- Forty per cent of primary schools and around half (47 per cent) of secondary schools reported the availability of assistive technology devices to help pupils with special educational needs.

- Across both primary and secondary schools, ratings for fitness for purpose of resources were high and similar to figures recorded for the 2005 Curriculum Online survey.

- Levels of satisfaction with the quantities of resources available were generally high among primary ICT respondents. Among secondary ICT respondents, levels of satisfaction were more varied, with around half saying they had fewer desktops (48 per cent), interactive whiteboards (49 per cent), data loggers (57 per cent) and tablet PCs (52 per cent) than needed.

- Across both primary and secondary schools, ICT respondents had few problems finding relevant software for school curriculum use and rated it highly for fitness for purpose. Primary and secondary teachers expressed a high level of satisfaction with curriculum-related software for fitness for purpose and technical quality.

- Approximately two-thirds (69 per cent) of primary schools and nine-tenths (90 per cent) of secondary schools reported that all school computers could access a network. The proportion of primary schools with all computers networked had increased from 51 per cent in the third Curriculum Online study in 2005.

- Forty-three per cent of primary schools and around a fifth (19 per cent) of secondary schools reported they had replaced all network cabling in the past five years. Around three-fifths (62 per cent) of primary schools and four-fifths (82 per cent) of secondary schools reported that the majority or all of their network cabling was Cat 5(e).

- Half (50 per cent) of all primary schools and more than four-fifths (82 per cent) of secondary schools made at least some use of wireless network technology. The proportions of primary and secondary schools using wireless technology had increased since the third Curriculum Online study in 2005.

- Around two-thirds of primary ICT respondents (65 per cent) and secondary ICT respondents (67 per cent) reported that the internet connections at their schools were fast enough for most or all of their requirements.

- Updating of virus protection software was done automatically online in around three-quarters (74 per cent) of primary schools and 90 per cent of secondary schools.

- Local-authority-managed firewalls were the type of firewall most commonly used in both primary and secondary schools.

- Around four-fifths (79 per cent) of primary schools and 72 per cent of secondary schools monitored the performance of their networks on an ad hoc basis according to need.

- Primary schools employed an average of 0.8 members of technical support staff, while secondary schools employed 3.0. Six per cent of

primary schools and nearly a quarter (23 per cent) of secondary schools provided technicians to other educational institutions.

Role of ICT in improving organisational effectiveness

This chapter draws together from the study evidence of how ICT is being used by schools to improve their organisational effectiveness. Four issues are covered:

- Use of ICT in school administration, such as financial management, recording and analysing pupil attendance, and making use of pupil data.
- Use of various ways of accessing shared ICT resources in the school. This covers use of school websites, intranets, learning platforms and extranets. It also covers access to the network from outside the school, access to secure login areas, the availability of personal secure areas for storing work, and the use of e portfolios.
- Use of ICT in communications with parents.
- Community uses of school ICT facilities.

Collectively, these measures provide further evidence of schools' progress towards being 'e-confident' institutions.

4.1 Use of ICT in school administration

Headteachers were asked to report on the extent to which their schools used ICT in financial management, recording and analysing pupil attendance, and making use of pupil data.

Where electronic systems were used, headteachers were asked whether these were standard systems that had been developed outside the school or whether they had been developed in the school. This information is relevant to the sixth priority of the Government's e-strategy, to build a common digital infrastructure to support transformation and reform, with common systems of electronic learning, administration and business being utilised[2].

4.1.1 Use of ICT in financial management

Nearly all schools used some form of electronic system[3] for financial management. Only three per cent of primary schools and less than one per cent of secondary schools said they hadn't used electronic systems for accounting and financial management for their most recent annual accounts. Just five per cent of primary and secondary schools used only manual methods in preparing their last year's budgets.

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[2] *Harnessing Technology: Transforming learning and children's services*, DfES (March 2005).

[3] Headteacher respondents were asked to state whether their accounting and financial management was conducted 'electronically – using system developed in the school', 'electronically – using system developed elsewhere' or 'manually'. Respondents were not given a definition of what counted as an electronic system.

The electronic financial systems that schools used were predominantly those which had been developed elsewhere. Around nine-tenths of primary and secondary schools used externally developed systems for accounting and financial management and the preparation of their last year's accounts (Figure 4.1). Slightly lower proportions of primary and secondary schools (81 per cent and 73 per cent respectively) had used electronic systems in preparing their most recent budgets[4].

Larger primary schools (200 or more pupils) were more likely than smaller primary schools to use electronic financial systems that had been developed elsewhere (for example, 90 per cent of larger schools used such systems for accounting and financial management, compared with 77 per cent of smaller schools). In secondary schools, use of these systems did not vary according to school size.

Figure 4.1 Percentages of schools using financial systems developed elsewhere for financial tasks
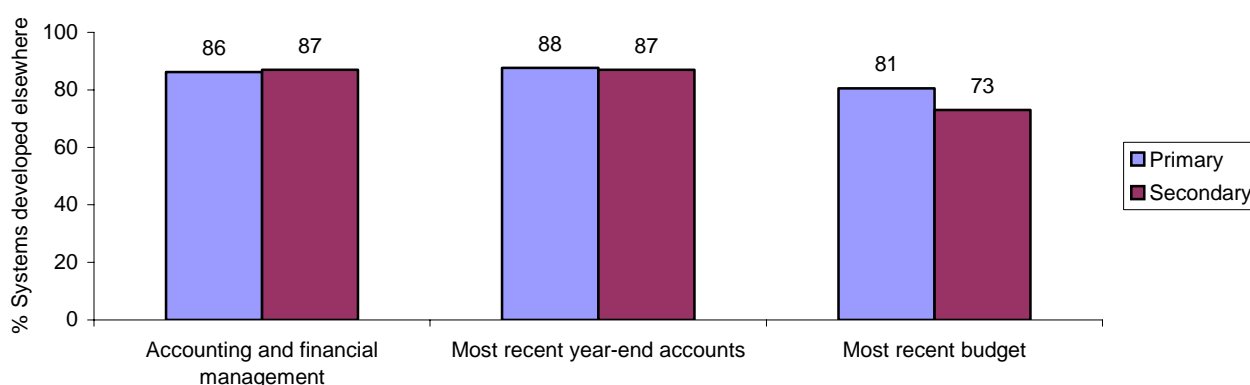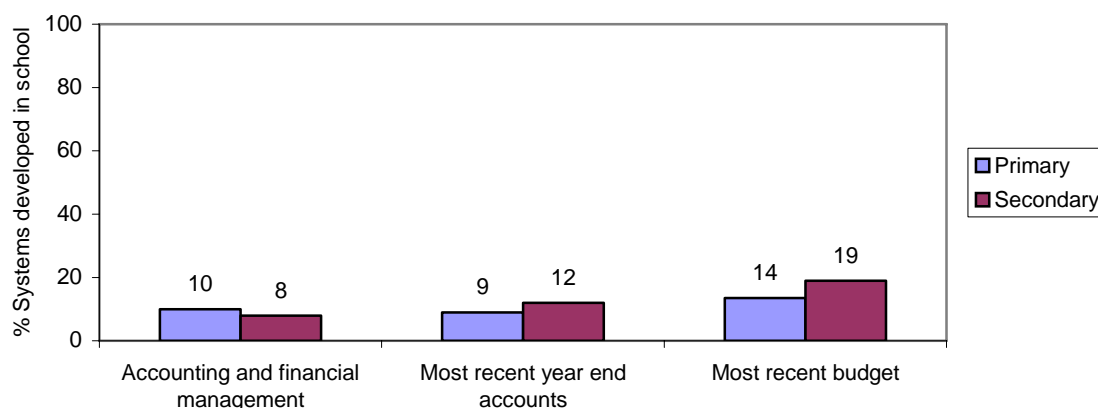

Base: primary headteachers (210), secondary headteachers (180–182)

A minority of schools had developed their own financial systems. Approximately one-tenth of primary and secondary schools (10 per cent of primary schools and eight per cent of secondary schools) used such in-house systems for their accounting and financial management, and similar proportions (nine per cent and 12 per cent) used in-house systems for their most recent year-end accounts (Figure 4.2). Systems they had developed themselves were used by slightly more primary and secondary schools for preparing their most recent budgets (14 per cent and 19 per cent respectively did so).

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[4] The questionnaire did not record the types of system used or where the externally developed systems were obtained.

Figure 4.2 Percentages of schools using financial systems developed in the school

for financial tasks

Base: primary headteachers (210), secondary headteachers (180–182)

When schools developed their own electronic financial systems, these were generally used in place of externally developed systems. Fewer than three per cent of schools used a combination of internally and externally sourced systems for the same task.

> Management of finance has become more accurate and ensures money is spent in the right areas.
>
> Primary headteacher

4.1.2 Use of ICT for pupil attendance data

Integrated e-registration systems for recording pupil attendance have been found to save teachers time and deliver better quality information on pupil attendance[5]. Headteachers were asked what form of attendance recording their schools used and, if this was electronic, what use they made of the data. It was found that electronic solutions had been implemented in most schools, although use of ICT for attendance recording was less prevalent than for financial management.

Overall, just over half (51 per cent) of primary schools used some form of electronic system to record pupils' attendance, while 49 per cent still used paper systems

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[5] *Improving school attendance in England*, NAO (2005); *Impact of ICT on productive time*, PriceWaterhouse Coopers (2005).

(Figure 4.3). Use of optical mark readers (35 per cent) was more common than use of a more integrated electronic registration system (15 per cent).

As might be expected, larger primary schools (with 200 or more pupils) made more use of electronic methods than smaller schools (61 per cent compared with 28 per cent). These findings show that there is still a lot of room for further development in this area by primary schools.

Secondary schools had made much greater progress towards implementing electronic systems for monitoring pupil attendance. Overall, 84 per cent of secondary schools used some form of electronic system. About half (48 per cent) of secondary schools reported having a fully integrated electronic registration system allowing registration by session or lesson, linked to a management information system, while 36 per cent used optical mark readers. Only 13 per cent of secondary schools still used a paper system.

Larger secondary schools (with 900 or more pupils) were more likely than smaller schools to have an integrated electronic registration system (65 per cent compared with 35 per cent), which confirms the relationship between school size and use of electronic attendance systems that was observed for primary schools.

Figure 4.3 Percentages of schools using different methods of recording pupil attendance
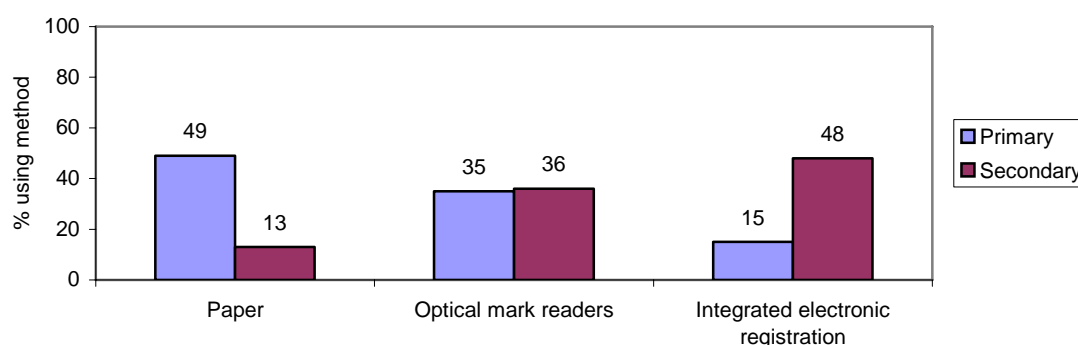
Base: primary headteachers (206), secondary headteachers (183)

The main use that schools made of the electronic attendance data they collected was to analyse the attendance of individual pupils (Figure 4.4). Fifty-two per cent of primary schools overall used electronic data for this purpose (this was 92 per cent of those schools that collected such electronic data). Seventy-two per cent of secondary schools overall used electronic data for this purpose (this was 95 per cent of schools that collected such data). Thus nearly all schools of each type that had implemented electronic systems for monitoring attendance were using this data.

Figure 4.4 Percentages of schools using electronic pupil attendance data for analysis of attendance patterns
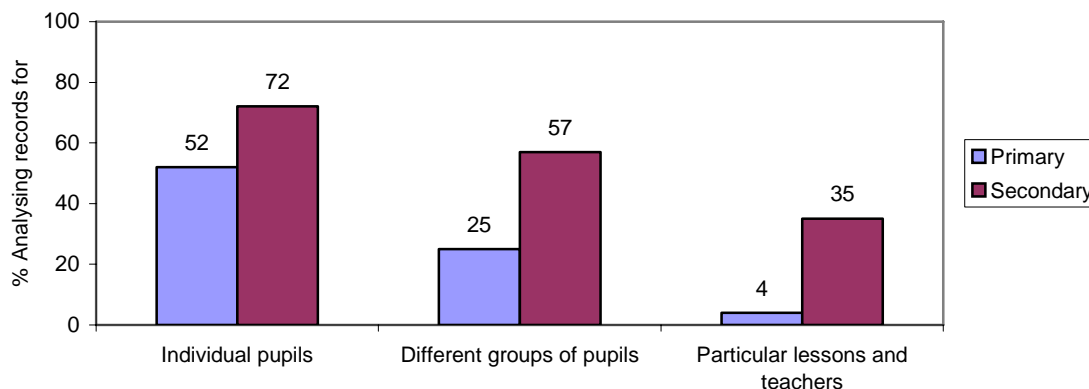
Base: primary headteachers (206), secondary headteachers (183)

Two other less common uses of attendance data were recorded. Analysis of attendance patterns for different groups, such as by gender, ethnic group or attainment level was carried out by 25 per cent of primary schools and 57 per cent of secondary schools overall (50 per cent and 82 per cent respectively of those schools that had electronic attendance systems). Analysis of attendance patterns for particular lessons or teachers was carried out by more than a third (35 per cent) of secondary schools (53 per cent of those with electronic attendance systems), but, as may be expected, this was not an important issue for primary schools, and only four per cent of them used their attendance data in this way.

Headteachers of schools that had implemented electronic systems for recording attendance had generally positive views of their effectiveness. Eighty per cent of headteachers in such primary schools said that the systems had been more effective in identifying repeated non-attendance than their previous systems, while 19 per cent said they had made no difference, and only two per cent said they had been less effective. The views of headteachers in secondary schools with electronic systems were similarly positive: 82 per cent said the systems had been more effective than their previous systems, while nine per cent said they had made no difference, eight per cent said they didn't know whether the systems had made any difference, and only two per cent said they had been less effective. These views provide encouraging evidence that such systems provide benefits for schools that implement them.

4.1.3 Other uses of pupil data

Headteachers were also asked whether they used data about their pupils (whether in electronic or paper format) for a range of management functions: setting targets, measuring progress, reviewing staff performance and managing finances. All the headteachers who answered the question reported that their schools used pupil data

in at least one of these four ways. Among primary heads, 74 per cent had used pupil data in at least three of these ways, while 41 per cent had used it in all four ways. Usage by secondary schools was similarly common with 86 per cent of headteachers reporting using pupil data in at least three of these ways, and 45 per cent reporting using it in all four ways.

The most common ways in which pupil data was used were to set performance targets (90 per cent of primary schools and 99 per cent of secondary schools) and to measure pupils' progress (97 per cent of primary schools and 96 per cent of secondary schools; Figure 4.5). Sixty-two per cent of primary schools and 68 per cent of secondary schools used pupil data for staff performance reviews. Slightly smaller proportions (56 per cent of primary schools and 64 per cent of secondary schools) used pupil data to help with managing their finances. The frequency of use of pupil data for these purposes was broadly similar between primary and secondary schools.

Figure 4.5 Percentages of schools using pupil data for different purposes
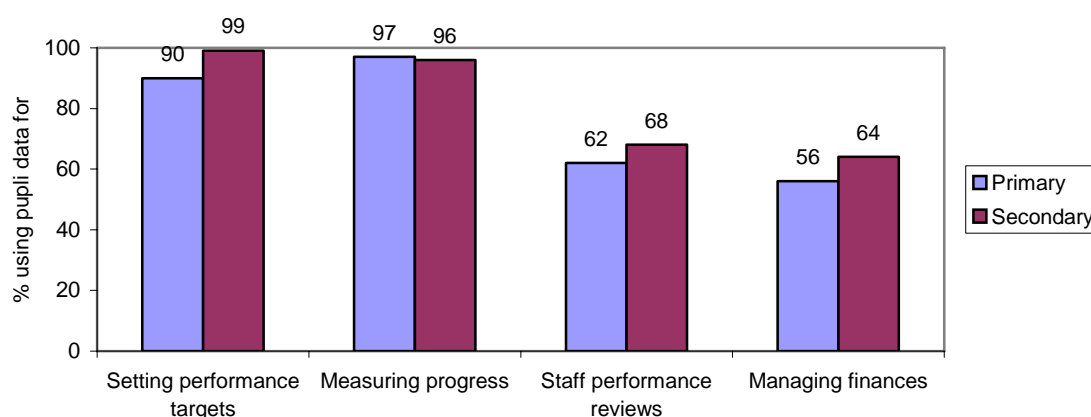
Base: primary headteachers (208), secondary headteachers (181)

4.2 Ways of accessing shared ICT resources

This section covers various ways in which schools facilitate access to shared ICT resources. This includes use of school websites, intranets, learning platforms and extranets. It also covers access to the network from outside the school, access to secure login areas, availability of personal secure areas for storing work and use of e-portfolios. This information is relevant to several aspects of the Government's e-strategy, including the provision of online information to parents (priority 1), provision of online facilities for pupils to provide integrated online personal support (priority 2), and the overall emphasis on improving organisational capability in ICT[6]. The findings

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[6] *Harnessing Technology: Transforming learning and children's services*, DfES (March 2005).

show progress towards the objective of providing secure access to curriculum and administrative data from remote locations[7].

4.2.1 Overview of shared ICT resources

ICT respondents were asked to identify which of four forms of shared ICT resources their schools had (Figure 4.6). Each of these resources was much less commonly found in primary schools than in secondary schools.

- School websites were very common and had been established by 72 per cent of primary schools and 92 per cent of secondary schools.
- An intranet could be found in only a quarter (25 per cent) of primary schools but was much more common in secondary schools, with about two-thirds (65 per cent) having one.
- A learning platform could be found in only one-tenth (11 per cent) of primary schools but nearly half (46 per cent) of secondary schools.
- An extranet could be found in only a handful (three per cent) of primary schools but in nearly one-fifth (18 per cent) of secondary schools.

