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Computers for Teachers

A qualitative evaluation of Phase 1

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Introduction

This evaluation aimed to provide qualitative data to validate and supplement the findings from a survey administered by the Department for Education and Skills (DfES) about the Computers for Teachers (CfT) scheme, a government scheme launched in January 2000. The qualitative analysis aimed, in addition, to provide more detailed information about the wider impact of the scheme at whole-school level through the examination of case studies and telephone interviews. A total of 24 beneficiaries of the CfT scheme participated in telephone interviews, and a further 20 teachers who participated in the scheme were interviewed at the eight case-study schools (seven primary and one secondary) during Spring 2002. Key findings from the qualitative analysis appear below.

Main findings

Thematic analysis of case studies and telephone interviews

The case study and telephone interview analysis focused on the impact of the scheme in three main areas. The key findings from each area were as follows:

Impact on beneficiaries

Background – access to ICT

- The amount of time spent by many beneficiaries using a computer at home had increased since they took part in the scheme. Approximately three-quarters of the participants interviewed in the case-study schools reported that they were now spending considerably more time using ICT (information and communications technology) both at home and at school.
- A number of teachers reported that the scheme had provided them with more than one computer at home, which meant they could designate one for family use and one for their own use. In some cases, this provided a higher-specification machine, which enabled them to undertake a wider range of activities.

Workload and time-saving implications

- The majority of teachers felt that having a computer through CfT meant that they were increasingly able to organise their own workload more effectively. A small number had been performing more administrative tasks since obtaining their computer: this appeared to be due to a combination of increased access to a computer and their improved ICT skills.
- Some teachers felt that their workload had decreased as a result of numerous opportunities to save time, such as producing pro-formas, saving and accessing stored information, and emailing information and resources both to themselves and to other colleagues.
- Most beneficiaries reported that the scheme had allowed them improved flexibility as to when and where to carry out tasks related to teaching and learning, and an increased ability to organise their workload effectively.
- Teachers of pupils with special educational needs reported that having access to their own computer at home allowed them to prepare individual education plans (IEPs) more easily and to produce records of special needs more efficiently.
- Several teachers reported that since owning their own computer they had found it easier to differentiate information on the basis of ability level and age group for use in their classrooms.

Motivation and job satisfaction

- Several teachers highlighted the way in which participation in the scheme encouraged and promoted communication between colleagues within the same school and at other schools, through the use of email.
- A large proportion of teachers were appreciative of the way in which they could now produce work which they believed to be of a more professional standard than they had been capable of producing before they participated in the scheme.

Confidence and competence

- Most beneficiaries reported a substantial improvement in their confidence and competence in using ICT. Teachers were more confident about incorporating ICT into their classroom teaching and were more confident with regard to their ICT skills as a whole.
- A number of participants reported that their use of applications such as PowerPoint, Word and Excel had increased since participating in the scheme, because they felt more confident using them.

Interest in ICT

- The majority of teachers involved in the case studies reported increased interest in ICT as a result of having regular access or improved access to a computer. For some teachers it had presented them with an opportunity to develop an existing interest in ICT, whereas for others it had provided a vehicle for discovery. A number of teachers expressed interest in experimenting with other forms of ICT-related equipment such as digital cameras and interactive whiteboards.

Training issues

- For a number of teachers the in-service training they had received had been adequate. However, some participants (particularly those with more advanced ICT skills) indicated that the training had not always met their needs. For some there was felt to be a shortfall in their knowledge which had not been addressed by previous training courses. For others, the training highlighted areas they wished to explore in more depth.

Impact in beneficiaries' classrooms

Resources used/accessed

- Participant teachers reported being able to access a wide range of resources as a result of the CfT scheme. In particular, they used the internet regularly for both personal and professional purposes. The internet was identified as a particularly useful way of accessing a variety of up-to-date information sources.

Planning and preparation

- Having a personal computer through the CfT scheme had revolutionised many teachers' planning because it had become possible to plan and prepare lessons and teaching resources in the home.

Classroom teaching

- Participants reported that, as a result of having their own computer, they were increasingly incorporating ICT into their classroom teaching. However, implementation of ICT-based learning was dependent on the age of the pupil group and the availability of ICT resources within the school.

Record keeping

- Approximately two-thirds of the participants interviewed indicated that there had been a substantial impact on their record-keeping and administrative activities. The types of use made of the computer for record keeping included test and National Curriculum assessment results, pupil progress records and annual reports, documents relating to departmental meetings, letters to parents and reports to school governing bodies.

Impact on pupils

- Many of the participant teachers agreed that the scheme had had a positive impact on pupils. This was noted in three key areas: motivation, learning and behaviour. Several participants remarked that pupils had become increasingly motivated as a result of the teacher's participation in CfT. This was of particular importance for those pupils who had not been keen to learn before the teacher participated in the scheme. A number of teachers identified how introducing ICT into the classroom had increased learning opportunities available to pupils and had provided a positive reinforcement to those pupils who found it difficult to remain on task.

Whole-school impact

Non-participant teachers

- Interviews with teachers who did not participate in the scheme highlighted some differences in opinion over whether beneficiaries had shared with the wider school the skills and expertise that they had gained as a result of having a CfT computer. It appeared that this cascading of skills depended on a number of interrelating factors, such as the prevailing culture within the school and whether there was an existing ethos of sharing resources.

Leadership issues

- Interviews revealed that school managers had generally shown support for teachers' applications to participate in Phase 1 of the CfT scheme. However, not all schools were content to attribute increases in the level of ICT use solely to participation in the scheme. In some cases it was felt to be more likely that any increase was due to the combination of a number of factors, including New Opportunities Fund (NOF) training and improved levels of ICT resources in the school.

- A number of teachers highlighted the problems caused by the ineligibility of members of staff without qualified-teacher status to apply for grants under the scheme. This was felt to be an obstacle in the development of a whole-school approach to the use of ICT.

Whole-school policies

- A number of teachers recognised the positive contribution that participation in the scheme had made to the formulation of whole-school policies. This was a result of a combination of factors: being able to access online policy documents which they could tailor to their own particular needs; the ability to save work to disk and continue working on it outside school; and improved communication between colleagues during the policy development process.

General comments on the CfT scheme

- Overall, there was a very positive response from teachers regarding the CfT scheme. Participant teachers endorsed the open-to-all approach and were pleased with the way the scheme had operated. Some problems were identified around the administration of the scheme, such as lack of information in relation to purchasing machines and dissatisfaction with particular hardware suppliers.
- All participants interviewed were satisfied with the subsidy provided by the scheme, and most were generally satisfied with the computers they received.