Figure 4.6 Percentages of schools with a website, intranet, learning platform or extranet
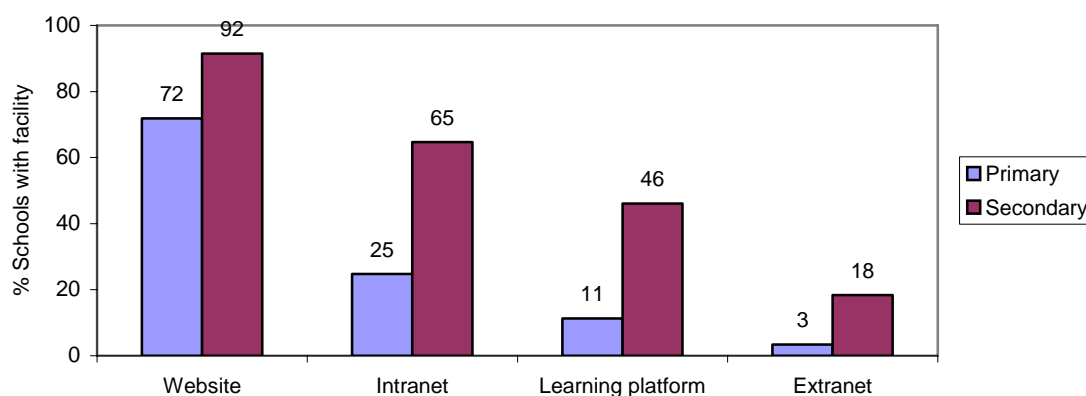
Base: primary headteachers (234), secondary headteachers (256)

Further information about the uses of these resources is presented in the following sections.

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[7] Becta's Functional Specification for Institutional Infrastructure (November 2005).

4.2.2 School website

Seventy-two per cent of primary schools and 92 per cent of secondary schools had established a school website. Larger secondary schools (with 900 or more pupils) were more likely than smaller schools to have a website (95 per cent compared with 84 per cent).

Ten possible uses of websites were recorded in the questionnaire, ranging from presenting information of various kinds to storing homework or resources for downloading (Table 4.1). Overall, 90 per cent of primary schools and 98 per cent of secondary schools used their website in at least one of the 10 specified ways. Just under half (47 per cent) of primary schools and 62 per cent of secondary schools used their website in three or more of these 10 ways.

- By far the most common use of the website was to provide school news. Eighty-eight per cent of primary schools and 94 per cent of secondary schools that had a website used it for this purpose.
- Both primary and secondary schools also commonly used their websites to facilitate access to documents, with just under half of each type of school that had a website mentioning these uses (44 per cent of primary schools and 48 per cent of secondary schools). Similar proportions mentioned use of their website for parent resources (42 per cent and 48 per cent respectively).
- Using websites to facilitate email access was also quite common, though less so for primary schools than secondary schools (19 per cent and 41 per cent respectively).
- Nearly a quarter (23 per cent) of primary schools with websites and 30 per cent of secondary schools with websites used them to present performance information.

Other uses of websites that were much more commonly reported in secondary schools than primary schools were storing pupil lesson resources (44 per cent), storing teacher lesson resources (30 per cent) and facilitating homework upload or download (27 per cent); these uses were each reported by fewer than 10 per cent of primary schools with websites. Nine per cent of secondary schools with websites used them for access to management information systems whereas only one per cent of primary schools with websites did this.

Table 4.1 Uses of school websites

	Primary	Secondary
	%	%
School news	88	94
Email access	19	41
Pupils' lesson resources	9	44
Teachers' lesson resources	9	30
Document access	44	48
MIS access	1	9
Performance information	23	30
Homework up/download	6	27
Parent resources	42	48
Communication with individual parents	5	5
None of these	10	2
Base: ICT respondents in schools with a website	168	239

4.2.3 Intranets

A quarter (25 per cent) of primary schools and about two-thirds (65 per cent) of secondary schools had an intranet.

Where intranets had been installed they were generally accessible by some pupils as well as teachers, and it was generally possible for users to download material (Table 4.2). Only 20 per cent of primary schools with intranets and five per cent of secondary schools with intranets restricted their use to staff only.

School intranets generally facilitated downloading. Only about one-tenth of school intranets in each type of school did not allow this facility.

Table 4.2 Uses of school intranets

	Primary	Secondary
	%	%
Used by teachers/staff only	20	5
Used by pupils as well	80	95
Users can download material	89	88
Base: ICT respondents in schools with an intranet	62	176

4.2.4 Learning platforms

Eleven per cent of primary schools and 46 per cent of secondary schools had a learning platform[8].

Few of these learning platforms were linked to school management systems, such as those for pupil attendance registration. Only 14 per cent of the learning platforms in surveyed secondary schools were linked in this way (the corresponding proportion for primary schools was two of the 26 learning platforms found).

Teachers in schools with learning platforms were asked how often they used them for eight types of task. The results are shown in full in Tables 4.3 and 4.4, while Figure 4.7 shows the proportions of teachers who used learning platforms for particular tasks at least once a month.

These results show that learning platforms were being used by teachers for a wide variety of purposes in the schools that were early adopters of them. None of these uses predominated, and there was none that more than half of teachers reported occurring monthly. Four uses were particularly common in both primary schools and secondary schools:
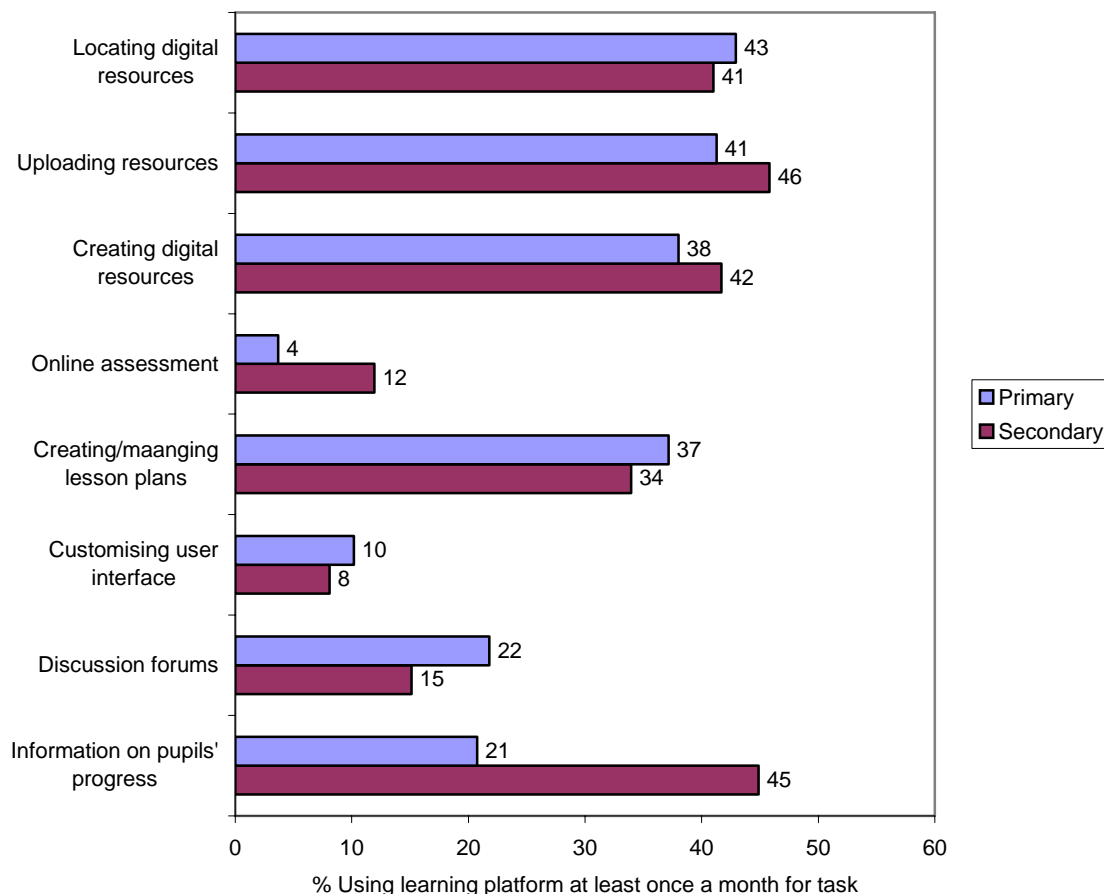
- Locating digital resources through a search facility: 68 per cent of primary teachers and 59 per cent of secondary teachers in learning platform schools had done this (43 per cent and 41 per cent respectively had done this at least once a month).
- Uploading and storing digital learning resources: 74 per cent of primary teachers and 73 per cent of secondary teachers in learning platform schools had done this (41 per cent and 46 per cent respectively had done this at least once a month).
- Creating digital resources: 70 per cent of primary teachers and 65 per cent of secondary teachers in learning platform schools had done this (38 per cent and 42 per cent respectively had done this at least once a month).
- Creating and managing lesson plans: 68 per cent of primary teachers and 53 per cent of secondary teachers in learning platform schools had done this (37 per cent and 34 per cent respectively had done this at least once a month).

Use of learning platforms to access information on individual pupils' progress and performance was fairly common among secondary teachers in schools with learning platforms: 63 per cent had done this and 45 per cent did it at least once a month.

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[8] Learning platforms were defined for respondents as follows: 'The term "learning platform" describes a broad range of ICT systems used to deliver and support learning, such as a virtual learning environment (VLE) or a managed learning environment (MLE). A feature of a learning platform is that it combines delivery of a curriculum-related activity with a facility of learners and teachers to have a dialogue with each other about it, through personalised access points.'

Uses of learning platforms for online assessment, customising the user interface, and discussion forums were less common and less frequent.

Figure 4.7 Use of learning platforms for different tasks at least once a month by teachers in schools with learning platforms

Base: primary teachers (59–63) and secondary teachers (288–301) in schools with learning platforms

Table 4.3 How often teachers used learning platforms for various tasks (1 of 2)

	Locating digital resources through a search facility		Uploading and storing digital learning resources		Creating digital resources		Conducting online assessment (including self and peer reviews)	
	Pri-mary (%)	Sec-ondary (%)	Pri-mary (%)	Sec-ondary (%)	Pri-mary (%)	Sec-ondary (%)	Pri-mary (%)	Sec-ondary (%)
At least once a week	26	22	22	20	19	18		2
About once every two to three weeks	5	11	16	14	8	11	3	3
About once a month	12	8	4	13	11	13	1	7
About once a term	8	8	11	14	9	10	17	14
Less often	18	10	22	13	22	13	15	15
Never	23	32	21	24	25	32	51	52
Not available	8	8	6	3	6	3	14	7
Ever used	68	59	74	73	70	65	35	41
Used in last month	43	41	41	46	38	42	4	12
Base: all teachers in schools with learning platforms	60	296	60	300	59	295	59	296

Table 4.4 How often teachers used learning platforms for various tasks (2 of 2)

	Creating and managing lesson plans		Customising the user interface (i.e. personalising or changing the interface)		Discussion forums (posting or reading messages)		Accessing information on individual pupil progress and performance	
	Pri-mary (%)	Sec-ondary (%)	Pri-mary (%)	Sec-ondary (%)	Pri-mary (%)	Sec-ondary (%)	Pri-mary (%)	Sec-ondary (%)
At least once a week	31	21	3	4	8	7	8	17
About once every two to three weeks	1	8	4	2	8	1	6	13
About once a month	5	6	3	2	5	7	7	15
About once a term	9	8	12	4	6	6	13	12
Less often	22	11	21	18	18	15	9	7
Never	26	42	53	60	45	57	42	29
Not available	7	5	4	10	10	7	15	8
Ever used	68	53	43	31	45	36	43	63
Used in last month	37	34	10	8	22	15	21	45
Base: all teachers in schools with learning platforms	60	301	59	288	60	300	63	299

Learning platform has potential to revolutionise relationship and responsibility and accountability between school and parents.

Secondary headteacher

4.2.5 Extranets

Three per cent of primary schools and 18 per cent of secondary schools had an extranet.

Eight surveyed primary schools had an extranet, and in each of these it was accessed by staff and governors. Parents had extranet access in six of these schools, pupils in five and local authority staff in five. Thus in the small number of primary schools that were early adopters of an extranet, quite wide use was made of it. There is of course no way of knowing whether this pattern would be repeated if extranets were introduced in further primary schools, as the early adopters may be untypical of primary schools as a whole.

Fifty-three surveyed secondary schools had an extranet. All of these (100 per cent) allowed access to staff and nearly all (93 per cent) allowed access to pupils (Table 4.5). Half (50 per cent) allowed access to parents, and a similar proportion (55 per cent) to governors (these were mostly the same schools). One-fifth (20 per cent)

allowed access to local authority staff. Thus about half of secondary schools with extranets restricted access to staff and pupils, while about half allowed wider access to people outside the school.

Nearly all (97 per cent) the extranets in these secondary schools allowed material to be downloaded from them.

Table 4.5 Users of school extranets

	Secondary
	%
Teachers and school staff	100
Pupils	93
Parents	50
Governors	55
Local authority staff	20
Other external people	15
Base: ICT respondents in secondary schools with an extranet who answered the question	53

### 4.2.6 Access to the network from outside the school

ICT respondents in primary schools reported that only moderate progress had been made towards establishing remote access to the schools' networks. Senior teaching or administrative staff had remote access in only nine per cent of schools, while teachers had access in four per cent of schools, and pupils had access in one per cent of schools (Figure 4.8). In 87 per cent of primary schools there was no remote network access.

In contrast, remote access to the network had been established in 41 per cent of secondary schools. Access was most commonly held by senior teaching or administrative staff (38 per cent) and other teachers (31 per cent). Pupils also had remote access to the network in more than a quarter (27 per cent) of schools. However, parental access was much less common, occurring in just five per cent of schools.

Overall, 10 per cent of primary schools and 41 per cent of secondary schools had established some remote access to their networks. These figures compare to proportions of 12 per cent of primary schools and 29 per cent of secondary schools that were recorded in the ICT in Schools survey in 2004[9].

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[9] *ICT in schools survey 2004*, Prior, G and Hall, L, Becta (2004).

Figure 4.8 Percentages of different groups having access to the school's network from outside the school
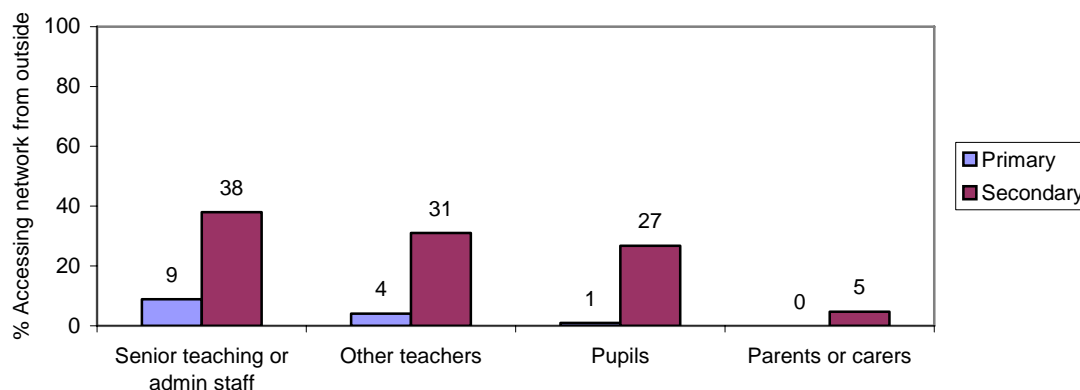
Base: primary ICT respondents (234), secondary ICT respondents (258)

Information from the survey of teachers supported this picture. Six per cent of primary teachers and 27 per cent of secondary teachers said they could access the network from home[10].

4.2.7 Access to secure login areas

Schools were asked whether they offered secure login areas through any of their resources, such as their websites, intranets or extranets, and, if so, to which users (Figure 4.9).

Secure login areas were available to staff in about half (52 per cent) of primary schools and about two-thirds (66 per cent) of secondary schools. Most schools that had staff logins also provided logins for pupils (38 per cent of primary schools and 53 per cent of secondary schools overall). Logins were provided to governors in about 14 per cent of primary schools and 15 per cent of secondary schools. Logins for parents were rarely provided, being offered in just four per cent of primary schools and seven per cent of secondary schools.

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[10] It would be expected that the proportions reported by these individual senior teachers would be lower than the proportions of schools where *any* senior teacher access was reported, as is indeed the case with these results.

Figure 4.9 Percentages of schools providing secure login areas for different users
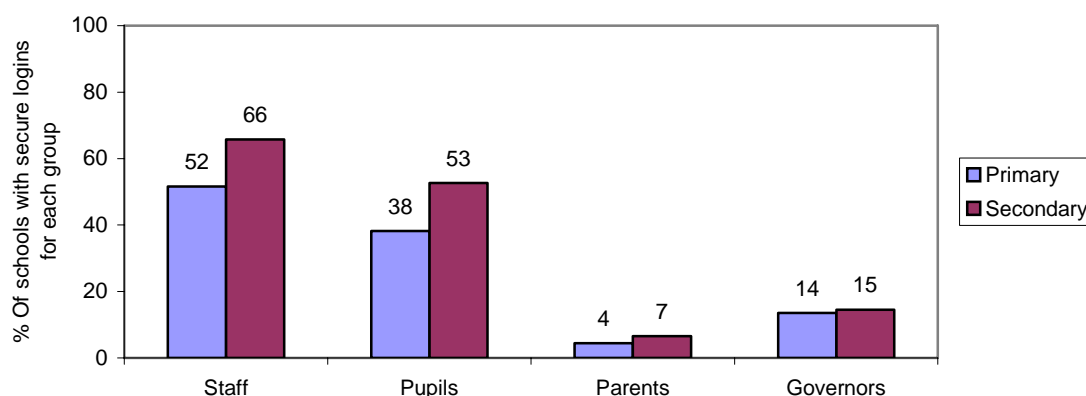
Base: primary ICT respondents (234), secondary ICT respondents (257)

4.2.8 Personal secure areas in which pupils can store their work

Sixty per cent of primary schools provided personal secure areas in which their pupils could electronically store their work, and most of these (49 per cent of primary schools overall) provided this facility for all pupils (Table 4.6). The secure areas were usually hosted within the school, although in four per cent of schools this service was provided by the local authority.

All secondary schools (100 per cent) provided personal secure areas in which pupils could store work, and in nearly all of these schools (97 per cent of secondary schools overall) this facility was available to all pupils. The hosting of this facility was nearly always done by the school itself rather than external providers.

Table 4.6 Percentages of schools providing personal secure areas in which pupils could store their work

	Primary (%)	Secondary (%)
Whether available		
Available	60	100
– for all pupils	49	97
– for some pupils	11	3
Not available	40	0
How hosted		
By school	51	96
Local authority	4	1
RBC	1	1
Other	*	2
Not stated	2	1
Not available	40	1
Base: ICT respondents who answered the question	233	255

4.2.9 E-portfolios

The second priority of the e-strategy, to provide integrated online personal support for children and learners, calls for schools to 'provide a personal online learning space for every learner that can encompass a personal portfolio'. The study therefore included a question for ICT respondents in secondary schools to establish the level of use of e-portfolios there.

About four-fifths (79 per cent) of secondary schools were reported by the ICT respondent to encourage use of e-portfolios. In most cases their use was said to be encouraged for some pupils (55 per cent overall) rather than all pupils (23 per cent).

4.3 Communications with parents

The study included questions to headteachers about the ways in which their schools used technology in communications with parents. This issue is relevant to the first priority of the Government's e-strategy, to improve people's access to online information[11]. The strategy calls for schools to use their online networks to provide parents with more information.

Paper communications remained prevalent in both types of school. Nearly all schools used paper messages at some time and 99 per cent of primary schools and 97 per cent of secondary schools used this method of communication always or often.