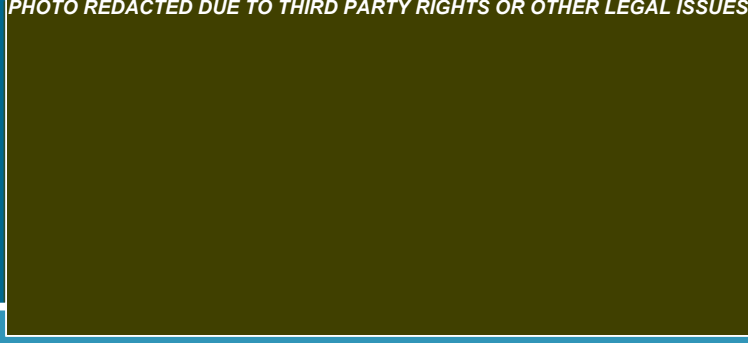
Conclusion

The qualitative research described in this report provides further evidence to support the findings from the DfES survey of participants in Phase 1 of CfT – namely, that personal ownership of a computer through the scheme had positive impacts on participating teachers, their pupils and other colleagues in their schools.

The evaluation has highlighted examples of the range of impacts resulting from participation in the scheme, including:

- greater efficiency in carrying out professional activities such as lesson preparation and administrative tasks
- improved levels of ICT competence and confidence, making teachers more likely to use ICT in their lessons
- increased access to ICT and the internet
- contributions to whole-school ICT development.

The CfT scheme, with its impact on individual teachers and more widely within their schools, must be seen as one of a number of schemes promoting and encouraging ICT use by both pupils and teachers.



1 Introduction

In January 2000 the Government launched Phase 1 of the Computers for Teachers (CfT) scheme. This scheme enabled eligible teachers to purchase a personal computer in order to increase their confidence and competence in using ICT in their teaching. The scheme, which offered teachers a 50 per-cent subsidy (up to a maximum of £500) towards the cost of a personal computer, was open to all teachers who had participated, or were in the process of participating, in the New Opportunities Fund (NOF) ICT training. However, newly qualified teachers (NQTs) were exempt from this requirement because ICT is covered as part of their initial teacher training (ITT). A total of 28,000 teachers purchased computers under Phase 1 of the CfT scheme.

The first stage of the evaluation of Computers for Teachers comprised the administration of a survey by the Department for Education and Skills (DfES) to a random sample of 6,000 teachers who had benefited from the scheme. The British Educational Communications and Technology Agency (Becta) carried out an analysis of the responses received on behalf of DfES (Becta, 2001)[1]. Subsequently, the National Foundation for Educational Research (NFER) was commissioned to undertake the second, qualitative, stage of this evaluation, which provided opportunities through case-study work and telephone interviews to validate the findings from the questionnaire survey. Furthermore, it aimed to investigate in more detail the impact of the CfT scheme on the whole school, as well as the impact on individuals. This report, therefore, is based on the findings from the school case studies as well as the series of telephone interviews.

[1] Becta (2001). *Computers for Teachers. An Evaluation of Phase 1: Survey of recipients*. NGfL Research and Evaluation Series No. 3: Becta can be found at: http://www.becta.org.uk/research/reports/cft/index.html

2 Aims and objectives

The central aim of this second stage of the evaluation was to address the impact of personal access to ICT on teaching and learning. More specifically, the evaluation aimed to:

- investigate the effects of personal ownership of a computer (through the CfT scheme) on teacher confidence and competence in using and teaching with ICT
- identify any improvements in the teaching and learning process that may be derived from the ownership of a personal computer through CfT.

The evaluation was structured so as to complement the questionnaire data collected during the first stage of the evaluation and aimed to contribute substantially to the Department's thinking on future plans for similar schemes. To fulfil this part of the project as effectively as possible, the research sought answers to the following questions:

a) What are the participating teachers' perceptions of the value of ICT in teaching and learning?

b) How does personal ownership of a computer through CfT have an impact on teacher confidence and competence in the use of ICT?

c) What impact has computer ownership through CfT had on the teaching and administrative practices of those who have participated in the scheme (eg changes in the balance of these practices carried out in school or at home)?

d) What impact has computer ownership through CfT had on the resources used, accessed and prepared by those who have participated in the scheme?

e) What ICT training have teachers received since participating in the CfT scheme and what are their future training needs and plans?

f) Does ownership of a personal computer through CfT have an impact on pupil attainment and motivation?

g) How does participation in the CfT scheme impact on the wider school context, for example within year groups, departments or at whole-school level?

3 Methodology and participants

In order to gain the most valid data on Phase 1 of the CfT scheme, a range of methods was used to evaluate the impact that personal access to ICT has on teaching and learning, and to assess how the scheme has affected and influenced teachers' use of technology both in and out of the classroom. The research design involved working with teachers from different areas of the curriculum and pupils of different ages, and also aimed to establish the perceptions of teachers and pupils about the impact of these resources on the processes of teaching and learning.

The research was originally designed to comprise 15 case studies, each involving interviews with participant and non-participant teachers, the headteacher/ICT co-ordinator and pupils in classes of participant teachers; classroom observations of participant teachers; and analysis of school documents.

In addition, six regional focus-group sessions were proposed (three for primary and three for secondary teachers) designed to gain the more general views of a larger number of beneficiaries without burdening individual schools. However, despite steps to maximise responses, it proved difficult to recruit the required numbers of schools and teachers. After reconsideration of the research design, the regional focus groups were replaced by telephone interviews. It was thought that this method of data collection would attract a greater number of responses as it would be less demanding on teachers' time and could be conducted at a time convenient to them.

Three hundred (150 primary and 150 secondary) CfT beneficiaries were approached with a request to discuss with their headteacher the possibility of their school's participation in the case studies. Eight schools agreed to participate in the case studies (seven primary, one secondary).

Of the 120 beneficiaries of CfT who were asked whether they would be willing to take part in a telephone interview, 24 teachers (19 primary and five secondary) agreed.

The case studies and telephone interviews were carried out during Spring 2002.

In considering the findings presented in this report, it must be remembered that the sample of teachers interviewed during case studies and in telephone interviews is not necessarily representative of the whole population of teachers.

A full account of the methodology appears in Appendix 1, but brief accounts of the participant groups are provided below.

3.1 Telephone interviews – participants' background

Telephone interviews were carried out with five secondary teachers and 19 primary teachers. Most of the teachers interviewed had been teaching for over 20 years, the maximum being 36 years. Only one teacher had been teaching for less than five years. The time spent at the current school in which the teacher had originally participated in the scheme varied between two years and 29 years.

All of those interviewed had access to a computer either at home or at school at the time they applied for a grant under the CfT scheme. For the majority, access had been at school and had been shared with other staff members; many reported it as insufficient. There was access to various types of software and hardware. The remainder of the teachers had access to a computer either at home only or both at home and at school. Those who already had a computer at home usually shared it with other family members. In many cases, participants highlighted how the scheme had provided more than one computer at home, which meant they could designate one for family use and one for their own use. In some cases, the scheme provided a higher-specification machine, so the teachers were able to undertake a wider range of activities.

There was a fairly even split between those teachers who would have bought a computer regardless of their participation in the scheme and those who would not – the main barrier being cost. Those teachers who would have purchased a computer, even without the scheme, were motivated by:

- lack of access at home
- wanting to update an existing machine (for improved software, internet access or more memory)
- desire to have more than one computer at home to provide better access.

However, many of these teachers felt that, without the scheme, it would have taken them longer to purchase a new machine. Cost was a principal barrier in obtaining a computer at home, and therefore the majority of teachers were positive about the amount of subsidy offered. Most funded the remaining cost themselves, either through a loan or their own savings.

A number of teachers indicated that where they had access to the internet at school it was generally good (although access was slow on occasion), and many also had personal email addresses. The internet access was provided through classroom computers and sometimes through the ICT suite. Several of the schools had recently improved their internet access or were in the process of doing so. All of the teachers had a personal email address, either at school or at home. However, not all teachers made use of their school email addresses, and one teacher had a class email address rather than a personal one. In the cases where they were utilised, it was usually in one of the following ways:

- correspondence with advisers, other staff (at the same school and at other schools), parents and the LEA
- assessment purposes
- projects with other schools
- consultation on curriculum issues with colleagues
- emailing work to their home computer
- ordering and purchasing.

Those who had a personal email address at home used it predominantly for personal rather than professional use. This was usually to contact friends, for travel arrangements and for online shopping. There were some teachers who used their personal email address for school business, for example where it was useful to be able to send work into school if they were off sick. However, this type of use was fairly limited.

3.2 Case studies – participants' background

During the course of the eight case-study visits, face-to-face interviews were carried out with a total of 20 beneficiaries of the CfT scheme. Fifteen of these were interviewed solely in their role as classroom teacher, whereas the remaining five participants were also interviewed in their role as ICT co-ordinator or headteacher. Of the 20 interviewees, 17 were based in primary schools and three were based in secondary schools.

Of the 20 participants, 17 were female of whom all but one taught in the primary sector. One of the male participants interviewed taught in a primary school, and the other two males taught in the same secondary school. In the DfES survey, two-thirds of responses were from females. The majority of the teachers interviewed had been teaching for between ten and 20 years, the least experienced having been a teacher for two-and-a-half years and the most experienced for 33 years. A summary of information on the background of each of the beneficiaries is given in Appendix 2.

As also found in the telephone interviews, most beneficiaries kept the computer purchased through the scheme at home, as they reported that this gave them more flexibility over when they chose to work.

The majority of beneficiaries who participated in the case studies said that they would have bought a computer of their own had they not received a grant under Phase 1 of the CfT scheme. As with the telephone interviewees, nearly all of the teachers spoken to at the case-study schools commented that the main barrier to buying a PC would have been cost and that it would have taken them much longer before having the available funds. The majority of teachers were positive about the amount of subsidy offered, and most funded the remaining cost themselves either through a loan or from savings.

4 The impact of CfT

The analysis of the qualitative data from the case studies and telephone interviews examined the impact of the CfT scheme in a number of key areas: impacts on the beneficiary, the classroom and the school as a whole. In this section, schools are not identified by name, but referred to as School A, School B, and so on.

4.1 Impact on beneficiaries

The impact that the scheme had on those teachers interviewed was evaluated by examining the following key areas.

i Workload and time-saving implications

One of the principal findings apparent from interviews with the participant teachers was that since obtaining a computer through CfT many of them spent more time using a computer at home. Approximately three-quarters of the participants interviewed in the case-study schools reported that they were now spending considerably more time using ICT. However, the impact of this on workloads and time-saving issues was varied.

For most teachers the CfT computer allowed them to undertake tasks previously undertaken by hand or on paper. In many cases this did not result in an increased workload, merely in undertaking existing tasks in a different way. For some teachers, computer use resulted in efficiency and time savings, while for others (if they were inexperienced or if the increased access to resources meant that they spent longer searching or found more material) it could result in tasks taking longer. In a few cases the CfT computer resulted in an actual increase in workloads. This was where individuals – perhaps because they had become more adept at using ICT and could complete their existing tasks in a shorter time – took on additional work that they had not done before.

Most teachers felt that they were increasingly able to organise their workload more effectively as a result of participating in CfT. A number of participants were impressed by the improved flexibility the scheme had allowed them with regard to their workload and their ability to organise it more effectively. Some teachers cited how they were now able to do a large proportion of their preparatory and record-keeping tasks at home, both before and after school, during weekends and in the school holidays – an impact also identified in the telephone interviews. A teacher at Secondary School E remarked:

> *…It hasn't necessarily increased my workload, but it's allowed me to work out of school hours, for example in holidays. I do the same sorts of things but now I can do them when I want.*

Some teachers stated that despite spending more time on the computer, it seemed that workloads had decreased. This appeared to be related to the fact that a number of teachers discovered that they were able to reduce the laborious and time-intensive nature of many of their daily planning and record-keeping tasks by being able to:

- produce pro-formas
- save, re-use and access stored information
- email resources such as worksheets to colleagues.

This view was corroborated by a participant at Secondary School E, who reported being able to rank the entire class by exam results 'at the touch of a button'.

A number of teachers highlighted the positive impact on workload and time saving of the opportunity to email information rather than send it by post or make arrangements over the telephone. A foreign languages teacher at Secondary School E reported:

> *I use email to organise study visits, booking flights, reserving accommodation, general fact finding, including exchange rates. We also have a German assistant [and her] whole application was done via email to me at home.*

The DfES survey highlighted the finding that around a year after receiving their CfT computer, some 48 per cent of respondents were using ICT for administration every day, which was more than double the number using ICT in this way prior to the introduction of the scheme. The qualitative data extracted from the case-study interviews reflects the range of administrative tasks that teachers engage in. These include producing:

- school newsletters
- posters
- labels/stickers
- information for parents.

A small number of teachers indicated that they were perhaps performing more administrative tasks since obtaining their computer. This was largely attributable to the improved flexibility the scheme offered participants by allowing them to utilise ICT at home for work purposes. In

some cases it appeared that teachers had increased their workload by taking on extra work that they did not do before, as a result of having access to a computer at home and becoming more adept in their use of computers. For example, one participant teacher explained how she saved secretarial time by producing the school newsletter, but had consequently increased her own workload. Other teachers mentioned that increased access to some resources through the computer meant that they spent more time on certain tasks. For instance, although the internet was deemed by many to have made a substantial impact in areas such as lesson planning, it could be time consuming to locate suitable relevant websites. A teacher at Primary School F commented:

> *[The CfT scheme has] not hugely increased time savings: it still takes time to plan – most of the time is thinking and discussing; writing is the smallest part.*

One participant mentioned the time and workload implications resulting from technical problems with computers. The participant at Primary School H explained how:

> *…the computers sometimes crash and I have lost large chunks of work [which] causes a lot of problems.*

In this case, the teacher wrote things by hand in order to avoid problems of this nature. If work on the computer was inadvertently lost, workload increased in order to compensate.

ii Motivation and job satisfaction

There were a number of positive impacts reported by teachers regarding participation in the CfT scheme. Many of these impacts could be perceived to be factors affecting motivation and job satisfaction, but not necessarily in an overt and obvious manner. Positive impacts such as time saving, reduced workload and greater confidence and competence in using ICT in the classroom could all be associated with affecting job satisfaction. A teacher at Primary School C commented:

> *[The scheme has] had a positive impact – at work, at home, planning, etc. – it's helped a lot.*

In many cases, participants were appreciative of the way in which they could now produce work which they believed to be of a more professional standard than they were capable of producing without a computer. A number of teachers felt that this was a positive impact and that the results reflected more accurately the importance of their work and their role as teachers.