Despite this predominance of paper communications, most headteachers reported that electronic messages were also used. Seventy per cent of primary schools and 86 per cent of secondary schools used emails to communicate with parents (Figure 4.10). Email communications with parents were used always or often by 13 per cent of primary schools and 13 per cent of secondary schools. Thus regular use of email communications had been established in one-tenth of primary schools and one-fifth of secondary schools. However, email was used as a complementary method of communication and had only supplanted paper in a very few cases. It may be expected that the use of email was related to the level of internet penetration among parents, although no data was available to verify this.

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[11] *Harnessing Technology: Transforming learning and children's services,* DfES (March 2005).

Figure 4.10 Percentages of schools using paper, email and text messages to communicate with parents
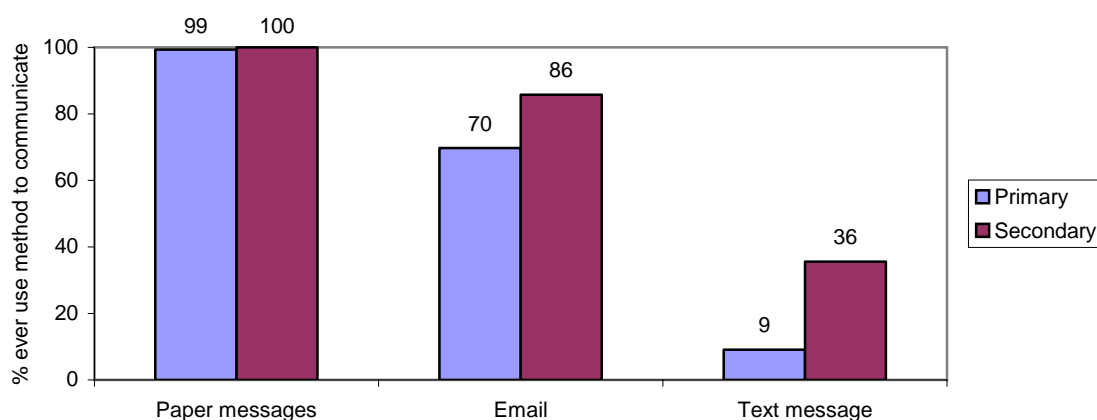
Base: primary headteachers (181), secondary headteachers (210)

4.4 Pupils' access to ICT facilities outside lessons

The Government's e-strategy states that schools should 'ensure every learner has appropriate access to technology in school and beyond the normal school day'. The majority of primary schools and nearly all secondary schools provided pupils with some form of access to ICT facilities outside lessons.

In primary schools, access to ICT facilities for pupils outside lessons was most commonly available through after-school clubs, with 55 per cent of primary schools offering access in this way (Figure 4.11). Twenty-eight per cent of primary schools provided access to ICT facilities through lunchtime clubs and 16 per cent provided breakfast clubs with access to ICT facilities. The majority of primary schools did not offer pupils informal access to ICT facilities outside lessons, although almost a third (32 per cent) provided informal access at lunch and break times, and 14 per cent provided informal access after school. Just 10 per cent of primary schools provided informal access to ICT facilities before school, and six per cent provided remote access to facilities from outside the school. Almost a quarter (24 per cent) of primary schools said they did not offer pupils any access to ICT facilities outside lessons.

The proportion of primary schools offering access to ICT facilities through after-school clubs (55 per cent) was significantly higher than in the 2005 Curriculum Online survey when 40 per cent offered this facility.

The majority of secondary schools offered access to ICT facilities through lunchtime clubs (82 per cent) and after-school clubs (82 per cent). A quarter (25 per cent) of secondary schools provided breakfast clubs with access to ICT facilities. Informal access to ICT facilities was permitted in the majority of secondary schools at lunchtime and breaks (75 per cent) and after school (69 per cent), while two-fifths (41 per cent) allowed informal access before school. Remote access to ICT facilities

from outside the school was available to pupils in 40 per cent of secondary schools. Just 3 per cent of secondary schools did not provide pupils with any access to ICT facilities outside lessons.

Figure 4.11 Forms of access to ICT resources provided outside lessons

Base: all school leaders answering (primary: 209, secondary: 183)
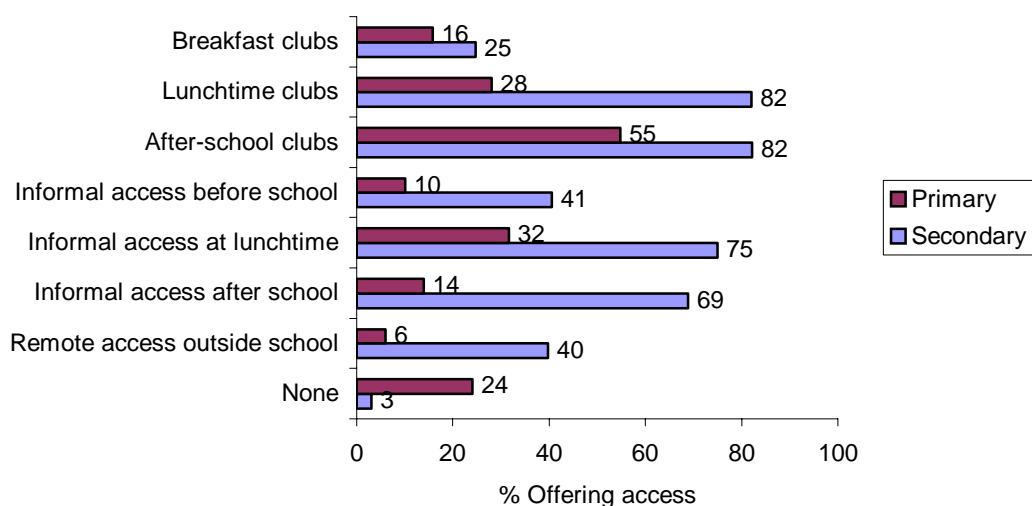

4.5 Community uses of ICT facilities

The Government's policies on extended schools[12] outline a role for schools in providing parents and other adults in the local community with access facilities that will support adult learning and family learning. The role of ICT in providing such learning opportunities has increasingly been highlighted. The study therefore included some questions for headteachers about the extent to which the schools' ICT facilities were available for community use. These questions covered use of the internet or ICT facilities inside or outside school hours, adult learning or evening classes, and remote access to school ICT resources.

Twenty-eight per cent of primary schools reported providing some form of community access to their ICT facilities (Figure 4.12). The most common form of access was through adult learning or evening classes, which 22 per cent of primary schools hosted on their premises. Only a very small proportion of primary schools provided access to the internet either on a drop-in basis during the day (three per cent) or outside school hours (one per cent). Slightly higher proportions provided access to other ICT facilities (seven per cent on a drop-in basis during the school day and five per cent outside the school day).

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[12] *Extended schools: Access to opportunities and services for all – a prospectus*, DfES (June 2005).

Secondary schools were more than twice as likely as primary schools to offer community use of their ICT facilities (60 per cent compared with 28 per cent). Nearly half (47 per cent) of secondary schools provided access to ICT through hosting adult learning or evening classes on their premises. Access to the internet was provided on a drop-in basis during the school day in 13 per cent of secondary schools, while 18 per cent provided such access outside school hours. Access to other ICT facilities was provided on a drop-in basis during the school day by 20 per cent of secondary schools and outside school hours by 24 per cent of secondary schools. Drop-in access to the internet during the day was more common in larger secondary schools (17 per cent of secondary schools with 900 or more pupils provided such access, compared with four per cent of smaller schools).

Figure 4.12 Percentages of schools allowing different forms of community use of their ICT facilities
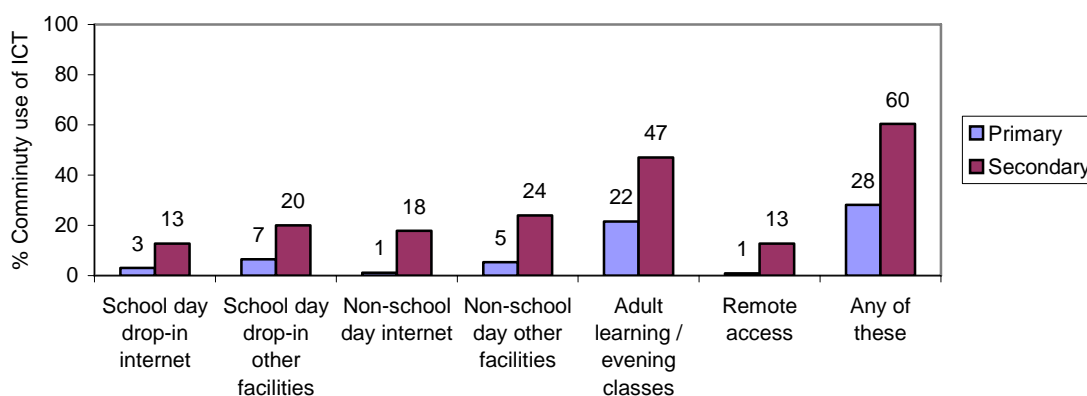
Base: primary headteachers (204), secondary headteachers (178)

4.6 Summary

- Nearly all primary and secondary schools used electronic systems for their financial management. Systems developed outside the school were used much more commonly than those developed within the school.
- Electronic systems of recording pupil attendance had been implemented in 51 per cent of primary schools and 84 per cent of secondary schools (including 15 per cent and 48 per cent respectively which were integrated electronic registration systems). Most headteachers reported that electronic systems improved the effectiveness of attendance monitoring.
- Nearly all primary and secondary schools used pupil data (whether electronic or paper) in setting performance targets and measuring progress.
- Seventy-two per cent of primary schools and 92 per cent of secondary schools had a website. Websites were used for a variety of purposes of which the most common were communicating school news, enabling

document access and providing resources for parents. In secondary schools, websites were also commonly used for providing lesson resources, communication of performance information and uploading or downloading homework.

- A quarter (25 per cent) of primary schools and about two-thirds (65 per cent) of secondary schools had an intranet. Intranets were generally used by both teachers and pupils.

- Eleven per cent of primary schools and 46 per cent of secondary schools had a learning platform. These were used by teachers for a wide variety of purposes. However, few learning platforms were linked with school management systems.

- Three per cent of primary schools and 18 per cent of secondary schools had an extranet. Among secondary schools which had an extranet, about half restricted access to staff and pupils, while about half extended use to groups such as governors and parents.

- Ten per cent of primary schools and 41 per cent of secondary schools allowed remote access to their networks. More than a quarter (27 per cent) of secondary schools allowed pupils remote access.

- Staff were allowed remote access to any of the school's ICT resources through secure login areas in 52 per cent of primary schools and 66 per cent of secondary schools. Pupils were allowed this access in 38 per cent of primary schools and 53 per cent of secondary schools.

- Sixty per cent of primary schools and 100 per cent of secondary schools allowed pupils personal secure areas where they could electronically store their work. This facility was generally hosted by the school.

- About four-fifths (79 per cent) of ICT respondents in secondary schools said that their schools encouraged the use of e-portfolios.

- Although paper messages remained the predominant mode of communication with parents, electronic methods were also commonly used. Seventy per cent of primary schools and 86 per cent of secondary schools made some use of email, and nine per cent of primary schools and 36 per cent of secondary schools made some use of text messages.

- Nearly all secondary schools and three quarters of primary schools provided access to ICT facilities for pupils outside lessons, most commonly through after-school and lunchtime clubs.

- Twenty-eight per cent of primary schools and 60 per cent of secondary schools allowed some use of their ICT facilities by the local community. Adult learning and evening classes were the most common forms of community use. Around one-fifth of secondary schools provided daytime drop-in access to their internet or other ICT facilities, while this was much less common in primary schools.

Uses of ICT in teaching and learning

This chapter examines teachers' experiences of using ICT for teaching and learning. It begins by looking at the uses teachers make of digital resources when planning lessons and then goes on to examine the uses of ICT for delivering lessons. The chapter also examines how teachers use ICT for assessment and homework, and pupils' access to ICT facilities outside lesson time. The final section of this chapter looks at teachers' perceptions of the impacts of using ICT in teaching and learning.

The findings in this chapter provide evidence to support priority three of the Government's e-strategy, to 'develop a collaborative approach to personalised learning activities'. This priority includes the aims to ensure wider use of existing resources and for educators to 'engage more directly in improving learning, teaching and assessment through electronic solutions'.

5.1 Uses of ICT in lesson planning

5.1.1 Use of digital resources in lesson planning

Most teachers made some use of digital resources to plan their lessons.

When planning lessons, primary teachers were most likely to use websites for teachers, with 56 per cent saying they used such websites for planning at least half of lessons (Table 5.1). More than a third (35 per cent) of primary teachers used other websites (i.e. sites not specifically aimed at teachers) to plan at least half of their lessons. Software on CD-ROM or DVD was used by 40 per cent of primary teachers to plan at least half of their lessons. Digital resources created by other teachers and online subscription services were used less extensively than other resources in primary teachers' lesson planning, with 26 per cent and 14 per cent respectively saying they used these resources to plan at least half of lessons.

Secondary teachers were less likely than primary teachers to make frequent use of websites for teachers when planning lessons. Just over a third (34 per cent) of secondary teachers used websites for teachers to plan at least half of their lessons (Table 5.2). Secondary teachers were as likely to use other websites as they were to use those aimed at teachers for lesson planning, with 30 per cent reporting that they used other websites to plan at least half of lessons. Software on CD-ROM or DVD was used by 36 per cent of secondary teachers to plan at least half of lessons, while 28 per cent planned at least half of lessons using digital resources created by other teachers. Only a small proportion (14 per cent) of secondary teachers used online subscription services to plan at least half of lessons, and more than three-fifths (63 per cent) of secondary teachers said they rarely or never used these services to plan lessons.

There were some differences by subject in secondary teachers' use of ICT to plan lessons:

- Science teachers were more likely than teachers in other subjects to use software on CD-ROM or DVD, with three-fifths (59 per cent) using such software to plan at least half of lessons.
- Websites not aimed specifically at teachers were more likely to be used by geography teachers than teachers of other subjects, with just over half (51 per cent) of geography teachers using other websites to plan at least half of lessons.
- Online subscription services were most likely to be used by teachers of modern languages (26 per cent) and maths (24 per cent).

Table 5.1 Primary teachers' use of digital resources in lesson planning

	Software on CD-ROM (%)	Websites for teachers (%)	Other websites (%)	Digital resources made by other teachers (%)	Online subscription services (%)
All or most lessons	4	11	4	2	3
More than half of lessons	17	21	13	6	2
Around half of lessons	19	24	18	17	9
Fewer than half of lessons	42	33	47	39	20
Rarely/never	18	11	19	36	65
Base: all primary teachers answering	606	616	608	610	603

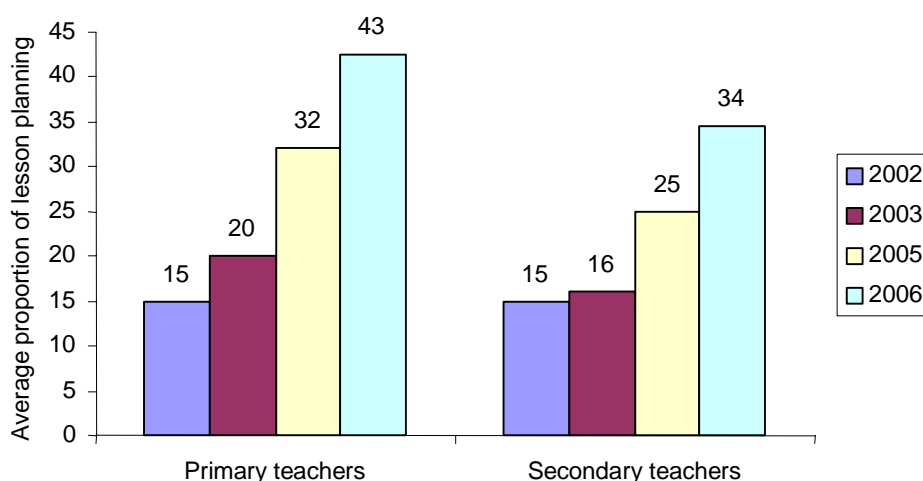Table 5.2 Secondary teachers' use of digital resources in lesson planning

	Software on CD-ROM (%)	Websites for teachers (%)	Other websites (%)	Digital resources made by other teachers (%)	Online subscription services (%)
All or most lessons	4	11	4	2	3
More than half of lessons	17	21	13	6	2
Around half of lessons	19	24	18	17	9
Fewer than half of lessons	42	33	47	39	20
Rarely/never	18	11	19	36	65
Base: all primary teachers answering	606	616	608	610	603

Primary teachers on average made proportionately greater use than secondary teachers of digital resources in lesson planning. Digital resources accounted on average for 43 per cent of primary teachers' lesson planning and 34 per cent of secondary teachers' lesson planning (Figure 5.1). There have been significant

increases in the proportions of lesson planning using digital resources since 2005 when the third Curriculum Online survey found that digital resources accounted on average for 32 per cent of primary teachers' planning and 25 per cent of secondary teachers' planning. There has been an upward trend in the use of digital resources in lesson planning among both primary and secondary teachers since the first Curriculum Online survey in 2002.

The average proportion of lesson planning using digital resources was slightly higher among secondary teachers in schools that had a learning platform than in those that did not.

Figure 5.1 Average proportion of lesson planning using digital resources 2002–06

Base: all teachers answering (primary: 599, secondary: 1,181)

5.1.2 Use of digital resources created by self and others

Subject teachers were asked about their experiences of creating digital resources and using digital resources created by other teachers. The Government's e-strategy sets out the aim to 'enable teachers and lecturers to create, adapt, re-use and share resources by giving them common access to rich, subject-related, interactive digital resources for e-learning' as part of the priority to develop a collaborative approach to personalised learning.

The majority of teachers had experience of creating digital resources, with secondary teachers more likely to have done so than primary teachers. Nearly three-fifths (58 per cent) of primary teachers said they created their own digital learning resources, while 65 per cent of secondary teachers did so. There were not large differences between subjects, although in secondary schools geography teachers were more likely than teachers of English, modern languages and music to have created their own digital resources.

Teachers who created their own digital learning resources did so frequently, with 43 per cent of primary teachers and 46 per cent of secondary teachers saying they created resources at least once a week (Table 5.3). Thirty per cent of primary teachers and 22 per cent of secondary teachers who created their own digital learning resources did so every two to three weeks, while 16 per cent of primary teachers and secondary teachers created resources about once a month.

Table 5.3 How often teachers create digital resources

	Primary teachers (%)	Secondary teachers (%)
At least once a week	43	46
About once every two to three weeks	30	22
About once a month	16	16
About once a term	8	10
Less often	2	5
Base: all teachers who created resources	374	801

Most teachers who created their own digital resources shared them with other teachers in the school, with secondary teachers more likely than primary teachers to do this (86 per cent compared with 75 per cent). It was less common for teachers to share resources they created with other teachers outside their schools, with six per cent of primary teachers and 17 per cent of secondary teachers saying they did this. Primary teachers were more likely than secondary teachers to say they did not share resources they created with any other teachers (24 per cent compared with 11 per cent).

The frequency with which teachers re-used digital resources they had created varied, although secondary teachers were more likely than primary teachers to re-use resources frequently. Fourteen per cent of primary teachers re-used digital resources they had created at least once a week compared with 27 per cent of secondary teachers (Table 5.4). Almost a quarter of teachers (24 per cent of both primary and secondary) re-used their own digital resources about once a term. Thirty-six per cent of primary teachers and more than a fifth (22 per cent) of secondary teachers re-used digital resources they created less often than once a term.