Several teachers felt that the scheme encouraged and promoted communication between colleagues within the same school, as well as with other schools, through the use of email. One participant reported that she did not always have time during the school day to speak to other members of staff. Email was therefore an important factor in reducing feelings of isolation and encouraging interaction between colleagues.

A participant at Secondary School E who had been teaching for 20 years emphasised how owning his own computer through the scheme had impacted on his experience of classroom teaching in a positive way:

> *I prioritise awareness that we're [teacher and students] in the same world. I'm no longer an alienated generation. It has created greater rapport with students: I'm more in touch with them.*

For some of the teachers interviewed, the scheme appeared to represent Government recognition of the teaching profession and signified an investment in their professional and personal development. One teacher commented:

> *I think that teachers felt that in Phase 1 [of the CfT scheme] it was the first 'perk' they had had in years.*

iii Confidence and competence

Interviewees reported a resounding improvement in their confidence and competence in using ICT, both personally and professionally. Not only were teachers more confident about incorporating ICT into their classroom teaching, but also about their ICT skills as a whole. One participant at Primary School H encapsulated her experience of this as:

> *…[going] from zero to feeling quite smug.*

A number of teachers stated that a principal concern, when teaching ICT in the classroom, was how to manage technical difficulties that might occur. The interviewees suggested that they now felt more equipped to deal with any problems which arose in the classroom while using ICT equipment. They were also more positive about using a computer to support their planning and administrative requirements. This view was corroborated by a teacher at Secondary School E who stated:

I feel much more confident using ICT in the classroom. I can get students out of trouble more easily, work out where they've gone wrong and help them. I'm more positive about my own abilities.

Increases in competence and confidence in using ICT appeared to derive not only from professional training support but also from having the time at home to practise and become more familiar with software applications and programs. A teacher at Primary School A commented:

…increased confidence is a result of [my] computer and the CLAIT[2] course. I probably wouldn't have got as far without the CLAIT course.

Several teachers commented that they had found having their own computer at home a key factor in the development of their ICT skills and their confidence in such skills. At Primary School D, the ICT co-ordinator, who was not a beneficiary of the CfT scheme, had noticed the impact on one of the participants at the school and acknowledged how:

…[she] had been quite nervous about PCs and she's benefited from being able to practise at home: from a confidence point of view it has really helped her.

Although most participants reported that their confidence in using ICT had increased, others had more mixed feelings. A participant teacher at Primary School C reported:

I feel more confident but less confident. The more I understand, the more I realise I don't understand.

However, the majority of teachers accepted that acquiring the skills necessary to be competent and confident in using ICT proficiently was part of a learning process to which they were both fully committed and receptive.

iv Interest in ICT

As identified in the telephone interviews with participants, most teachers interviewed in the case-study schools reported that their interest in ICT had increased as a result of having regular access to a computer. A number of the participants had previously had some access at home to a computer, albeit rather limited. In most cases, the CfT scheme had provided access or improved access to a computer for participants. Therefore, a number of teachers were already familiar with and interested in ICT. However, there were also several teachers for whom ICT was a novel learning experience. Despite differences in skill levels and previous exposure, most of the teachers reported that their interest in ICT had increased since owning their own computer. For some teachers CfT had presented an opportunity to develop their prior interest in ICT, whereas for others it had provided a vehicle for discovery, to which they previously had little or no access.

For a number of teachers, interest in ICT had manifested itself not only professionally but also personally. This was highlighted by increased use of the internet and email facilities. Again, this was a finding reflected in the telephone interviews. There was a general appreciation of the use of the internet as a new information resource. Several participants mentioned using various internet services, such as online shopping, banking and accessing holiday information. Several teachers reported that they had experienced increased levels of communication with family members, especially those who lived abroad, and one teacher had been involved in developing a website for a member of her family. A participant at Primary School H described how her interest in ICT had increased since owning her own computer:

[It's] made it quite addictive for me – I would rather use the computer than watch TV – it's more interactive.

A number of teachers demonstrated a greater interest in ICT by their willingness to participate in additional ICT-related courses and higher education courses. For example, one of the participant teachers at Primary School B expressed an interest in online learning:

[I have been] looking at doing some online learning, found two [courses] one by the Open University, a distance learning course, but it's very expensive. [The] other was a six-month course which was £500 [and] would count towards an MA. I think it's a way for the future.

Several participants professed a more experimental approach to other forms of ICT-related equipment, such as digital cameras and interactive whiteboards, as well as computer software they may not previously have employed (eg graphics packages), and were increasingly

[2] Computer Literacy and Information Technology

proactive in understanding how their computer worked and solving minor problems. Participants demonstrated a genuine desire to extend their experiences of ICT further into areas they had previously been unacquainted with. There appeared to be a positive correlation between increased involvement in ICT and levels of interest. One of the teachers commented:

> *[I am] more interested in talking to my friends about it, [I] look things up [that] they suggest, that sort of thing. [It] makes you feel connected to the real world because you can access things if you want to.*

v Training issues

Most participant teachers had experienced similar training provision, usually by one or more of the following providers:

- New Opportunities Fund (NOF) training
- In-service training (Inset) days/in-house training
- courses run by the LEA
- self-taught/training by member of family.

The main courses undertaken were:

- Computer Literacy and Information Technology (CLAIT) course
- MS Publisher 2000
- MS PowerPoint
- MS Word
- CD-ROMs/internet/email training.

A number of teachers reported that their training, particularly the NOF training, had not always been sufficient for their needs. Some teachers felt it was often directed at a very basic level of knowledge, which was appropriate only for teachers without much experience. However, in the cases of those whose ICT skills and knowledge were more advanced, the training was felt to be inadequate. This view accorded with the views of a number of participants in the telephone interviews. In such cases, schools had pioneered the introduction of various bespoke courses in an attempt to address the problem. The headteacher at Primary School H, a participant herself, had been instrumental in introducing a CLAIT course at the school, which was open to all teaching and non-teaching staff (see Section 4.3 ii). A number of teachers felt that the CLAIT courses they had attended had been a positive experience.

Several participants felt that training courses needed to be more specific and tailored to individual needs. It was felt by some that the NOF training did not always recognise different ability levels and that there was insufficient time allocated to practising the skills acquired through the training.[3] A small number of teachers reported that the timetabling of the NOF training was sometimes sporadic and carried out at inappropriate times, such as the end of the school day when teachers were not receptive to learning new skills.

For a number of teachers, the training they had experienced had been adequate. For others, there was felt to be a shortfall in their knowledge which had not been addressed by training courses, or the training they had experienced had highlighted further areas of development they wished to explore. A number of teachers cited an interest in discovering more about new technologies such as graphics applications and the 'wireless internet'. These factors appeared to be the main influences behind the types and extent of training courses that teachers chose to participate in. One participant, when asked if the training they had already received had been adequate, commented:

> *…Yes, at the time but ICT never finishes, [it is] one innovation after the other. [I] will need more in the future.*

For some participants, ICT training was not a priority. These individuals said that they knew where and how to obtain training should they need it, but were not necessarily proactive in accessing it, preferring to wait until they felt it would benefit them rather than feeling pressured to participate in it.

Information gathered from the telephone interviews revealed the importance teachers placed on the ability to learn in their own time. Most teachers interviewed welcomed this opportunity to learn at their own individual pace, as they found it either more valuable than, or a useful addition to, a structured approach to training.

[3] It is important to note that respondents' levels of skills and interest are not necessarily representative of all teachers'.

4.2 Impact in beneficiaries' classrooms

i Teacher practices

Resources used/accessed

Participant teachers reported being able to access a wide range of resources as a result of the CfT scheme. They commonly drew on the internet for use in the classroom, and teachers used it for their own needs as well as with the pupils. The impact of the internet, not only in the classroom but also on the individual teacher, was identified both in the case studies and in the telephone interviews. A number of teachers listed organisational websites as useful resources for their teaching, as well as mentioning others that they found helpful at a more general level. Even when teachers previously had access to a computer at home or school, they did not necessarily have internet access, so for some this was a relatively new resource.

A similar finding was identified in the DfES survey. The analysis of survey data revealed that the scheme appeared to make a significant impact on respondents' access to the internet at home, increasing it from 30 per cent to 95 per cent. The survey also outlined how there had been a shift from the major source of internet access being at school to being at home.

Interviewees commented on the ease with which they were able to access resources specifically for their pupils. A teacher of modern foreign languages at Secondary School E reported that she accessed online foreign newspapers for the class to discuss contemporary issues. A teacher at Primary School D said:

> *[I can] scan pictures for resource boxes and use the internet for research.*

She went on to say:

> *I also try to apply it to our topic areas; some areas lend themselves to ICT more easily than others, eg shopping, travel, food and drink.*

The internet was seen as particularly positive owing to the variety of resources and the instantly up-to-date information that was available:

> *[It is] far more wide reaching than I thought it would be. We look at different things such as… websites. It has increased the wealth of resources the school has access to, and it's free of charge.*

An example of the use of the internet as a teaching resource is given in Vignette 1.

Vignette 1: Primary School B

We observed a lesson with a class of 17 Year 5 pupils using the internet to help them understand friendship. The pupils were briefed on how to use MS Word so that they could produce an information leaflet on how to make friends. This was done in their usual classroom, which was equipped with one computer. Pictures could be imported from ClipArt, and pupils were shown how to attach and email documents. The pupils worked in pairs, and the teacher began the session by showing the whole class, on the computer, what she wanted them to do. The teacher asked questions of the class throughout the lesson, and constantly reminded them of the lesson objectives, which were displayed on the board.

The main part of the lesson took place in the computer suite immediately after the introductory session in the classroom. The children worked in pairs again. There were 16 computers in the suite, but the room was very cramped. The teacher offered help and advice during the session, but problems with the network meant that the pupils were not able to save their work properly. The teacher walked around the computer suite, checking to see how the pupils were progressing towards their objective of producing the information leaflet. Despite the problems with the network, the children remained on task for most of the lesson, using skills such as copy and paste, drawing, colouring, applying different fonts and layouts, and using the different scroll bars. The teacher did not appear uneasy when the network problems arose, perhaps because she felt more confident generally about using ICT as a result of her involvement in CfT.

Individuals' development of skills through owning a computer had also benefited one school in particular with regard to its ethnic diversity. One participant teacher had received an Ethnic Minority Achievement Grant. Her functions included teaching ethnic-minority children in small groups, and assisting in the development of

language skills, writing and vocabulary. She also needed to ensure that children were taught about the cultures of various countries. She outlined the benefits of the scheme that had been relevant to her role:

> *We have to know the languages that the children speak. We have to do an audit of the children every year [in terms of] languages and I have used the internet for that as well.*

Participant teachers said that collaborating and sharing of resources had increased the range of resources used, and all teachers interviewed regarded this as beneficial for pupils. Case study participants and beneficiaries interviewed by telephone said they made use of CD-ROMs. One school had a licensing agreement that allowed teachers to load school-owned software onto their own computers. This enabled them to familiarise themselves with the software in their own time, which, in turn, led to more effective use of these resources in the classroom. The telephone interviews also highlighted increased use of applications such as PowerPoint, Word and Excel because teachers felt more confident in using them.

Most participant teachers reported that ownership of a computer through the CfT scheme and the subsequent use of new resources as mentioned above had brought about increased opportunities in the classroom by encouraging teachers to engage pupils in alternative ways of learning.

The availability of email had had a positive impact on teaching too. For example, a number of teachers found they were able to email colleagues with resources and that they could email work into school if they were off sick. Where teachers had access to email facilities, this provided an important interface between home and school. Participants had also used their computers for accessing resources for personal use such as online purchasing and emailing friends and family. One teacher said that they intended to expand their use of the computer:

> *I haven't created any web pages yet, but I'd like to… I would like to be able to use PowerPoint and the interactive whiteboard more in the future.*

Lesson planning and preparation

A marked change in teacher practice reported by interviewees concerned planning. Having a personal computer through the CfT scheme had revolutionised many teachers' planning because it had become possible to plan and prepare lessons and teaching resources at home. This had led several teachers to feel more organised and professional:

> *Before having my CfT computer, access was a problem. Now I can use it whenever I want. I prepare worksheets the night before for the following day.*

However, not everyone felt that they had more time to develop their skills despite having a personal computer:

> *The next step forward would be to put [PowerPoint] presentations on the interactive whiteboard, but time is a disincentive. Although I am interested in this, I haven't really got time to do anything about it.*

The case studies and telephone interviews both revealed that presentation was seen as an important aspect of planning and preparing lessons, and through ownership of a computer, this had improved:

> *It has enabled neat presentation of materials; it appeals to kids more.*

> *It has impacted on quality. When you're planning and preparing worksheets, you can easily rearrange things so a worksheet is exactly what you want.*

The telephone interviews also yielded information on how the scheme had made it easier for teachers to tailor their lesson planning specifically for different ability levels without additional work. Those participants who had previously had access to a computer at home found that lesson preparation was easier because the software they had on the new computer was more advanced and because they were able to transfer work they had completed at home to the computer at school. This had not always been possible in the past because of problems with incompatibility (eg older versions of software packages at home than those available at school).