The majority of teachers used digital learning resources created by other people (for example, other teachers or commercial suppliers) fairly frequently. Forty-four per cent of primary teachers used resources created by other people at least once a week, and a further 22 per cent used them every two to three weeks. More than a third (34 per cent) of secondary teachers used digital learning resources created by others at least once a week, and a fifth (20 per cent) used them every two to three weeks.

Table 5.4 Teachers' use of digital resources created by themselves and others

	Re-use self-created resources		Use resources created by others		Adapt resources created by others	
	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)
At least once a week	14	27	44	34	20	15
About once every two to three weeks	14	14	22	20	20	19
About once a month	11	12	13	18	14	16
About once a term	24	24	10	10	12	12
Less often	36	22	7	14	20	24
Never	*	1	4	4	14	13
Base: all teachers answering	376	802	612	1,190	611	1,188

There were some differences among secondary teachers of different subjects in the use of digital learning resources created by others. Around half of teachers in maths (50 per cent) and science (51 per cent) used digital learning resources created by others at least once a week, while only 12 per cent of English teachers and 17 per cent of music teachers used resources created by others so frequently.

Most teachers adapted digital learning resources created by others to suit their needs. A fifth (20 per cent) of primary teachers adapted resources at least once a week, and the same proportion did so about every two to three weeks. Fourteen per cent of primary teachers said they never adapted digital learning resources created by other people.

Secondary teachers did not differ significantly from primary teachers in the frequency with which they adapted digital learning resources. Fifteen per cent of secondary teachers adapted digital resources at least once a week, and 19 per cent did so every two to three weeks. Thirteen per cent of secondary teachers said they never adapted digital learning resources.

> I have designed a scheme of work to be carried out in Excel for the benefit of poetry annotation. It includes dealing with definitions of alliteration, assonance etc.
>
> Secondary teacher

5.2 Uses of ICT in the classroom

5.2.1 Frequency of use of ICT resources in lessons

Primary teachers tended to make frequent use of ICT resources in lessons.

Most primary teachers (86 per cent) reported that they used display technologies in at least half of lessons, with half (50 per cent) saying they used them in all or most lessons (Figure 5.2). This indicates an increase in use of display technologies since 2005, when 69 per cent of primary teachers in the third Curriculum Online survey reported using interactive whiteboards in at least half of lessons.

Fifty-six per cent of primary teachers used computer packages (such as word-processing or spreadsheet applications) in at least half of lessons, while a similar proportion (54 per cent) used internet-based resources in at least half of lessons. Again this indicates an increase in use of these resources since the third Curriculum Online survey in 2005, when 36 per cent of primary teachers used computer packages in at least half of lessons, and 38 per cent used internet-based resources this frequently.

Subject-specific software applications were used in at least half of lessons by nearly half (49 per cent) of primary teachers, again an increase from 38 per cent in 2005.

Only a small proportion of primary teachers used digital cameras or video equipment frequently in lessons, with just nine per cent saying they did so in half or more lessons. More than a third (35 per cent) of primary teachers said they rarely or never used digital cameras or video equipment in lessons.

In secondary schools, nearly two-thirds (64 per cent) of teachers used display technologies in at least half of lessons. This indicates a substantial increase in use since 2005, when 42 per cent of secondary teachers in the third Curriculum Online survey used interactive whiteboards in at least half of lessons.

Computer packages (such as word-processing or spreadsheet packages) were used in at least half of lessons by 36 per cent of secondary teachers, while a similar proportion (33 per cent) used internet-based resources in at least half of lessons. The proportions of teachers using these resources in at least half of lessons had increased since the third Curriculum Online survey in 2005, from 19 per cent for computer packages and 21 per cent for internet-based resources.

More than two-fifths (41 per cent) of secondary teachers used subject-specific software applications in at least half of lessons, an increase from 30 per cent in 2005. Most secondary teachers (78 per cent) rarely or never used digital camera or video equipment, with just three per cent saying this equipment was used in half or more lessons.

There were some differences between subjects in secondary schools in the extent to which ICT resources were used in lessons:

- Geography teachers were more likely to use internet-based resources frequently, with 51 per cent doing so in half or more lessons (reflecting the greater use that geography teachers made of websites in their lesson planning).
- Music and English teachers were less likely to use display technologies frequently, with 49 per cent and 51 per cent doing so in half or more lessons.
- Music, science and maths teachers were more likely to use subject-specific software in half or more lessons (62 per cent, 57 per cent and 53 per cent respectively).

As might be expected, frequent use of digital learning resources to plan lessons was positively associated with more frequent use of ICT resources in lessons for both primary and secondary teachers.

There were positive associations between levels of resources available and use in lessons. Secondary teachers in schools in the lowest tertile of pupil-to-computer ratios were more likely to use display technologies, computer packages and internet-based resources than those in schools in which computers were shared between higher numbers of pupils.

Secondary teachers in schools that had learning platforms were more likely to use computer packages frequently in lessons, although similar relationships were not seen for other uses of digital learning resources.

Figure 5.2 Teachers' use of ICT resources in lessons (proportions using in half or more lessons)
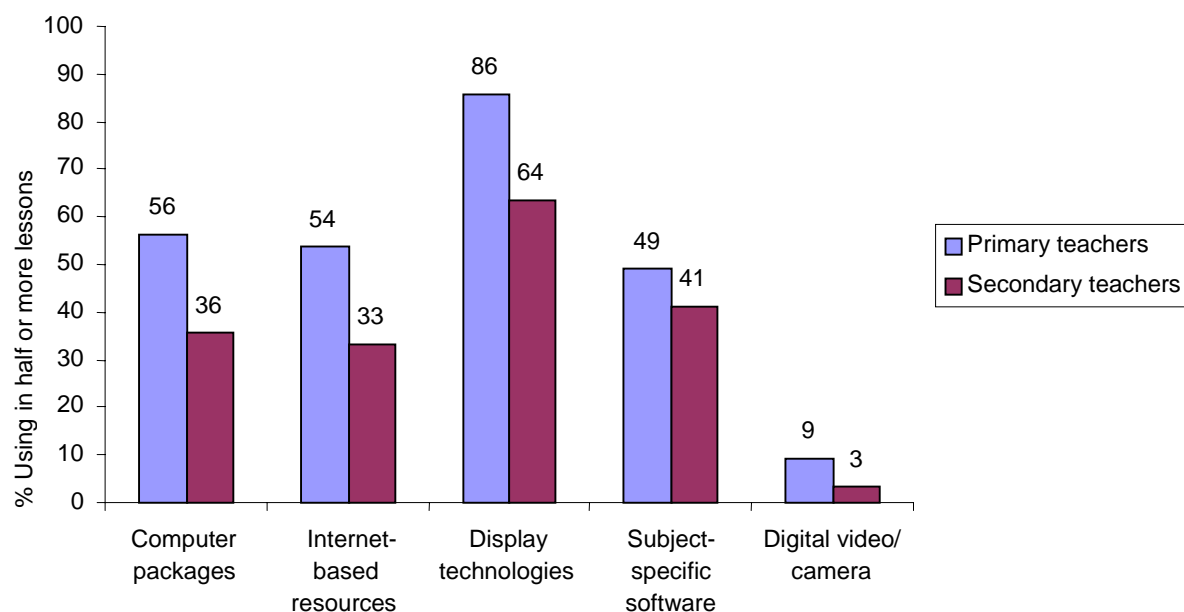
Base: all teachers answering (primary: 601–613, secondary: 1,180–1,185)

Whole department is equipped with whiteboards. These have transformed our teaching (both in style and effectiveness).

Secondary teacher

Year 6 children made their own films/animations. They had to photograph own characters, upload on to school system, join them together etc. A fantastic opportunity for the children.

Primary teacher

5.2.2 Frequency of ICT use for different activities

ICT tended to be used more frequently for whole-class activities rather than by pupils working on their own or in small groups.

Most primary teachers used ICT in lessons for activities involving the whole class, with 80 per cent saying they did so in half or more lessons (Figure 5.3). Using ICT for pupils working in small groups tended to be less frequent, with 43 per cent of primary teachers saying they did so in half or more lessons, although just 10 per cent did so rarely or never. Nearly a third (31 per cent) of primary teachers used ICT for pupils

working on their own in half or more lessons, while 17 per cent rarely or never did this.

Secondary teachers were less likely than primary teachers to use ICT frequently for activities involving the whole class, but still used it for whole-class activities more often than for small-group or individual work. More than half (53 per cent) of secondary teachers used ICT for whole-class activities in half or more lessons, while just 13 per cent rarely or never did so. Just over a fifth (21 per cent) of secondary teachers used ICT for pupils working in small groups in at least half of lessons, while 22 per cent used ICT for pupils working on their own in at least half of lessons. Thirty-one per cent of secondary teachers rarely or never used ICT for small-group activities, while 27 per cent rarely or never used it for individual activities.

Music teachers were more likely than other secondary subject teachers to use ICT for small-group activities and individual activities, with 51 per cent and 47 per cent respectively using ICT in these ways in half or more lessons.

Figure 5.3 Teachers' use of ICT in lessons for different activities (proportions using in half or more lessons)
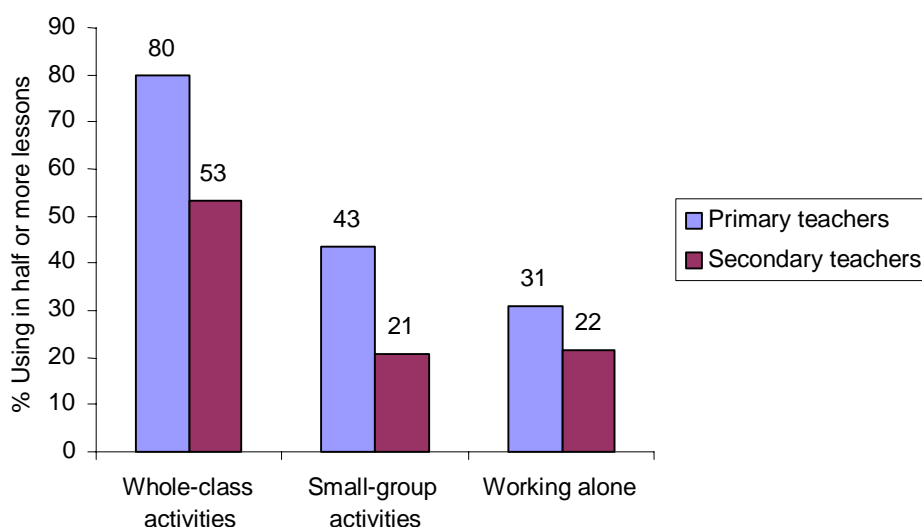
Base: all teachers answering (primary: 609–613, secondary: 1,188–1,192)

5.2.3 Frequency of using ICT for different ways of learning

The majority of teachers used ICT at least occasionally to help pupils learn in particular ways.

The most common way in which primary teachers used ICT with pupils was for gathering information, with over a quarter (27 per cent) saying they did this in half or more lessons, and 56 per cent in less than half of lessons (Table 5.5). Nearly a fifth (17 per cent) of primary teachers used ICT to help pupils learn to solve problems in

at least half of lessons, while more than half (54 per cent) did so in less than half of lessons. Overall, 71 per cent of primary teachers used ICT in at least some lessons to help pupils analyse information with 11 per cent using ICT in this way in half or more lessons. Nearly three-fifths (56 per cent) of primary teachers used ICT in at least some lessons to help pupils be creative. A quarter (25 per cent) of primary teachers used ICT to help pupils learn to work with others in at least some lessons.

Secondary teachers were less likely than primary teachers to use ICT to help pupils develop particular skills. With the exception of gathering information, fewer than half of secondary teachers reported that they used ICT in at least some lessons to help pupils learn in the ways listed .

More than two-thirds (69 per cent) of secondary teachers used ICT in at least some lessons to help pupils gather information (Table 5.6). ICT was used by nearly half (45 per cent) of secondary teachers to help pupils analyse information in at least some lessons, while almost a third (32 per cent) used ICT to help pupils be creative and to solve problems (31 per cent). Fewer than a fifth (16 per cent) of secondary teachers used ICT in at least some lessons to help pupils learn to work with others.

Music teachers were more likely than other subject teachers to use ICT to help pupils be creative, with two-fifths (40 per cent) saying they used ICT in this way in half or more lessons, while geography teachers were more likely to use ICT in half or more lessons to help pupils gather information (22 per cent).

Secondary teachers in schools in the lowest tertile for pupil-to-computer ratios were slightly more likely than those in schools in which computers were shared between higher numbers of pupils to use ICT to help pupils gather information.

Table 5.5 Primary teachers' use of ICT in lessons for helping pupils learn in different ways

	Gathering information (%)	Analysing information (%)	Being creative (%)	Problem solving (%)	Working with others (%)
All or most lessons	2	*	–	1	*
More than half of lessons	6	2	2	4	2
Around half of lessons	19	8	8	12	3
Fewer than half of lessons	56	60	46	54	19
Rarely/never	17	29	44	30	75
Base: all primary teachers answering	612	612	610	607	605

Table 5.6 Secondary teachers' use of ICT in lessons for helping pupils learn in different ways

	Gathering information (%)	Analysing information (%)	Being creative (%)	Problem solving (%)	Working with others (%)
All or most lessons	1	*	1	*	*
More than half of lessons	3	2	3	1	1
Around half of lessons	8	4	4	5	2
Fewer than half of lessons	58	39	24	25	13
Rarely/never	31	55	68	69	84
Base: all secondary teachers answering	1,192	1,190	1,190	1,185	1,186

5.3 School use of software to assist learning

School leaders were asked how often their schools used particular forms of software to assist learning. These were: email communications between teachers and pupils; online discussion groups/forums; and personal websites, blogs, wikis etc.

More than half (53 per cent) of primary schools and most secondary schools (92 per cent) made at least occasional use of email communication between teachers and pupils. Ten per cent of primary schools and nearly a quarter (23 per cent) of secondary schools used email communication always or often.

Online discussions or forums were used by 44 per cent of primary schools and 80 per cent of secondary schools. While primary schools were less likely than secondary schools to ever use online discussions or forums, the proportions that used them always or often were identical (five per cent of primary and secondary schools).

Personal websites and such like were used by more than a third (35 per cent) of primary schools and more than two-thirds (71 per cent) of secondary schools. A small proportion of schools (six per cent primary and secondary) used these websites always or often.

While a substantial proportion of schools said they made at least some use of online discussions, personal websites or blogs to assist learning, the majority of teachers did not actively encourage the use of such software by pupils. Just seven per cent of primary teachers and 11 per cent of secondary teachers said they encouraged pupils to use social software (online discussions, personal websites, blogs and wikis) to support their learning. Secondary teachers who created their own digital resources were more likely than those who did not to say that they encouraged the use of social software.

5.4 Uses of ICT in assessment

5.4.1 Using technology in assessment

Greater use of technology for assessment activities is explicitly stated as a priority in the Government's e-strategy as part of the priority to deliver integrated online personal support for children and learners. The majority of teachers used ICT to enable pupils to demonstrate their learning, but technology was not otherwise widely used for assessment activities.

Primary teachers most commonly used ICT in assessment with pupils to enable pupils to demonstrate their learning as part of the assessment process. Technology was used to enable pupils to demonstrate their learning about once a term by

Twenty two per cent of primary teachers and more often by nearly a quarter (24 per cent), although a third (32 per cent) never used ICT in this way (Table 5.7). The majority (61 per cent) of primary teachers never used technology to assess work and offer feedback, although 18 per cent did so at least once a term. Most primary teachers did not use technology for marking and returning work, with 86 per cent saying they never used online submission or return of work and 82 per cent never using computer marking of assignments.

Secondary teachers, like primary teachers, were most likely to use technology in assessment to enable pupils to demonstrate their learning. More than a fifth (22 per cent) of secondary teachers used ICT in this way more often than once a term, and a similar proportion (24 per cent) did so about once a term (Table 5.8). Technology was used to assess work and offer feedback more frequently than once a term by 15 per cent of secondary teachers and about once a term by 11 per cent, while just over half (52 per cent) never used technology in this way. The majority (70 per cent) of secondary teachers did not use technology for assessment activities leading to formal certification, although 13 per cent did this once a term or more often. Online submission and return of work was not common, with three-quarters (75 per cent) of secondary teachers saying they never used technology in this way, and 11 per cent doing so once a term or more often. Similarly, just nine per cent of secondary teachers used computer marking of assignments once a term or more often, while 81 per cent never did this.

There were some differences between subjects in the use of technology in assessment in secondary schools:

- Music teachers were more likely than other teachers to use technology at least once a term to assess work and offer feedback (41 per cent did so) and for assessment activities leading to certification (34 per cent).
- Science and maths teachers were more likely than other teachers to use computer-marked assignments at least once a term (21 per cent and 15 per cent).

Secondary teachers who made frequent use of ICT in lessons were more likely to use technology for assessment activities.

Table 5.7 Primary teachers' use of technology for assessment

	Pupils demonstrate learning (%)	Assess work and offer feedback (%)	Formal certification (%)	Online submission and return (%)	Computer-marked assignments (%)
At least once a week	3	1	1	*	*
About once every two to three weeks	7	3	1	*	*
About once a month	14	3	4	1	2
About once a term	22	10	4	1	3
Less often	22	21	13	11	13
Never	32	61	78	86	82
Base: all primary teachers answering	609	611	605	609	609

Table 5.8 Secondary teachers' use of technology for assessment

	Pupils demonstrate learning (%)	Assess work and offer feedback (%)	Formal certification (%)	Online submission and return (%)	Computer-marked assignments (%)
At least once a week	4	3	1	1	1
About once every two to three weeks	6	4	2	2	1
About once a month	12	9	3	3	2
About once a term	24	11	8	5	5
Less often	25	22	17	14	10
Never	28	52	70	75	81
Base: all secondary teachers answering	1,193	1,193	1,188	1,187	1,189

> Students send work through the school website directly to myself. This works incredibly well.
>
> Secondary teacher

5.4.2 Using electronic pupil assessment information

Primary teachers used electronic pupil assessment information most commonly to share with other staff and parents. More than a third (36 per cent) of primary teachers shared pupil information in an electronic format with other staff about once a term, while 23 per cent did so more often (Table 5.9). Pupil assessment information in an electronic format was made available to parents about once a term by 15 per cent of primary teachers and less often by 28 per cent.

Assessment information held electronically was used to enable diagnostic testing once a term or more by 28 per cent of primary teachers, while 43 per cent never used electronic assessment information in this way. While the majority (63 per cent) of primary school teachers did not make electronic assessment information available to enable pupil self-assessment, 15 per cent did so at least once a term. Similarly, 71 per cent of primary teachers never made electronic assessment information available to enable pupil peer assessment, while seven per cent did so once a term or more often.

Most secondary teachers shared electronic pupil assessment information with other staff. Nearly half (46 per cent) used pupil assessment information in this way once a month or more, while 32 per cent did so about once a term (Table 5.10). More than a third (35 per cent) of secondary teachers made electronic pupil assessment information available to parents once a term and nine per cent did so more often, although almost a third (32 per cent) never made electronic assessment information available to parents.

Nearly a third (31 per cent) of secondary teachers used assessment information in electronic format to enable diagnostic testing once a term or more, while 46 per cent never did this. Electronic assessment information was used to enable pupil self-assessment once a term or more often by 28 per cent of secondary teachers, while nearly half (49 per cent) never used assessment information for this purpose. Just under a fifth (19 per cent) of secondary teachers used electronic assessment information at least once a term to enable pupil peer assessment, while nearly three-fifths (58 per cent) never did this.

Again, there were some differences by subject in the ways that secondary teachers used electronic assessment information:

- Maths and science teachers were more likely than other teachers to share electronic assessment information with other staff once a week (22 per cent and 24 per cent respectively).
- Science and music teachers were more likely than other teachers to use assessment information to enable pupil self-assessment (44 per cent and 53 per cent respectively did so at least once a term).

- Music teachers were more likely than other teachers to use electronic assessment information to enable pupil peer assessment (37 per cent did so at least once a term).

Table 5.9 Primary teachers' use of electronic assessment information

	Share with other staff (%)	Make available to parents (%)	Enable diagnostic testing (%)	Enable pupil self-assessment (%)	Enable pupil peer assessment (%)
At least once a week	5	-	3	*	–
About once every two to three weeks	5	*	1	2	1
About once a month	13	2	4	6	1
About once a term	36	15	19	7	5
Less often	20	28	29	22	22
Never	21	55	43	63	71
Base: all primary teachers answering	609	606	596	604	604

Table 5.10 Secondary teachers' use of electronic assessment information

	Share with other staff (%)	Make available to parents (%)	Enable diagnostic testing (%)	Enable pupil self-assessment (%)	Enable pupil peer assessment (%)
At least once a week	13	1	1	2	1
About once every two to three weeks	14	2	4	3	2
About once a month	20	6	7	8	5
About once a term	32	35	18	16	10
Less often	11	24	24	23	23
Never	10	32	46	49	58
Base: all secondary teachers answering	1,185	1,184	1,169	1,178	1,178

Assessment during dance and gym – for children to assess their own ability, using a digital camera/video.

Primary teacher

5.4.3 Production of pupils' reports

Most teachers produced pupils' reports electronically. Just five per cent of primary teachers and six per cent of secondary teachers said they produced only handwritten reports. Almost half (49 per cent) of primary teachers and 58 per cent of secondary teachers modified or re-used electronic templates that had been pre-prepared, while more than a quarter (27 per cent) of primary teachers and 16 per cent of secondary

teachers created their own electronic templates. The remaining teachers (19 per cent of primary and 21 per cent of secondary teachers) used a combination of these approaches to produce pupils' reports.

5.5 Use of ICT for setting pupils' homework

Primary teachers did not frequently set homework that required the use of a computer or the internet. Thirteen per cent of primary teachers set homework requiring use of a computer very often or quite often, while almost half (49 per cent) of primary teachers never did so (Figure 5.4). Similarly, 45 per cent of primary teachers never set homework requiring use of the internet, and just 11 per cent did so very often or quite often.

Secondary teachers were more likely than primary teachers to set homework requiring a computer or internet access (although this may be because primary teachers are less likely to set homework at all). Almost a third (32 per cent) of secondary teachers set homework requiring a computer very often or quite often, and half (50 per cent) did so occasionally. Similarly, homework requiring access to the internet was set very often or quite often by 30 per cent of secondary teachers and occasionally by more than half (55 per cent). These figures were very similar to those in the third Curriculum Online survey in 2005, when 30 per cent of secondary teachers set homework requiring a computer very often or quite often, and 28 per cent set homework requiring internet access very often or quite often.

Geography teachers were particularly likely to set homework requiring computer or internet use, with 55 per cent setting homework requiring a computer very often or quite often, and a similar proportion (56 per cent) setting homework requiring access to the internet very often or quite often.

Secondary teachers who often set homework requiring a computer or internet access made on average greater use of digital resources in their lesson planning and were in schools that on average had lower ratios of pupils to computers.

Figure 5.4 Homework requiring a computer or internet access (percentages of teachers setting it very often or quite often)
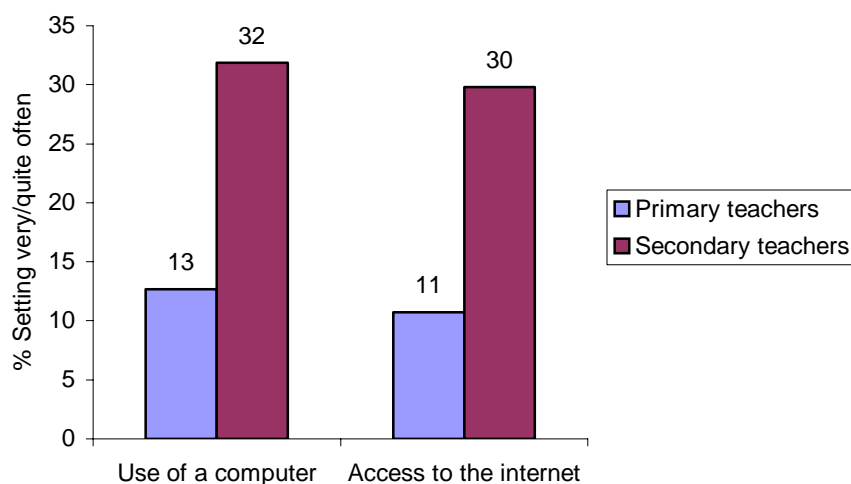
Base: all teachers answering (primary: 614, secondary: 1,192)

5.6 Teachers' use of ICT to improve productive time

5.6.1 Current time lost or saved using ICT

Teachers were asked how much time they thought they lost or saved each week by using different kinds of ICT resource and by using ICT for different tasks. Teachers' perceptions of time savings from the ICT resources they used and for the tasks they used it for were generally positive.

More than half of primary teachers who used online resources and interactive whiteboards thought they saved time using these resources. Overall, 58 per cent of primary teachers who used online resources thought this saved them time, with 15 per cent reporting that they saved more than two hours per week, and 16 per cent between one and two hours (Table 5.11, Figure 5.5). Just 12 per cent of primary teachers thought they lost time by using online resources, with most of these (10 per cent) reporting that they lost up to one hour per week. Interactive whiteboards were thought to save time by 55 per cent of primary teachers, with 16 per cent reporting saving more than two hours, while 12 per cent thought they lost time.

Management information systems were not used by the majority of primary teachers. Half (50 per cent) of primary teachers who used management information systems thought they saved time using these systems, with seven per cent reporting saving more than two hours. Just seven per cent of those who used management information systems thought they lost time by doing this. Overall, 13 per cent of all primary teachers thought they saved time by using management information systems and two per cent thought they lost time.

Just 13 per cent of primary teachers indicated that they used a learning platform. Of these, nearly two-fifths (37 per cent) reported that this saved them time, while nine per cent thought they lost time. Overall, five per cent of all primary teachers reported time savings from using a learning platform and one per cent reported losses.

Secondary teachers were less likely than primary teachers to report time savings from using ICT resources.

Almost half (49 per cent) of secondary teachers who used online resources reported that using these resources saved them time, with 11 per cent reporting that they saved more than two hours per week (Table 5.11, Figure 5.6). Fifteen per cent of secondary teachers thought they lost time by using online resources. A similar proportion (44 per cent) of secondary teachers thought they saved time by using interactive whiteboards, with 16 per cent saying they saved more than two hours, while 17 per cent thought they lost time by using interactive whiteboards.

Only around half of secondary teachers used management information systems, and of these, 37 per cent reported that they saved time using these systems, while a fifth (20 per cent) thought they lost time. Overall, 18 per cent of all secondary teachers reported time savings from using management information systems and 10 per cent reported losses.

Almost a quarter (24 per cent) of secondary teachers indicated that they currently used a learning platform. Of these, 27 per cent thought it saved them time and 18 per cent that it lost time. Overall, seven per cent of all secondary teachers reported time savings from using a learning platform and five per cent reported losses.

The reporting of time saved by using ICT resources was associated with more frequent use of resources in lessons for both primary and secondary teachers. For example, 77 per cent of primary teachers who used internet-based resources in half or more lessons reported that using online resources saved them time, compared with 35 per cent who used these resources in less than half of lessons.

In secondary schools, science teachers were less likely than other subject teachers to report that using online resources saved them time.

Table 5.11 Time currently saved or lost by using ICT resources

	Interactive whiteboard		Online resources		Management information system		Learning platform	
	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)
Save more than 2 hours	16	16	15	11	7	4	7	6
Save 1–2 hours	17	12	16	13	16	9	8	8
Save up to 1 hour	23	16	27	25	27	24	22	13
Does not make a difference	33	39	30	35	44	43	54	54
Lose up to 1 hour	8	7	10	7	4	11	6	13
Lose 1–2 hours	3	7	1	5	1	5	*	3
Lose more than 2 hours	2	4	1	3	2	4	3	2
Total: save time	**55**	**44**	**58**	**49**	**50**	**37**	**37**	**27**
Total: lose time	**12**	**17**	**12**	**15**	**7**	**20**	**9**	**18**
Base: all teachers who used each resource	561	842	564	1,054	168	621	94	305

Figure 5.5 Primary teachers' perceived time savings/losses from ICT resources
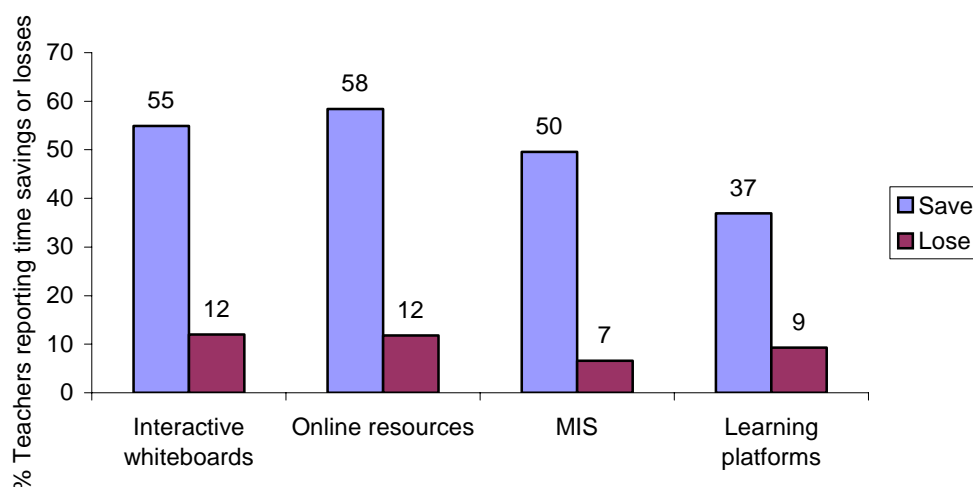
Base: all primary teachers using each resource (whiteboards: 561, online resources: 564, management information systems (MIS): 168, learning platforms: 94)

Figure 5.6 Secondary teachers' perceived time savings/losses from ICT resources

Base: all secondary teachers using each resource (whiteboards: 842, online resources: 1,054, management information systems (MIS): 621, learning platforms: 305)

In terms of using ICT for different tasks, primary teachers were more likely to report that they saved time using ICT for lesson planning and preparation than for other tasks. Almost three-quarters (74 per cent) of primary teachers said they saved time using ICT for lesson planning, with 22 per cent saying they saved more than two hours per week (Table 5.12, Figure 5.7). More than half (54 per cent) of primary teachers reported that they saved time in lesson delivery by using ICT, while just six per cent said they lost time by using ICT for lesson delivery. Forty-five per cent of primary teachers said they saved time by using ICT for assessment, and the same proportion said that using ICT for record keeping saved them time. Just seven per cent said they lost time by using ICT for assessment and record keeping.

Secondary teachers were less likely than primary teachers to report that they saved time by using ICT for lesson planning and preparation. Nearly half (47 per cent) of secondary teachers said that using ICT for lesson planning saved them time, while 19 per cent said they lost time by using ICT for lesson planning (Table 5.12, Figure 5.8). Half (50 per cent) of secondary teachers reported that they saved time by using ICT for lesson delivery, with just six per cent reporting that they lost time by using ICT in this way. More than two-fifths of secondary teachers reported that they saved time by using ICT for assessment (44 per cent) and record keeping (42 per cent), with 14 per cent and 18 per cent respectively reporting that they lost time by using ICT for these tasks.

Music teachers were more likely than other subject teachers to report that using ICT for lesson planning saved them time (60 per cent).

The reporting of time saved by using ICT for different tasks was positively associated with greater use of ICT in lessons. Primary and secondary teachers who used internet-based resources or subject-specific software in half or more lessons were more likely than other teachers to report that they saved time using ICT for lesson planning and delivery.

Table 5.12 Time currently saved or lost by using ICT for different tasks
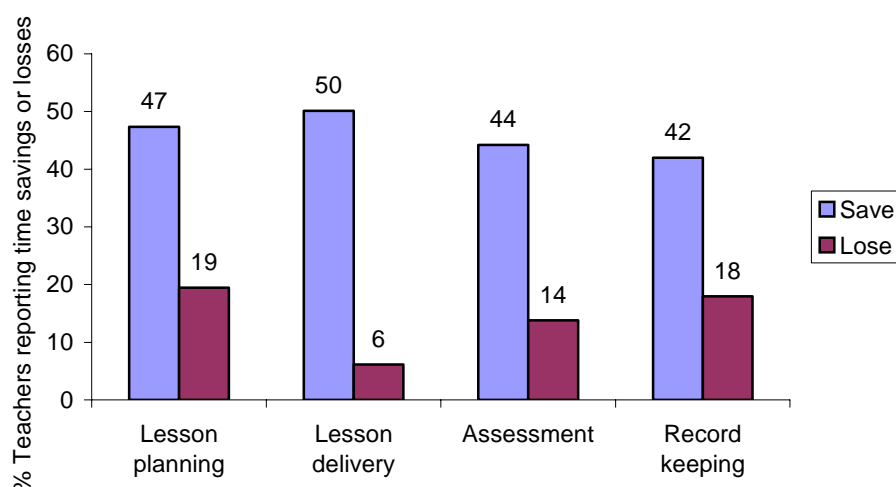
	Lesson planning		Lesson delivery		Assessment		Record keeping	
	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)
Save more than 2 hours	22	16	10	11	8	8	5	9
Save 1-2 hours	26	13	18	15	12	12	12	11
Save up to 1 hour	27	19	26	24	26	24	28	22
Does not make a difference	17	33	40	44	48	42	49	40
Lose up to 1 hour	5	7	5	4	5	9	5	12
Lose 1-2 hours	2	7	*	2	1	3	1	4
Lose more than 2 hours	2	6	1	1	1	2	1	2
Total: save time	**74**	**47**	**54**	**50**	**45**	**44**	**45**	**42**
Total: lose time	**9**	**19**	**6**	**6**	**7**	**14**	**7**	**18**
Base: all teachers who used ICT for each task	598	1,111	596	1,119	541	997	546	1,062

Figure 5.7 Primary teachers' perceived current time savings/losses from using ICT for particular tasks
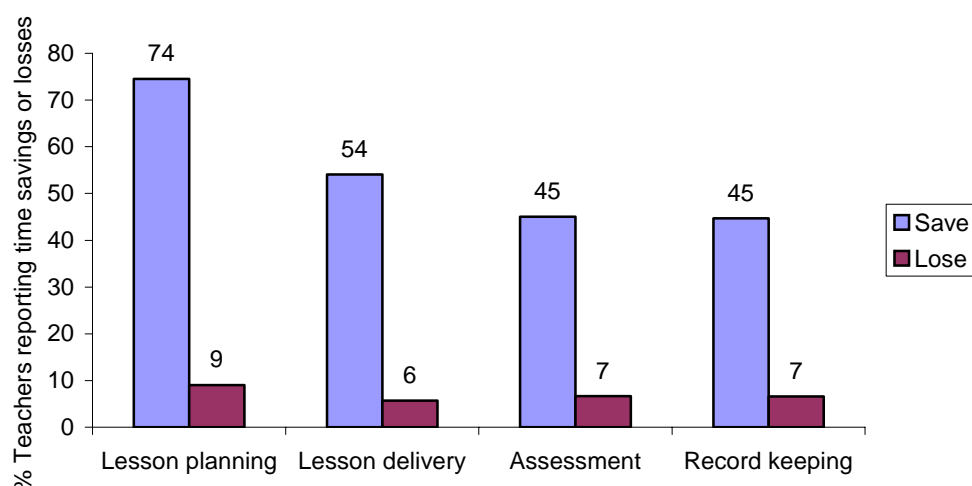
Base: all primary teachers currently using technology for each task (lesson planning: 598, lesson delivery: 596, assessment: 541, record keeping: 546)

Figure 5.8 Secondary teachers' perceived current time savings/losses from using ICT for particular tasks

Base: all secondary teachers currently using technology for each task (lesson planning: 1,111, lesson delivery: 1,119, assessment: 997, record keeping: 1,062)

5.6.2 Expected time savings in the next year

Teachers were asked to estimate how much time they anticipated saving or losing each week over the next 12 months by using different ICT resources or using ICT for different tasks. As with current time savings, teachers generally had positive expectations of time savings from using ICT in the next 12 months.

The majority of primary teachers expected to save time by using online resources and interactive whiteboards in the next 12 months. Almost two-thirds (64 per cent) of primary teachers expected online resources to save them time, and a similar proportion (62 per cent) expected to save time by using interactive whiteboards (Table 5.13, Figure 5.9). Around one-tenth of primary teachers thought they would lose time by using these resources in the next 12 months (nine per cent for online resources and 11 per cent for interactive whiteboards).

Two-thirds (67 per cent) of primary teachers did not expect to use management information systems in the next 12 months. Fewer than a fifth (17 per cent) of primary teachers thought they would save time by using management information systems. Similarly, most primary teachers (79 per cent) were not planning to use a learning platform in the next 12 months, while one-tenth (10 per cent) expected that they would save time by using a learning platform.

Secondary teachers were less likely than primary teachers to expect to save time by using online resources or interactive whiteboards in the next 12 months. More than half (53 per cent) of secondary teachers expected to save time by using online resources, while 12 per cent thought they would lose time by doing this (Table 5.13, Figure 5.10). Two-fifths (41 per cent) of secondary teachers thought they would save time by using interactive whiteboards, while 10 per cent expected to lose time by

doing this. A quarter (25 per cent) of secondary teachers did not plan to use interactive whiteboards in the next 12 months.

Just over a quarter (26 per cent) of secondary teachers expected to save time by using management information systems in the next 12 months. One-tenth (10 per cent) thought they would lose time by using these systems. Two-fifths (41 per cent) did not intend to use them. Similarly, more than three-fifths (64 per cent) of secondary teachers did not plan to use a learning platform in the next 12 months. Fourteen per cent thought they would save time by using a learning platform, and six per cent expected to lose time by doing this.