Classroom teaching

Several participants reported that they were trying to incorporate ICT regularly into lessons. As one participant said:

> *The PC is on every day and there's something relating to the work we're doing on it.*

Participants stated that the computer suites (or other facilities dedicated for ICT use) tended to be used for the

teaching of specific ICT skills, rather than for ICT in relation to other subjects. One teacher commented:

> *In the computer suite, we tend to teach skills. I would like to use IT for science, but it's difficult to set up – a time issue really, plus organisational aspects.*

For some teachers, the use of ICT was limited by the facilities available:

> *This is a huge [primary] school and we only have one ICT suite. It's not enough; there's only one hour of ICT a week for 21 classes.*

The extent to which teachers incorporated ICT into lessons depended not only on their own knowledge and abilities but also on whether the school had the resources to allow them to do this. Many of the participants reported that they increasingly used ICT in the classroom as a result of owning a personal computer. One teacher stated that, as a result of teachers obtaining computers through CfT, the school now expected ICT to be used more frequently as part of classroom teaching.

There were three main ways in which ICT was reported to be becoming more prevalent in classrooms. The first related to the use of ICT. Teachers were said to be making use of ICT in various ways. For example, one participant spoke of the advantages of interactive whiteboards:

> *They do like looking at the interactive whiteboard – not many schools have them – it's stimulating, something new/different even if what they're looking at is fairly mundane. I think the work they produce when I use the interactive whiteboard is of a higher standard.*

An example of a teacher using an interactive whiteboard during a lesson is given in Vignette 2.

Vignette 2: Secondary School E

We observed a Year 10 Spanish lesson. The teacher used an interactive whiteboard to introduce the lesson and to outline the activities for the lesson and the websites that the students would need to access for information such as times and prices for travelling to Madrid and Girona. The teacher invited the participation of the class to pronounce Spanish words displayed on the interactive whiteboard. This introductory part of the lesson was done in an ordinary classroom in the modern foreign languages department. The class then moved into another room with a suite of computers connected to the school network.

Half the group worked from a printed worksheet, either in pairs or individually, using the 15 computers available. One student did not have access to the network, having had that privilege taken away from him as a result of inappropriate use.

While these students were using the computers, the teacher worked with the other half of the class on a listening task in an adjacent part of the room screened off from the computer workstations. The groups swapped over halfway through the lesson.

During the lesson, there was little teacher presence with the group using computers, as the teacher was involved with the work with the other group. Nevertheless, both groups, when working on the computers, remained largely on task, following the instructions on the word-processed worksheet and filling in information they gathered from websites. In addition to answering questions, they were also required to cut and paste pictures into MS Word documents. The teacher checked on the computer-based group periodically throughout the lesson to find out how they were progressing and to ask whether they needed any assistance.

Other uses included labelling and making displays. Many of the participants said ICT was a key tool for producing resources for the children. One teacher commented:

> *I think everything in my room is ICT-based or computer generated.*

The second way in which teachers were utilising ICT as a result of the CfT scheme was in encouraging pupils to make use of electronic resources such as Word, PowerPoint and CD-ROMs, in lessons. The third way, according to a number of teachers, was that there had been an increase in pupil use of the internet. Many of the teachers interviewed recognised how much their pupils enjoyed using computers, and they were keen to build on this as a positive reinforcement of pupils' learning and behaviour:

I have websites that [teachers] like to use with pupils if they have behaved well. They can show others what they've done. They're confident in using them.

However, there were reported to be several limitations to using computers for teaching purposes, and a number of teachers said that ICT could not be incorporated into every lesson. Teachers of reception pupils, for example, found that in planning and preparation for this age group there was limited scope for use of resources:

If I'm doing foundation stage, which is my year group, there's not that much available and we've found that [a specific children's television programme] is the best and we use that. However, there's not really any effect on use of resources in lessons due to the age of the educational year group.

Another teacher felt that, although ICT was a useful tool for teaching, it was important to maintain a balance:

I think [ICT] is very valuable. There's a balance between using ICT and being a teacher and interacting with the children…There's a lot of revision which I could use websites for, but I think it's better for the children to interact with the teacher.

The DfES survey findings highlighted the way in which the skills the participants gained from using a computer at home could be observed in their classroom teaching. Several of the open-ended responses from teachers in the survey demonstrated the positive relationship between personal use and professional use of ICT. The qualitative research findings provide further evidence to substantiate those earlier results.

Many of the participant teachers, both in the case-study schools and in the telephone interviews, felt that their own classroom teaching had benefited from increased confidence as a result of owning a computer. They stated that this confidence had led to increased and more effective use of computers in the classroom. One participant at Primary School D commented that her increased confidence enabled her to interact more effectively with the children and meant that they could sense that she was more confident in her use of ICT.

It's made me more confident when I talk to the children – I feel like I know more than they do. They seem to sense that and it makes them more confident.

Teachers highlighted that an important aspect of promoting the assimilation of ICT skills from the personal into the professional domain was allocating enough time to practising at home.

Record-keeping and administrative tasks

Participants reported different levels of impact on their record-keeping activities as a result of acquiring a computer under the CfT scheme, a finding reinforced by the telephone interviews. About two-thirds of the participants interviewed indicated that there had been substantial impact on their record-keeping and administrative activities. These teachers gave numerous examples of the data they stored on computer, including:

- Performance in Primary Schools (PIPS) test results
- National Curriculum assessment results
- different areas of the mathematics curriculum, in order to identify specific areas requiring further work
- children's progress records
- children's annual reports
- material relating to departmental meetings, such as agendas and notes from meetings
- performance-management data
- letters to parents
- reports to school governing bodies.

Several teachers commented on the shift from hand-written to computer-based records. Two participants (one primary and one secondary teacher) remarked that they used the CfT computer more for record-keeping and administrative tasks than for preparing materials for class use. The primary teacher (who was also the school assessment co-ordinator) commented:

I'm doing more record keeping on computer, mainly since having my CfT computer. I do my own record keeping and the [record keeping for the] whole school. Basically, everything I do involves ICT. It supports me more in administration than in teaching, although it helps me to be more confident in using ICT in teaching.

At Secondary School E, one participant explained that he had used his CfT computer to help with administrative tasks such as organising exams for GCSE, and another noted that it had saved her time on record-keeping and administrative tasks:

…speeded them up, definitely. I don't have to do things over and over again each year – this year after mocks [GCSE exams], I ranked the whole year group at a touch of a button, a good check we had the right people in the right sets. I couldn't have done that before.

While several teachers indicated that they used spreadsheets in their record keeping, one admitted:

It would be good if systems [for record keeping] were already there for you to download – I use Word for record keeping, I'm not at the stage of Excel and data manipulation.

Where there had been less substantial impact on record-keeping and administrative tasks, this was largely because teachers had kept records on computer before the scheme, or as a consequence of whole-school approaches. Responses from a small number of teachers indicated that pro-formas for keeping records were stored on computer, then printed out so that teachers and other staff (such as nursery nurses) could complete them by hand. The participant teacher in a rural school commented that it was not school policy to use ICT for record keeping, and went on to say:

It is not something we will work towards because we are a small school and it isn't appropriate. It's just as efficient for us to keep paper records.