Table 5.13 Time that teachers expect to save or lose by using ICT resources in next 12 months

	Interactive whiteboards		Online resources		MIS		Learning platform	
	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)
Save more than 2 hours	26	17	24	17	5	7	2	4
Save 1–2 hours	17	12	19	14	5	6	2	3
Save up to 1 hour	19	12	22	22	7	13	6	6
Will not make a difference	23	24	23	27	13	23	9	17
Lose up to 1 hour	7	3	6	6	1	4	1	3
Lose 1–2 hours	3	4	1	3	1	3	1	1
Lose more than 2 hours	2	3	1	3	1	3	1	2
Do not plan to use	4	25	4	8	67	41	79	64
Total: save time	**62**	**41**	**64**	**53**	**17**	**26**	**10**	**14**
Total: lose time	**11**	**10**	**9**	**12**	**2**	**10**	**2**	**6**
Base: all teachers answering	596	1,160	587	1,146	540	1,100	534	1,085

Figure 5.9 Primary teachers' perceived future time savings/losses from using ICT resources
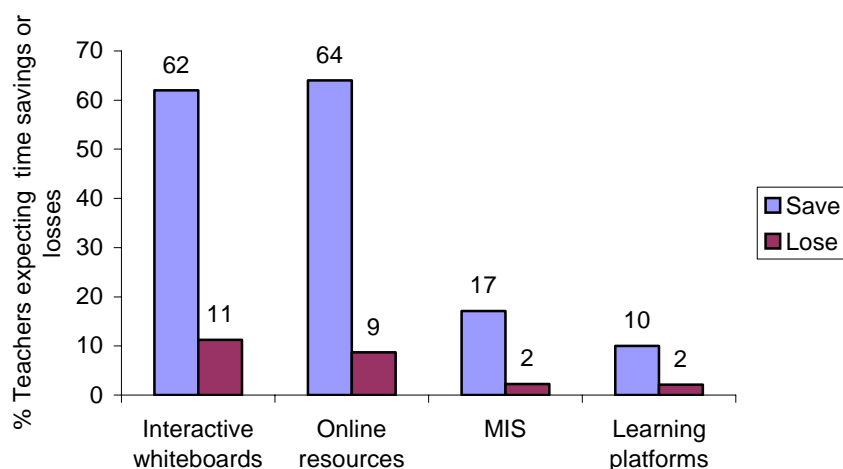
Base: all primary teachers answering (whiteboards: 596, online resources: 587, management information systems (MIS): 540, learning platforms: 534)

Figure 5.10 Secondary teachers' perceived future time savings/losses from using ICT resources
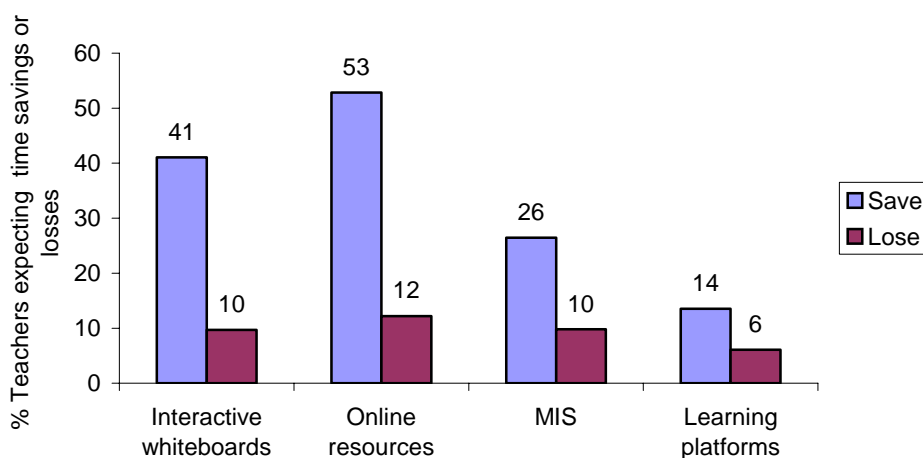
Base: all secondary teachers answering (whiteboards: 1,160, online resources: 1,146, management information systems (MIS): 1,100, learning platforms: 1,085)

More than three-quarters (76 per cent) of primary teachers expected to save time by using ICT for lesson planning and preparation in the next 12 months, while seven per cent expected to lose time by doing this (Table 5.14, Figure 5.11). Three-fifths (61 per cent) of primary teachers expected that using ICT would save them time in lesson delivery, and just five per cent thought they would lose time when delivering lessons by using ICT. Around half of primary teachers thought they would save time by using ICT for assessment (50 per cent) and record keeping (51 per cent) in the next 12 months.

Secondary teachers were less likely than primary teachers to expect to save time by using ICT for lesson planning in the next 12 months, with just over half (51 per cent) expecting to save time and 16 per cent expecting to lose time by using ICT for lesson planning (Table 5.14, Figure 5.12). More than half (53 per cent) of secondary teachers expected to save time by using ICT for lesson delivery, while just seven per cent expected to lose time. Fewer than half of secondary teachers expected to save time by using ICT for assessment (44 per cent) or record keeping (46 per cent), while 13 per cent and 14 per cent respectively thought they would lose time using ICT for these tasks.

Table 5.14 Time that teachers expect to save or lose by using ICT for different tasks in next 12 months
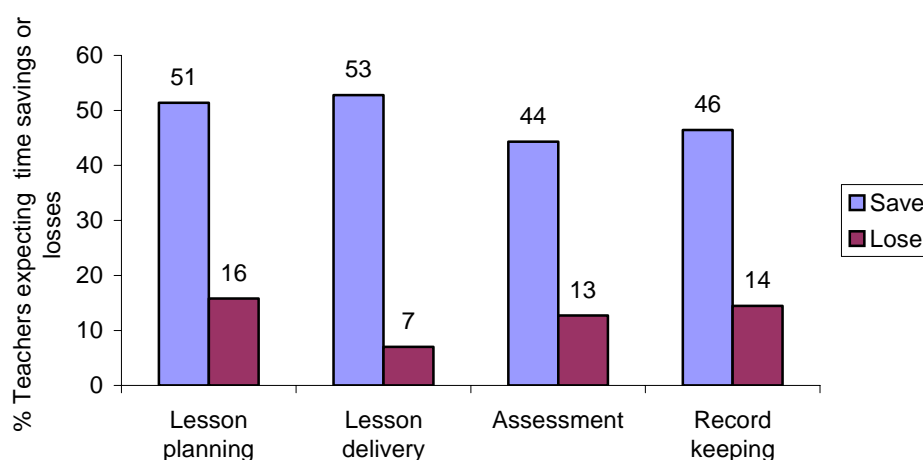
	Lesson planning		Lesson delivery		Assessment		Record keeping	
	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)	Primary (%)	Second-ary (%)
Save more than 2 hours	33	23	17	18	14	12	14	13
Save 1–2 hours	21	13	24	16	16	12	16	13
Save up to 1 hour	22	15	20	19	20	20	22	21
Will not make a difference	15	27	33	36	36	32	35	31
Lose up to 1 hour	2	4	3	3	3	7	2	8
Lose 1–2 hours	3	5	*	2	1	3	1	4
Lose more than 2 hours	2	6	2	2	1	3	1	3
Do not plan to use	1	6	2	4	9	11	10	8
Total: save time	**76**	**51**	**61**	**53**	**50**	**44**	**51**	**46**
Total: lose time	**7**	**16**	**5**	**7**	**5**	**13**	**4**	**14**
Base: all teachers answering	601	1,163	597	1,155	595	1,157	597	1,158

Figure 5.11 Primary teachers' perceived future time savings/losses from using ICT for particular tasks
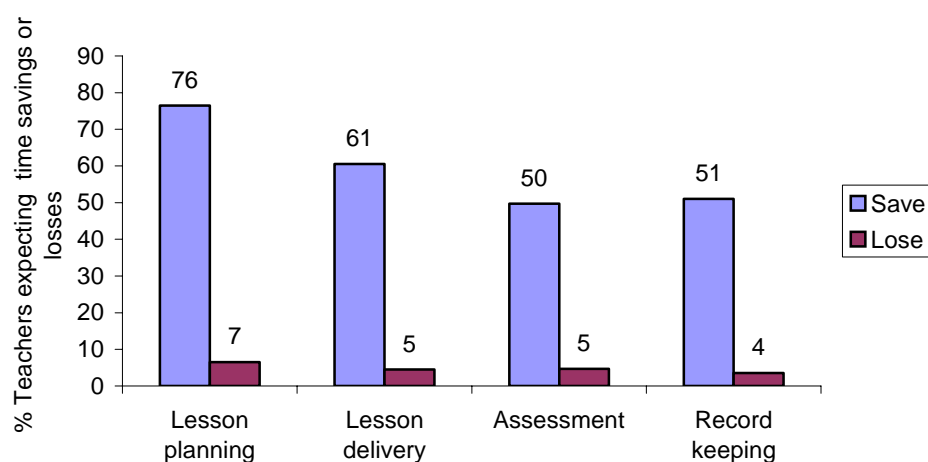
Base: all primary teachers answering (lesson planning: 601, lesson delivery: 597, assessment: 595, record keeping: 597)

Figure 5.12 Secondary teachers' perceived future time savings/losses from using ICT for particular tasks

Base: all secondary teachers answering (lesson planning: 1,163, lesson delivery: 1,155, assessment: 1,157, record keeping: 1,158)

5.6.3 Perceptions of impact of ICT on time saving

Primary teachers were more likely than secondary teachers to think that using technology to plan lessons could save time. More than three-fifths (62 per cent) of primary teachers and 43 per cent of secondary teachers agreed with the statement 'Using technology to plan lessons saves me time', reflecting the higher proportion of primary teachers who reported time savings from using ICT for lesson planning. Among primary and secondary teachers, those who agreed with this statement

reported a higher percentage of lesson planning using digital resources than those who did not agree.

> I have recently got an interactive whiteboard in my classroom and feel this is a good resource which will engage children and eventually save me time once I have got to grips with it.
>
> Primary teacher

5.7 Incidence of technical problems

Most teachers reported that they experienced technical problems which prevented delivery of their lessons at least occasionally, although the majority did not experience such problems frequently.

More than half (54 per cent) of primary teachers reported that they experienced problems with printers which prevented delivery of their lessons at least once a month (Figure 5.13), with nearly a fifth (17 per cent) experiencing such problems at least once a week. More than half (53 per cent) of primary teachers reported that technical problems with computers used by pupils occurred at least once a month, and a similar proportion (45 per cent) reported that problems occurred at least once a month with school internet connections. Almost two-fifths (39 per cent) of primary teachers reported that technical problems with the schools' networks prevented delivery of lessons at least once a month, while 37 per cent said that problems with interactive whiteboards occurred at least once a month.

Secondary teachers were less likely than primary teachers to report that problems with printers prevented delivery of their lessons, with two-fifths (40 per cent) reporting that such problems occurred at least once a month. Secondary teachers were most likely to experience problems with computers used by pupils, with 46 per cent reporting that problems with computers prevented the delivery of lessons at least once a month, and 15 per cent saying that such problems occurred at least once a week. Problems with the schools' networks and internet connections that prevented the delivery of lessons were said to occur at least once a month by 37 per cent and 36 per cent of secondary teachers respectively. Most secondary teachers did not frequently experience problems with interactive whiteboards that prevented the delivery of lessons. Fewer than a fifth (18 per cent) of secondary teachers experienced such problems once a month or more, and a third (33 per cent) said that problems with interactive whiteboards never occurred.

As might be expected, more frequent use of resources was associated with more frequent experience of technical problems. For example, secondary teachers who used display technology in half of more lessons were more likely to have

experienced technical problems with interactive whiteboards. The levels of ICT resources in schools were not related to teachers' experience of technical problems.

Figure 5.13 Percentages of teachers experiencing technical problems which prevent delivery of lessons at least once a month
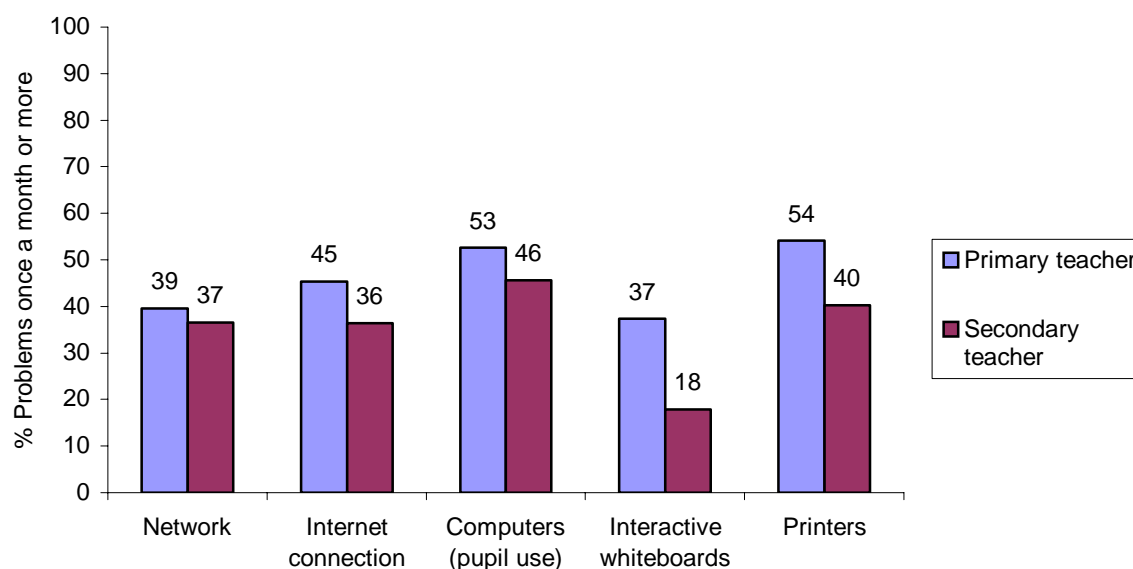
Base: all teachers answering (primary: 592–606, secondary: 1,128–1,178)

5.8 Perceived impacts of ICT
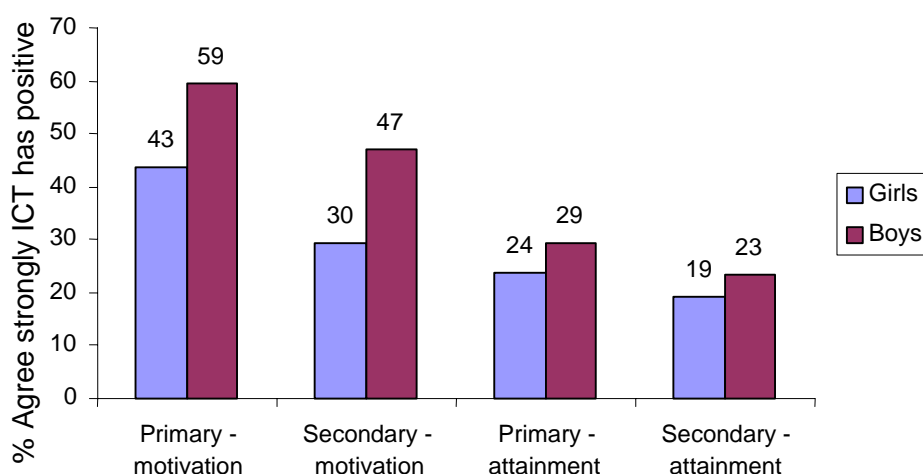
5.8.1 Impacts on motivation

Teachers were asked to what extent they agreed that using ICT can have a positive impact on motivation among particular groups (Key Stages 1–4; girls; boys; able or gifted and talented pupils; pupils with special educational needs). Teachers were generally highly positive about the impacts that ICT could have on motivation.

Most primary teachers agreed that ICT could have a positive impact on motivation at Key Stages 1 and 2, although agreement was slightly higher for Key Stage 2 (for Key Stage 1, 94 per cent agreed strongly or agreed, compared with 98 per cent for Key Stage 2) (Table 5.15). Fifty-six per cent of primary teachers agreed strongly that ICT could have a positive impact on motivation at Key Stage 2, compared with 49 per cent for Key Stage 1.

While most primary teachers agreed that ICT could have a positive impact on the motivation of both girls and boys (97 per cent for girls and 98 per cent for boys), they were more likely to agree strongly for boys (59 per cent) than for girls (43 per cent) (Figure 5.14).

Most primary teachers (95 per cent) agreed that ICT could have a positive impact on motivation for able or gifted and talented pupils, while 53 per cent strongly agreed that this was true (Table 5.15). Similarly, most primary teachers (97 per cent) agreed that ICT had a positive impact on the motivation of pupils with special educational needs, and 58 per cent strongly agreed with this.

Figure 5.14 Teachers' views of impacts of ICT on girls and boys (% agree strongly ICT can have a positive impact)

Base: all teachers answering (primary: 580–595, secondary: 1,143–1,167)

Secondary teachers had similarly positive views on the impacts of ICT on motivation. Most secondary teachers agreed that ICT could have a positive impact on motivation of Key Stage 3 pupils (91 per cent) and Key Stage 4 pupils (88 per cent) (Table 5.16).

Secondary teachers were more likely to agree that ICT had a positive impact on motivation among boys than girls (92 per cent compared with 81 per cent), with a larger difference in the proportion of secondary teachers agreeing strongly that ICT had a positive impact on boys' motivation (47 per cent) compared with girls' (30 per cent).

Almost two-fifths (39 per cent) of secondary teachers agreed strongly that ICT had a positive impact on motivation among able or gifted and talented pupils, with 85 per cent overall agreeing.

More than nine-tenths (91 per cent) of secondary teachers agreed that ICT could have a positive impact on motivation among pupils with special educational needs, and 45 per cent strongly agreed with this statement.

Primary and secondary teachers who made frequent use of ICT resources in lessons were more likely than those who used resources less frequently to strongly agree

that ICT could have positive impacts on motivation. These associations were seen for frequent use of different kinds of resource and for different types of activity (e.g. whole-class, working in groups) suggesting that it is the extent of use that is related to very positive perceptions of motivation, rather than particular ways of using technology.

Table 5.15 Primary teachers' views of impact of ICT (percentages agreeing ICT can have a positive impact on the groups listed)

	Motivation		Attainment		Base (all primary teachers answering)
	Agree strongly (%)	Agree (%)	Agree strongly (%)	Agree (%)	
Key Stage 1 pupils	49	45	26	48	539/535
Key Stage 2 pupils	56	42	27	52	559/552
Girls	43	53	24	53	594/580
Boys	59	39	29	50	595/580
Able or gifted and talented pupils	53	42	29	49	598/586
Pupils with special educational needs	58	39	32	51	600/586

Table 5.16 Secondary teachers' views of impact of ICT (percentages agreeing ICT can have a positive impact on the groups listed)

		Motivation		Attainment		Base (all secondary teachers answering)
		Agree strongly	Agree	Agree strongly	Agree	
Key Stage 3 pupils	%	42	49	20	47	1,184/1,174
Key Stage 4 pupils	%	38	51	23	47	1,162/1,150
Girls	%	30	52	19	47	1,167/1,156
Boys	%	47	45	23	48	1,153/1,143
Able or gifted and talented pupils	%	39	47	23	45	1,179/1,173
Pupils with special educational needs	%	45	46	26	47	1,173/1,163

5.8.2 Impacts on attainment

Although the majority of teachers agreed that ICT could have positive impacts on formal attainment, levels of agreement were not as high as for the effect on motivation.

Primary teachers had similar perceptions of the impact of ICT on attainment among Key Stage 1 pupils and Key Stage 2 pupils, with 74 per cent and 79 per cent respectively agreeing that it had a positive impact (Table 5.15).

There were no significant differences in the proportions of primary teachers who thought that ICT could have a positive impact on the attainment of girls (77 per cent) and boys (79 per cent).

Almost four-fifths (79 per cent) of primary teachers agreed that ICT could have a positive impact on the attainment of able or gifted and talented pupils. Similarly, 83 per cent agreed that ICT could have a positive impact on attainment among pupils with special educational needs.

Overall, secondary teachers were slightly less likely than primary teachers to think that ICT could have positive impacts on attainment.

More than two-thirds (67 per cent) of secondary teachers agreed that ICT could have a positive impact on attainment at Key Stage 3, and a similar proportion agreed it could have a positive impact on attainment at Key Stage 4 (69 per cent) (Table 5.16).

Secondary teachers were slightly more likely to agree that ICT could have a positive impact on attainment for boys than for girls (71 per cent compared with 66 per cent), and the proportion strongly agreeing was slightly higher for boys (23 per cent) than for girls (19 per cent).

More than two-thirds (68 per cent) of secondary teachers thought that ICT could have a positive impact on attainment among able or gifted and talented pupils, and a similar proportion (73 per cent) thought it could have a positive impact on the attainment of pupils with special educational needs.

Positive views of the impact of ICT on attainment were associated with more frequent use of ICT. Among both primary and secondary teachers, those who made more frequent use of ICT in lessons were more likely to strongly agree that ICT had positive impacts on attainment. Again these associations could be seen for different ways of using technology, suggesting that there is a relationship between frequent use of technology and positive views of the impacts it has.

> ICT has had a very positive impact on the learning of some of my special needs pupils.
>
> Primary teacher
>
> Music sequencing and sampling software have had a dramatic impact on raising engagement and enthusiasm for learning in music.
>
> Secondary teacher

5.8.3 Attitudes to ICT

Most teachers thought that ICT was useful for responding to different pupil abilities, with 94 per cent of primary teachers and 90 per cent of secondary teachers agreeing with the statement 'Using ICT resources can help in responding to different pupil abilities' (Figure 5.15). Agreement with this statement was higher than in the third Curriculum Online survey in 2005, when 84 per cent of primary teachers and 83 per cent of secondary teachers agreed with this statement.

Teachers were less positive about the role of ICT in giving individualised feedback. Nearly two-fifths (38 per cent) of primary teachers and 56 per cent of secondary teachers agreed with the statement 'ICT resources can help in giving individualised feedback to pupils'. Among secondary teachers, maths and science teachers were more likely than other subject teachers to agree with this statement (71 per cent and 65 per cent respectively agreeing). Agreement with this statement was slightly lower among primary teachers than in the third Curriculum Online survey in 2005, when 45 per cent agreed with the same statement.

 ICT was widely seen by teachers to be relevant to all subjects (Figure 5.16). Only a minority of teachers (31 per cent primary and 15 per cent secondary) agreed with the statement that ICT is not relevant for every subject. Agreement with this statement was higher among primary teachers than in the third Curriculum Online survey in 2005, when just 22 per cent agreed with this statement.

Figure 5.15 Teachers' attitudes to using ICT to respond to different abilities and giving individual feedback
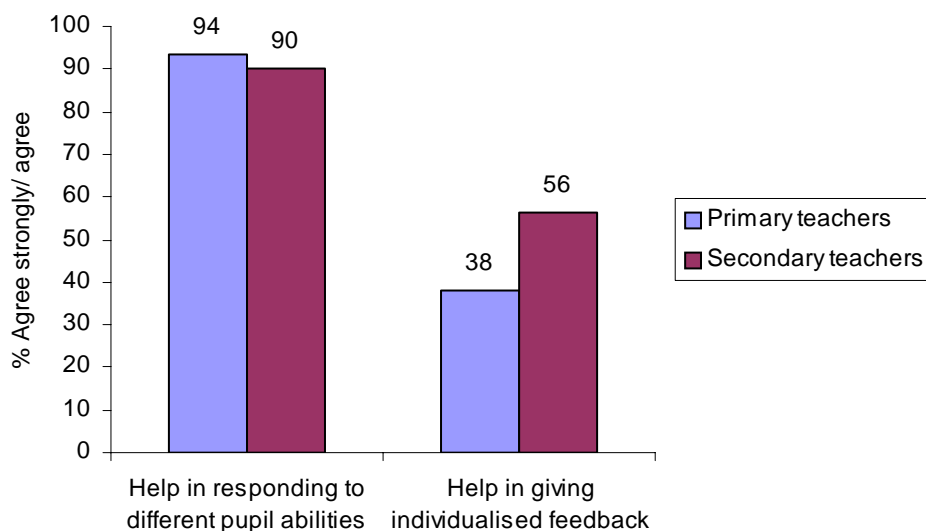
Base: all teachers answering (primary: 601–602, secondary: 1,183–1,185)

Figure 5.16 Agreement with statement 'ICT is not relevant to every subject'
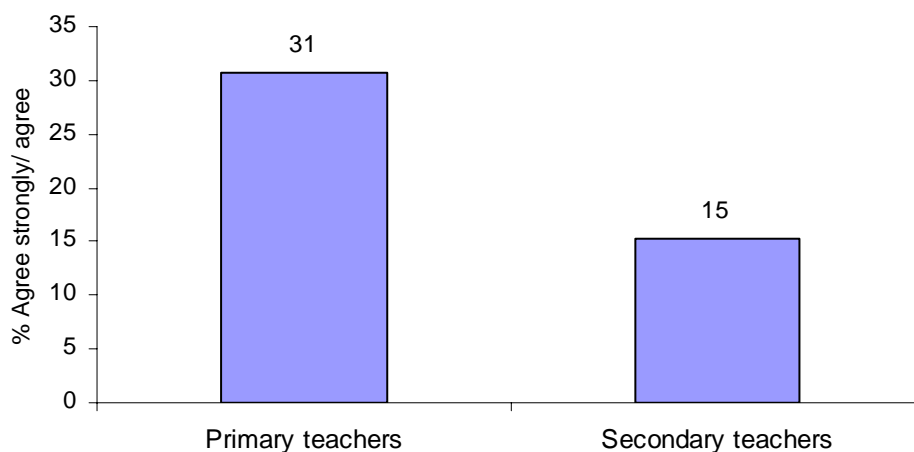
Base: all teachers answering (primary: 597, secondary: 1,185)

5.9 Summary

- Digital resources were widely used in teachers' lesson planning. Fifty-six per cent of primary teachers used websites for teachers to plan at least half of lessons, while 35 per cent used other websites, and 40 per cent used software on CD-ROM or DVD. Among secondary teachers, the resources most commonly used to plan at least half of lessons were

software on CD-ROM/DVD (36 per cent) websites for teachers (34 per cent) and other websites (30 per cent).

- Digital resources were used on average for 43 per cent of primary teachers' lesson planning and 34 per cent of secondary teachers' lesson planning. The average proportion of lesson planning using digital resources had increased since 2005, continuing an upward trend seen since 2002.

- The majority of teachers (58 per cent primary and 65 per cent secondary) created their own digital learning resources. Most teachers who created resources did so at least every two to three weeks.

- Digital learning resources created by other teachers were used at least once a week by 44 per cent of primary teachers and 34 per cent of secondary teachers. Most teachers adapted digital learning resources created by other teachers to suit their needs.

- Primary teachers tended to make frequent use of ICT resources in lessons, with most (86 per cent) using display technologies in at least half of lessons, and a majority using computer packages (56 per cent) and internet-based resources (54 per cent) in at least half of lessons.

- Display technologies were used in at least half of lessons by nearly two-thirds (64 per cent) of secondary teachers, while about one-third used computer packages (36 per cent) and internet-based resources (33 per cent). Two-fifths (41 per cent) of secondary teachers made use of subject-specific software applications in at least half of lessons.

- In lessons, teachers were more likely to use ICT for whole-class activities than for small-group or independent activities. Most primary teachers (80 per cent) and more than half (53 per cent) of secondary teachers used ICT for whole-class activities in at least half of lessons. About two-fifths (43 per cent) of primary teachers and a fifth (21 per cent) of secondary teachers used ICT for small-group activities in at least half of lessons.

- The most common way in which teachers used ICT to help pupils learn was for gathering information. More than half of primary teachers used ICT with pupils in at least some lessons for analysing information, being creative and problem solving, while fewer than half of secondary teachers used ICT in lessons in these ways.

- For assessment, teachers most commonly used ICT to enable pupils to demonstrate their learning, with nearly half of primary and secondary teachers doing this at least once a term. Electronically held pupil assessment information was most commonly used by teachers to share information with other staff, with around three-fifths (59 per cent) of primary teachers and four-fifths (79 per cent) of secondary teachers using electronic information in this way at least once a term.

- Teachers were generally positive about the impact of ICT on productive time. More than half of primary teachers and just under half of secondary

teachers reported that they currently saved time by using interactive whiteboards and online resources. Three-quarters (74 per cent) of primary teachers thought that using ICT in lesson planning saved them time, while 54 per cent reported time savings in lesson delivery. Around half of secondary teachers reported time savings from using ICT for lesson planning and lesson delivery (47 per cent and 50 per cent respectively).

- Expectations of future impacts on productive time were also positive. Three-fifths (62 per cent) of primary teachers and two-fifths (41 per cent) of secondary teachers expected to save time over the next year by using interactive whiteboards, while 64 per cent of primary teachers and 53 per cent of secondary teachers expected to save time using online resources.

- Most teachers occasionally experienced technical problems which prevented the delivery of their lessons, but the majority did not experience such problems frequently. The problems experienced by primary teachers were most likely to be with printers and computers used by pupils, with just over half (53 per cent) of primary teachers encountering such problems at least once a month. The technical problems experienced by secondary teachers were most likely to be with computers used by pupils, with nearly half (46 per cent) of secondary teachers experiencing problems at least once a month.

- Teachers generally thought that ICT had positive impacts on pupils' motivation. Primary and secondary teachers were more likely to agree strongly that ICT had a positive impact on the motivation of boys than girls. Most teachers also thought that ICT could have positive impacts on attainment, although they were less likely to agree strongly with this than agree strongly that ICT had a positive impact on motivation.

Role of ICT in professional development

This chapter examines professional development issues for teachers in using ICT. The availability and effectiveness of advice and training in ICT is examined, and the perceptions of teachers' confidence in using ICT explored. The findings in this chapter relate to priority 4 of the Government's e-strategy, to provide 'a good quality ICT training and support package for practitioners'.

6.1 Training and advice

6.1.1 Training provision

Training and one-to-one coaching in the use of technology were available to teachers in most primary and secondary schools.

Teachers at 85 per cent of primary schools were able to attend training courses held at the school, and 87 per cent of schools made courses held in other venues available (Table 6.1). One-to-one coaching was less common, with teachers at around two-thirds (64 per cent) of primary schools able to access coaching delivered by other school staff, and a quarter (25 per cent) able to access coaching delivered by external trainers and consultants.

Eighty-six per cent of secondary schools made training courses held at the school available to teachers, while more than three-quarters (77 per cent) provided access to training courses held away from the school. At the same proportion of schools (77 per cent), teachers were able to access one-to-one coaching delivered by other school staff and teachers, and around a third (32 per cent) of secondary schools provided access to coaching delivered by external trainers and consultants.

Table 6.1 Availability of technology training for teachers in schools

	Primary (%)	Secondary (%)
Courses away from school	87	77
Courses at school	85	86
One-to-one coaching by external trainers	25	32
One-to-one coaching by other school staff	64	77
None of these	1	4
Base: all answering	232	254

6.1.2 Training received

The Government's e-strategy states that schools should 'provide ongoing continuous professional development through guidance and exemplar practice and subject-based e-communities'.

Teachers were asked which ways they had accessed training in ICT, including both formal and informal training. Most primary teachers (98 per cent) indicated that they had attended some form of ICT training but only 55 per cent of secondary teachers did so (Table 6.2).

Teachers were most likely to have accessed ICT training in person, either formally or informally. Most primary teachers (83 per cent) and more than a third (35 per cent) of secondary teachers had attended formal ICT training courses delivered in person. Informal training in person was also common, with 76 per cent of primary teachers and 39 per cent of secondary teachers having accessed ICT training in this way.

Nearly two-fifths (38 per cent) of primary teachers and more than a fifth (23 per cent) of secondary teachers had accessed ICT training by reading books or manuals.

Although only a minority of teachers (14 per cent primary and five per cent secondary) had accessed formal ICT training courses online, more than half (52 per cent) of primary teachers and more than a quarter (27 per cent) of secondary teachers had found information online.

More than half (53 per cent) of primary teachers and a fifth (20 per cent) of secondary teachers had accessed training through DVDs or CD-ROMs – for example, demonstrations of how to use a software package.

Four per cent of secondary teachers spontaneously mentioned that they had taught themselves or learnt by trial and error.

Table 6.2 Ways in which teachers accessed ICT training

	Primary (%)	Secondary (%)
Formal training courses in person	83	35
Informal training in person	76	39
Reading books or manuals	38	23
Formal training courses online	14	5
Finding information online	52	27
DVDs or CD-ROMs	53	20
Self-taught (spontaneous)	1	4
Other	4	4
Base: all teachers	621	1,200

Primary teachers were more likely than secondary teachers to have positive views about the ICT training they had received. Two-thirds (66 per cent) of primary teachers rated the amount of ICT training available overall as very good or quite

good, while fewer than half (47 per cent) of secondary teachers rated the amount of training available this highly (Table 6.3). Most primary teachers were satisfied with the quality of internal ICT training, with three-quarters (75 per cent) rating it as very good or quite good, with secondary teachers again less likely to give these ratings (56 per cent). Primary teachers were also more likely than secondary teachers to rate the quality of external ICT training as very good or quite good (67 per cent compared with 39 per cent). While secondary teachers were more likely than primary teachers to feel unable to give a rating (29 per cent compared with 13 per cent), they were also more likely to rate the quality of external training as not very good or not at all good (32 per cent compared with 20 per cent).

Table 6.3 Teachers' ratings of available ICT training

	Amount of training overall		Quality of internal training		Quality of external training	
	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)	Primary (%)	Secondary (%)
Very good	9	5	16	9	11	5
Quite good	57	42	58	48	56	34
Not very good	20	26	11	19	16	21
Not at all good	6	15	2	8	5	11
Can't say	8	11	13	17	13	29
Base: all teachers answering	597	1144	596	1147	592	1141

ICT development has overtaken the technical ability of a lot of teaching staff. Staff are not provided with equipment or sufficient training to use a lot of the material that is there.

Secondary teacher

6.1.3 Areas for development

Most teachers thought they needed some development in using ICT, with primary and secondary teachers giving similar assessments of their development needs.

Most teachers thought they needed some development in using ICT with pupils. Eighty per cent of primary teachers and 82 per cent of secondary teachers said they needed development in using classroom technology with pupils, while similar proportions (85 per cent primary and 81 per cent secondary) said they needed development in supporting pupils' use of technology (Figure 6.1, Figure 6.2).

Around three-quarters of teachers (75 per cent primary and 77 per cent secondary) thought they needed a little or a lot of development in using particular software packages. Creating electronic materials and activities was another area in which most teachers thought they needed development, with 81 per cent of primary

teachers and 78 per cent of secondary teachers saying they needed a little or a lot of development.

The majority of teachers did not think they needed development in using the internet, with 36 per cent of primary teachers and 35 per cent of secondary teachers saying they needed development.

Just over a third (35 per cent) of primary teachers and more than half (55 per cent) of secondary teachers reported that they needed development in using the school's learning platform. The majority (62 per cent) of primary teachers and 39 per cent of secondary teachers did not think that use of the learning platform was applicable to them.

Primary teachers were more likely than secondary teachers to report that they needed development in using digital video or camera equipment (83 per cent compared with 70 per cent).
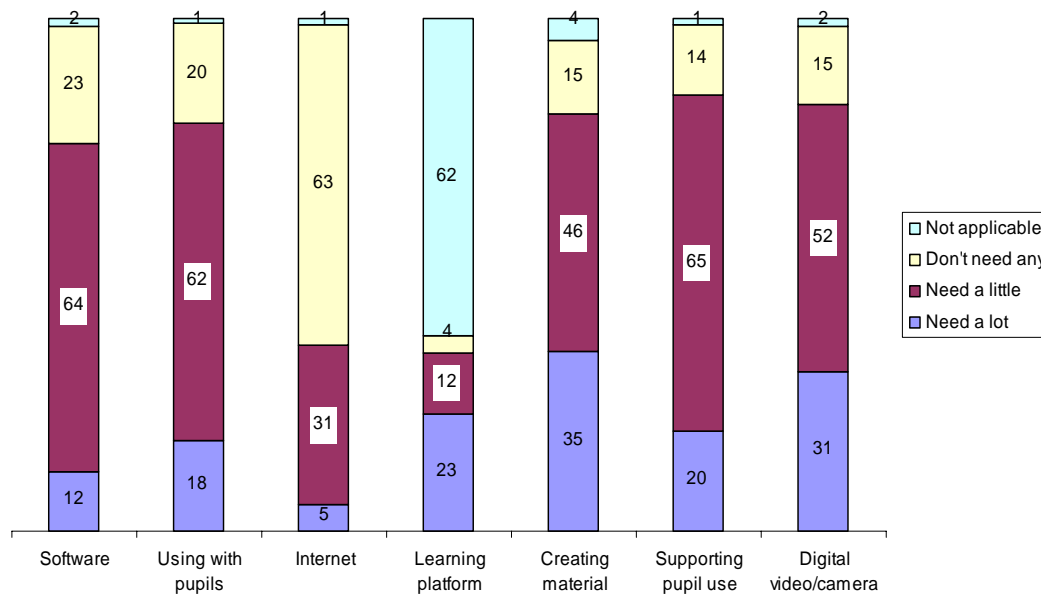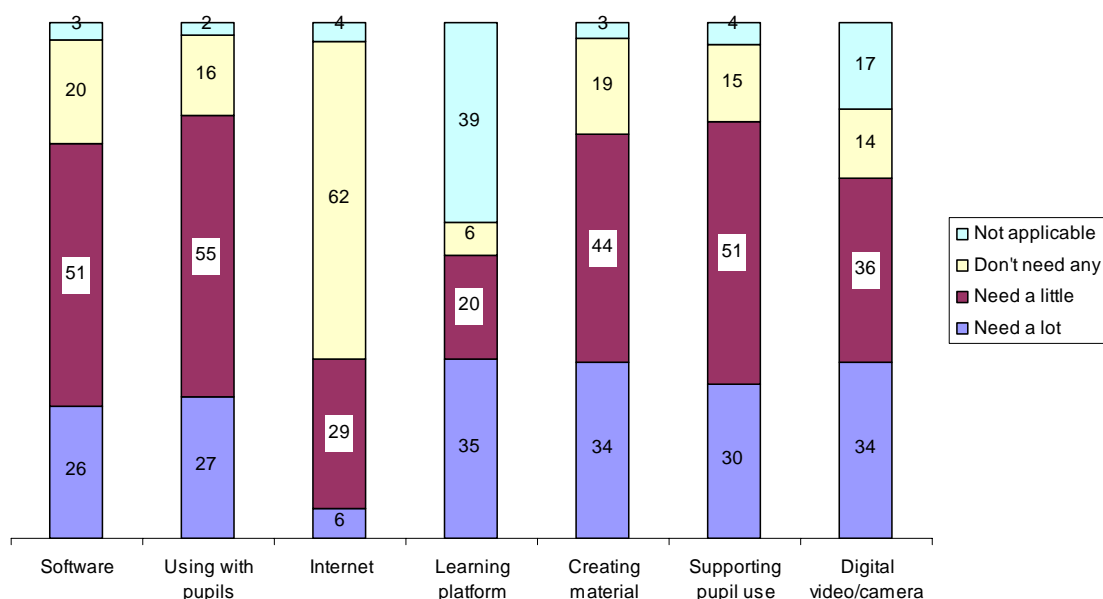

Figure 6.1 Primary teachers' areas for development

Base: all primary teachers answering (566–609)

Figure 6.2 Secondary teachers' areas for development

Base: all secondary teachers answering (1,135–1,172)

> ICT is an area which I need to become more proficient in. Training and time to explore relevant resources would benefit my teaching.
>
> Primary teacher

6.1.4 Sources of advice

Teachers were asked where they usually sought advice about using ICT in teaching and which source of advice they used most often.