Telephone interviews with participants revealed that a number of teachers used their computer at home for assessment-related purposes, such as monitoring and evaluating test results, and for writing reports. This often saved time and the result was easier for parents to access and/or read. A few of those interviewed were teachers of pupils with special educational needs. They found that owning their own computer at home helped them in preparing individual education plans and keeping special-needs records.

ii Impact on pupils

Many of the participant teachers agreed that the scheme had had a positive impact on pupils. Because teachers were more confident about using ICT in their lessons and were more experimental in their approach, they were more likely to incorporate ICT effectively into their lessons. This in turn had an impact on the pupils because they had greater opportunity to experience ICT in the classroom, which ultimately impacted on their motivation, learning and behaviour. The increased opportunities for pupils to use ICT in lessons were seen as particularly advantageous for those pupils who did not have access to a computer at home and for whom computers at school might be their sole access.

This information corroborated previous findings from the DfES survey. Seventy-four per cent of respondents from the survey believed that their personal ownership of a computer had a substantial or greater impact on their pupils' use of ICT in their schoolwork. This was something that teachers in the case-study schools and telephone interviews appeared to corroborate. Teachers had found that the increased use of computers particularly helped children with learning difficulties because it was possible to prepare appropriate work for different individuals more efficiently and to access a wider, more effective range of resources. However, some teachers acknowledged that, in certain circumstances, computers could also distract pupils. For example, if the teacher had a small group working on a computer and the remainder of the class was working on another task, there were sometimes problems in keeping those not using the computer engaged. The analysis of the interviews identified three key impacts the scheme had on the pupils as a result of teachers making increased use of ICT in lessons: motivation, learning and behaviour.

Motivation

Several participants had noticed that, with the introduction of ICT into the classroom, pupils' motivation had increased. This was particularly important for pupils who had not been keen to learn prior to the scheme:

It's an improvement for children not previously interested in learning: it makes learning more alive, interesting and visual. I have children in class who don't like writing but are motivated to write using a computer. Also, children with dyslexia find it easier with spell check and thesaurus.

Pupils were, on the whole, very enthusiastic about computers and were eager to use them:

They love it. We have a parent that comes in to help in IT lessons and he put together a PowerPoint presentation for Year 2, which the children loved because it looked so impressive, for example, including sounds from the internet. They're very enthusiastic about it.

One participant explained why her pupils were more motivated as a result of ICT:

> *I think the pupils are much more interested because it's more like real life, for example, the water cycle – we got actual examples, not real artefacts, but good images of what you're trying to show. I could only tell them or show them a book otherwise.*

However, one teacher stated that motivation did not depend solely on ICT:

> *If a child wants to learn, they will, either with more traditional methods or with IT. For those who don't like pen and paper, IT motivates them and raises attainment that way.*

The use of ICT in conjunction with traditional methods is illustrated in Vignette 3.

Vignette 3: Primary School D

We observed a reception class where the teacher focused on numeracy with a group of six children while the rest of the class, supported by a classroom assistant, worked on other activities. The teacher had planned a computer-based activity for the children to reinforce the group work. She introduced activities in which the pupils had to give the next number in a sequence and identify the largest number out of three different digits. She explained that pupils would have a turn with a partner playing a game on the class computer. During the lesson, pupils moved from the group activity to work in pairs using a number game on a CD-ROM which focused on the same areas of numeracy.

The program was colourful and animated. Children had to choose from a selection of icons on the screen, such as New Game, Play Again or Print. One child operated the mouse while they both decided how to progress in the game. Children worked collaboratively and interactions were mainly task oriented, with the occasional ICT-oriented comment such as 'What happens if we use the mouse when it's not on the mouse mat?' Each pair spent approximately ten minutes playing the computer-based game before returning to the group activity with the teacher. As the group work continued, comments from children who had had their turn on the computer indicated that it had helped to reinforce the numeracy concepts that were the focus of the lesson.

Learning

Several participants identified examples where incorporating ICT into classroom teaching had increased learning opportunities.

> *It gives pupils with severe learning difficulties roads to learning. It gives children who are less confident ways to communicate.*

Various aspects associated with ICT helped to encourage pupils to learn. According to the participant teachers, pupils appreciated the computer's ability to produce neat work and were excited about using computers in class:

> *Presentation-wise, it helps students and they can re-draft work easily. No doubt they see ICT elements in lessons as more exciting – students are keen to see the interactive whiteboard being used. You see more possibilities, so my views have changed.*

While many teachers maintained that a combination of traditional learning methods and ICT was most appropriate, there were cases of distinct advantages in using ICT to assist learning. Several participants felt that their pupils were more focused when using ICT. The wealth of information accessible via a computer was also perceived as beneficial. For example, one participant stated:

> *For the sixth form, we research coursework topics. There is more on the internet about their chosen topic and it is easier to get access to than books.*

An illustration of the use of ICT for revision purposes is given in Vignette 4.

Vignette 4: Secondary School E

We observed a Year 9 science lesson during which both the teacher and the students used PowerPoint. The teacher used a data projector with PowerPoint to introduce the lesson and outline the activities for the students, who were to

focus on revision for national tests in science at the end of Year 9. The students were directed to:

- select any topic from the syllabus they had studied in Years 8 and 9 (these were listed on a word-processed handout)
- using two websites, search for information on their chosen topic
- prepare a short PowerPoint presentation on the topic for the rest of the class.

The 24 students were allocated two one-hour lessons to research and prepare their presentation. Then all the presentations prepared by the class were to be shared in a third lesson, thereby supporting all students' revision across different topics. The teacher reminded students that they could prepare diagrams using the Paint package, as well as copying and pasting images from websites. The students could choose to work individually or in pairs: there were enough networked computers in the room to allow one per student.

During the lesson, the teacher moved around the class monitoring the work in progress. The students were proficient in using PowerPoint and searching for information on the specified websites. At the end of the lesson, the teacher reminded students to save their work into their personal folders on the network, ready to continue their work during the next lesson.

Behaviour

Participant teachers reported that using ICT in the classroom had had an impact on pupils' behaviour. As one teacher said:

> *They spend time on the task. I'm not having to discipline them. With pen-and-paper work children can get off task more. In the computer suite, I don't have to discipline them.*

One teacher gave a possible explanation for this. When using ICT, lessons became less teacher focused and permitted greater involvement of pupils.

Another beneficiary highlighted the effect ICT had on pupils who found it difficult to remain on task:

> *I would have thought that those [pupils] who had other problems in class would also have been the ones with the problems with PCs, but they're not.*

4.3 Whole-school impact

i Non-participant teachers

The non-participant teachers whom the research team interviewed included both young and more experienced teachers, as well as some who had their own computers at home and others who did not. Several non-participant teachers explained that they had not been able to apply for a grant because they had insufficient financial resources. Two comments were:

> *I couldn't afford to pay the other half. I had just come out of college and had debts.*

> *I didn't have the money to spend at the time – even with the grant, it was too much money to spend.*

There were mixed opinions about whether or not teachers who had benefited under the CfT scheme had shared the skills and expertise that they had gained as a result of having their CfT computer. One primary-school non-participant noted that the CfT beneficiaries collectively had shared skills:

> *Because they've got more confident, they can pass on what they know and it filters through amongst us.*

However, in another primary school a non-participant stated:

> *I don't feel she's shared that expertise with me or other members of staff.*

To some extent, it is likely that the extent to which skills and expertise are shared is dependent on the prevailing culture within the school. In Primary School H there had been considerable whole-school work on computer-based planning and record keeping, and one of the participant teachers stressed that there was a strong ethos of teachers sharing resources within the school.