Both primary and secondary teachers were most likely to seek advice about using ICT in teaching from sources within the school. Eighty-four per cent of primary teachers and 65 per cent of secondary teachers sought advice from the ICT co-ordinator in the school (Table 6.4). Teachers were as likely to use other teachers within the school for advice as they were the ICT co-ordinator, with 82 per cent of primary teachers and 64 per cent of secondary teachers citing other teachers within the school as a source of advice, while more than two-thirds (69 per cent) of secondary teachers sought advice from staff within their department.

However, when asked to choose the single source of advice they used most often, primary teachers were more likely to say this was the ICT co-ordinator (55 per cent) than other teachers in the school (22 per cent) (Figure 6.3). In contrast, secondary teachers were more likely to say that they most often went to other staff in their departments (38 per cent) than the ICT co-ordinator (27 per cent).

Almost a fifth (19 per cent) of primary teachers and nearly two-fifths (38 per cent) of secondary teachers said they went to pupils for advice about ICT, but very few teachers (no primary teachers and two per cent of secondary teachers) said they went to pupils most often for advice.

Outside the school, the most common source of advice about using ICT in teaching was the internet, with 45 per cent of primary teachers and 39 per cent of secondary teachers saying they used websites for advice. Only a small proportion of teachers (five per cent primary and six per cent secondary) said that websites were the source of advice they used most often.

Around a fifth of teachers (20 per cent primary and 21 per cent secondary) said they went to teachers in other schools for advice on using ICT in teaching. The LEA was used as a source of advice by more than a fifth (22 per cent) of primary teachers and 11 per cent of secondary teachers. Five per cent of primary teachers said that the LEA was the source of advice they used most often.

Primary teachers in schools that used technology for collaborations with other schools for joint learning and teaching activities or joint curriculum and resource development were more likely to have sought advice on using ICT from teachers in other schools. Similar relationships were not, however, seen in secondary schools.

Table 6.4 Teachers' sources of advice for using ICT in teaching (all used)

	Primary (%)	Secondary (%)
ICT co-ordinator	84	65
Staff within department	45	69
Other teachers in school	82	64
Teachers in other schools	20	21
The LEA	22	11
Becta	7	2
Independent trainers/ consultants	13	12
Suppliers	10	10
Websites	45	39
Parents	1	*
Unions	3	1
Professional associations	5	6
Pupils	19	38
ICT technician/manager (spontaneous)	4	5
Friends/family (spontaneous)	4	4
Other	2	3
None	*	1
Base: all teachers answering	608	1,161

Figure 6.3 Source of advice used most often by teachers
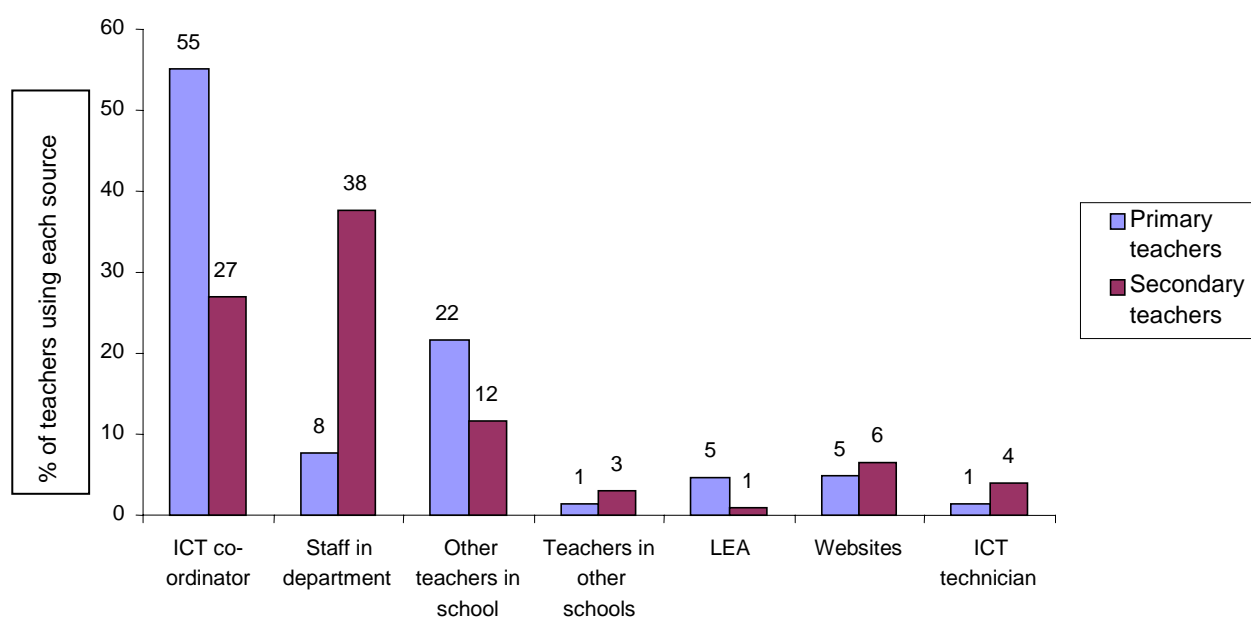
Base: all teachers answering (primary: 526, secondary: 982)

## 6.2 Teachers' confidence and enthusiasm

School leaders and ICT respondents were asked how confident they thought teachers at the school were overall in the use of ICT to deliver the curriculum. Most school leaders and ICT respondents thought that teachers were confident in using ICT.

Three-quarters (76 per cent) of primary school leaders and 83 per cent of secondary school leaders said that teachers were quite confident, while 19 per cent and 12 per cent respectively said that teachers were very confident (Figure 6.4). Similarly, 80 per cent of primary ICT respondents and 79 per cent of secondary ICT respondents rated teachers as quite confident. Primary ICT respondents were more likely than those in secondary schools to rate teachers as very confident (12 per cent compared with five per cent). No school leaders or ICT respondents thought that teachers at the school were not at all confident at using ICT.

The majority of ICT respondents (65 per cent primary and 71 per cent secondary) gave the same ratings of teachers' confidence as their school leaders did.

ICT respondents' ratings of teachers' confidence were similar to those given in the third Curriculum Online survey in 2005, where 77 per cent of primary ICT respondents and 74 per cent of secondary ICT respondents thought that teachers were quite confident, and nine per cent and five per cent respectively thought that teachers were very confident in using ICT.

Figure 6.4 Perceptions of teachers' confidence in using ICT
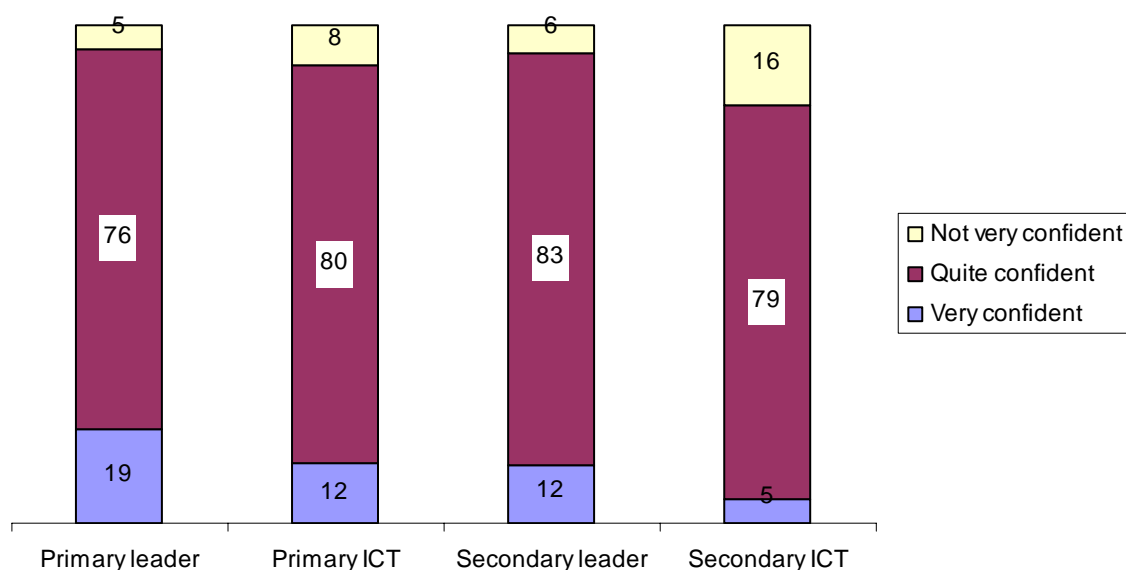
Base: all answering (primary leader: 209, primary ICT: 229, secondary leader: 182, secondary ICT: 256)

ICT respondents were also asked what proportion of teachers in their schools were enthusiastic about using ICT to deliver the curriculum.

More than a fifth (22 per cent) of primary ICT respondents thought that all or nearly all teachers were enthusiastic about ICT, while more than half (54 per cent) thought that most were (Figure 6.5). A fifth (20 per cent) of primary teachers said that some teachers were enthusiastic, while just 3 per cent said that few teachers were.

Secondary ICT respondents were less likely than primary ICT respondents to think that all or nearly all teachers were enthusiastic (10 per cent), but more than half (54 per cent) thought that most were. More than a third (36 per cent) of secondary ICT respondents thought that some teachers were enthusiastic about ICT. ICT respondents' perceptions of teacher enthusiasm were similar to those in the third Curriculum Online survey in 2005.

Figure 6.5 Perceptions of teachers' enthusiasm (proportion of teachers enthusiastic about using ICT)
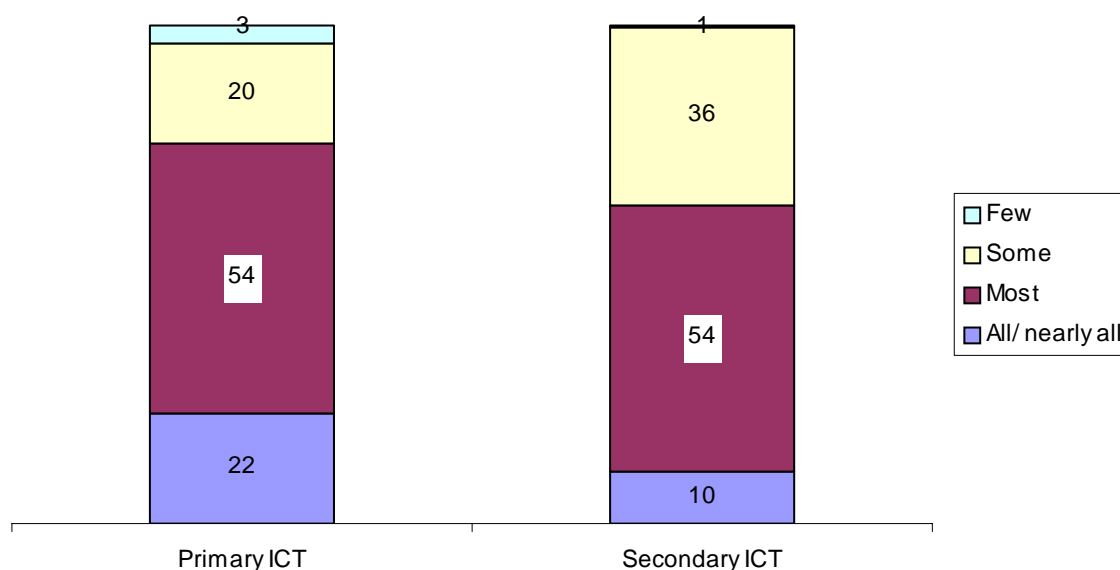
Base: all answering (primary ICT: 228, secondary ICT: 256)

Teachers were asked to rate their own effectiveness in using ICT to support learning and teaching in the classroom. The majority of teachers thought they were effective in using ICT, although only a relatively small proportion (11 per cent primary and 12 per cent secondary) thought they were very effective (Figure 6.6). While similar proportions of primary and secondary teachers rated themselves as very effective, primary teachers were more likely than secondary teachers to rate themselves as quite effective (69 per cent compared with 55 per cent). This difference reflects the slightly higher ratings of teachers' confidence among primary compared with secondary ICT respondents. Very few teachers (two per cent primary and four per cent secondary) thought they were not at all effective in using ICT.

Among secondary teachers, English teachers were less likely to see themselves as effective in using ICT compared with other subject respondents, with fewer than half (48 per cent) rating themselves as very effective or quite effective.

Perceived effectiveness in using ICT was associated with higher levels of use, with teachers who used ICT resources in half or more lessons being more likely to rate themselves as very effective or quite effective than those who used resources less frequently. Teachers who thought themselves effective in using ICT made proportionately greater use of ICT in lesson planning on average than those who did not see themselves as effective. Teachers who thought they were effective in using ICT were more likely to use ICT for different activities (e.g. whole-class or small-group activities), to help pupils learn in different ways and for assessment activities.

There were some relationships between teachers' ratings of effectiveness and ICT respondents' perceptions of teachers' confidence in secondary schools. Forty-five per cent of secondary teachers at schools where the ICT respondent thought teachers were not very confident rated themselves as not very effective or not at all effective in using ICT, compared with 31 per cent in schools where the ICT respondent thought teachers were quite confident. In primary schools, there was also an association with the headteacher's views, with teachers whose headteacher thought teachers at the school were very confident more likely to rate themselves as very effective.

There were some associations between ratings of effectiveness and training received. Primary teachers who rated themselves very effective or quite effective were more likely than those who did not think they were effective to have accessed informal training in person, training through books or manuals, information online, and information on DVD/CD-ROM. Secondary teachers who thought they were very effective or quite effective were more likely to have accessed training through books or manuals and information found online.

Figure 6.6 Teachers' rating of own effectiveness in using ICT
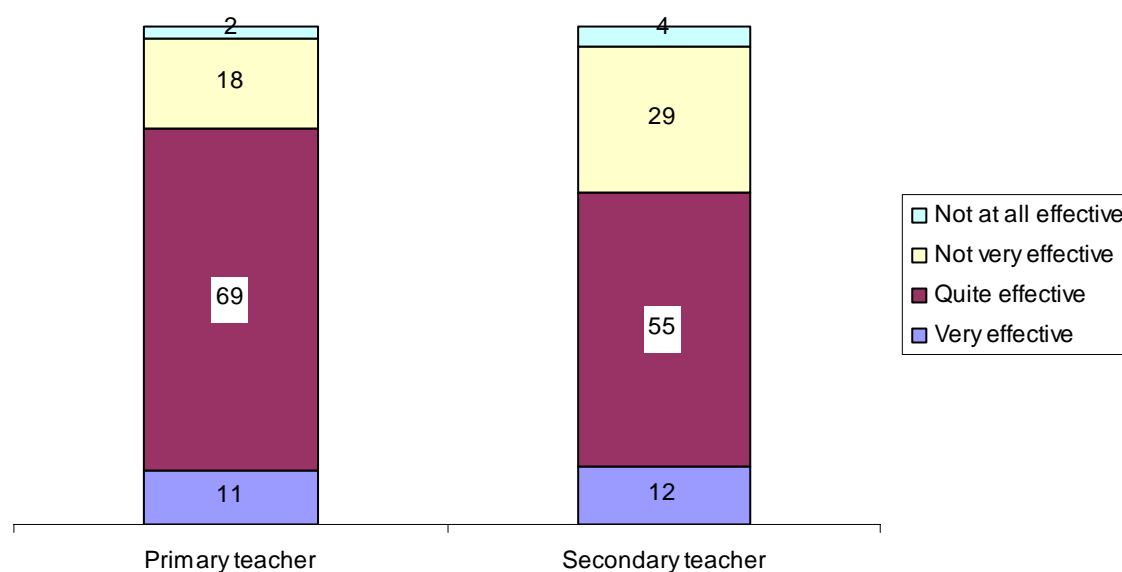
Base: all teachers answering (primary: 615, secondary: 1,191)

A further measure of teachers' confidence in using ICT was the level of agreement among teachers with the statement 'It is easier to find relevant teaching material in textbooks than on the internet'. Just over a fifth (22 per cent) of primary teachers and more than a third (34 per cent) of secondary teachers agreed with this statement. The proportion of teachers agreeing with this statement was lower than in the 2005 Curriculum Online survey (when 31 per cent of primary teachers and 41 per cent of secondary teachers agreed), continuing the downward trend in agreement with this

statement seen since the first Curriculum Online survey in 2002, when 55 per cent of primary teachers and 58 per cent of secondary teachers agreed. Agreement with this statement was higher among teachers who rated themselves as not very or not at all effective in using ICT.

6.3 Summary

- Teachers at 85 per cent of primary schools and 86 per cent of secondary schools were able to attend training courses at the school in the use of technology. Eighty-seven per cent of primary schools and 77 per cent of secondary schools made training courses held at other venues available.

- Almost all primary teachers (98 per cent) and more than half (55 per cent) of secondary teachers indicated they had received some form of training in ICT. The most common forms of training were formal training courses delivered in person and informal training in person.

- Primary teachers were more likely than secondary teachers to have positive views of ICT training. Two-thirds (66 per cent) of primary teachers and nearly half (47 per cent) of secondary teachers thought the amount of ICT training available was very good or quite good. Three-quarters (75 per cent) of primary teachers and 56 per cent of secondary teachers rated the quality of internal training as very good or quite good, while 67 per cent of primary teachers and 39 per cent of secondary teachers gave the same ratings for the quality of external training.

- Most teachers thought they needed some development in using technology. The areas in which primary teachers were most likely to think they needed development in creating digital materials, using digital video and camera equipment, and supporting pupils' use of technology. Most secondary teachers also thought they needed development in supporting pupils' use of technology and creating digital materials, and similar proportions thought they needed development in using technology with pupils and using particular software packages.

- Most headteachers and ICT respondents thought that teachers in their schools were quite confident in using ICT to deliver the curriculum. The majority of teachers rated themselves as quite effective or very effective in using ICT to support learning and teaching in the classroom, with primary teachers more likely than secondary teachers to see themselves as very effective.