Comments from several of the non-participant teachers showed that they were aware of the types of activity for which beneficiaries under the scheme were using their CfT computers, in addition to having the flexibility to carry out professional tasks at home as well as a school. A teacher at Primary School D remarked:

I know [one teacher in the school] uses the internet quite a lot … [Another teacher] did the history policy recently and was able to use the PC and websites to help her formulate the policy, and she wouldn't have been able to do that before.

In a number of schools, most if not all teachers had access to their own computer at home, a factor that non-participant teachers in three different schools associated with whole-school practice:

I think as a school as a whole we are quite good with ICT. Most staff have a computer at home … I think if people are keen to use ICT, are enthusiastic and willing to learn, then having a PC at home helps.

At this school we've all got PCs except one teacher. Until I got one I felt left out, especially with the report writing, which I had to do by hand.

[The large number of beneficiaries under the CfT scheme has] affected the way that other teachers have used the PCs – not just for the children, but for everybody. [ICT has] become more of a joint resource.

One non-participant commented on the Phase 1 CfT package:

I'm finding now that those who applied got scanners and that's the thing that I feel I've missed out on. If I had my own, I could go away and play and find out how to use them.

In schools when non-participant teachers did not have access to their own computer at home (or whose home computer was very old and therefore regarded as being of little use), interviewees anticipated a number of benefits if they participated in a future phase of the scheme:

- flexibility to carry out professional tasks at a convenient time and place (including weekends and school holidays), instead of spending additional time at school
- more opportunities to improve their own ICT competence and confidence
- improved presentation of materials for use in the classroom
- increased uniformity across the whole staff in planning and record-keeping procedures.

ii Leadership issues

Headteachers and ICT co-ordinators (in primary schools) and the head of ICT (at Secondary School E) had in all cases supported teachers' applications for grants under Phase 1 of the CfT scheme, although the extent to which they promoted it within the school varied. In some schools, headteachers had actively encouraged as many teachers as possible to apply for the scheme, whereas at other schools information about the scheme had been released but not actively promoted. At Primary School A, 14 out of 23 teachers (including the headteacher) had received grants under the scheme. This had had considerable whole-school impact, as there had been a substantial increase in the ICT confidence and competence of most of the staff at the same time.

Managers in two schools were reluctant to attribute widespread increases in the level of ICT use (both by teachers and by students) solely to the CfT scheme. In both cases, they felt that the substantial changes in practice were the results of a combination of government schemes and school-based factors. The Head of ICT at Secondary School E stated:

…currently there is a far greater use of IT across the curriculum, and this has been progressing over the years. CfT is one factor in this, together with several others: the influx of new, younger teachers with ICT skills; the whole-school ICT policy, including new equipment; and the large number of CfT beneficiaries.

The headteacher at Primary School H explained:

There were eight beneficiaries in the school out of about 27, and the whole thing dovetailed. For some people, they saw the potential of buying their own computer [coinciding] with the introduction of the school ICT suite, and some wanted more than one computer at home. With the NOF training, the ICT suite and the fact that eight teachers could buy their own computer, these factors overlapped and combined with each other. It all happened at about the same time.

Other interviewees described how the skills that had been developed by the CfT beneficiaries strategies had been exploited generally, and also during NOF training:

We also set up a sort of mentor system on IT skills and let more experienced people help the less experienced.

It does have implications in terms of the NOF training because they can support teachers who don't have the same level of skills.

Under NOF, confident teachers were paired with several less confident teachers to take them under their wing.

The headteacher of Primary School H had been one of the participants in CfT. She was sensitive to the fact that although eight teachers received a grant under the CfT scheme, other staff did not necessarily have the same access to a computer at home to help them develop their own ICT skills. In addition, a point raised by this headteacher and by other teachers at the school was that members of staff without qualified-teacher status were unable to apply for grants under the scheme.

Vignette 5: Secondary School H

In this school, we observed a Year 1 lesson in the ICT suite where the classroom assistant introduced the lesson and described the planned activities to the pupils. The class teacher explained to the research team that the classroom assistant's ICT skills were better than her own and, in addition, because the assistant also worked in the two parallel Year 1 classes, she had a good overview of the ICT work across the whole year group. Despite this substantial role in implementing the ICT curriculum in Year 1, the classroom assistant was unable to benefit under the CfT scheme.

With the needs of classroom assistants and teachers who had not purchased computers under CfT in mind, the headteacher in Primary School H arranged for a local college to run the CLAIT course for all interested staff at the school. The course provided opportunities for 14 staff (both the participants in CfT and others who had not been involved) to improve their ICT skills through this additional structured access to resources. The course had originally been scheduled to run in the 2000–01 school year, but the start had been delayed to September 2001. It was still running at the time of data collection (April 2002).

iii Whole school and beyond

A recurring theme in the case-study schools was the impact on whole-school practice of the record-keeping and administrative procedures adopted by beneficiaries of the CfT scheme. One beneficiary at Primary School H explained:

Because of the ICT skills I have, I work with various co-ordinators in the production of various pro-formas. I put all the literacy and numeracy planning forms onto computer for the whole school to use, and assessment sheets for maths, English and the foundation subjects (a pro-forma for the foundation subjects) for everyone in the school.

She went on to say:

Because there are other people who have also had their own computers, it has had a knock-on effect with them – they use their skills to modify record sheets etc. so we liaise between us… I don't think this sort of sharing record and planning sheets would have happened without the CfT machines, as most of it is done in the evening.

A participant teacher at Primary School A also described how planning for mathematics and literacy was shared between teachers within the same year group: teachers carried out their planning at home, saved it on to a floppy disk, then discussed it with colleagues at school.

Subject co-ordinators were widely reported to utilise ICT in preparing whole-school policies not only to prepare documents but also to look for examples of policy documents and/or guidance material on the internet. The teacher in charge of assessment and data management at Primary School B commented:

Hopefully the logging of data and data management will affect the whole school and allow a whole-school approach. I do a lot of forecasting and predicting.

Several staff at Primary School H said that there was a school working group considering the use of Excel for target setting.

Many of the participant teachers reported sharing information and resources with colleagues. One teacher from Primary School D commented:

We share ideas within the school… When we have a training session, we talk about things that we've done, websites that we've found helpful, etc. I think as a whole school, we're becoming more aware. We're supporting those who felt less confident. [It has] brought us closer together on something that some people felt an outsider about.

A teacher at Primary School B expressed similar views:

It has given us opportunities at school to communicate with each other as we don't always have time; a lot of the websites let you look at other teachers' comments and they give you background information. I download projects and examples that other teachers have used, and adapt them for my own use, for example a three-day mini-project on data handling about sweets – it gives me more ideas.

One participant teacher was keen to initiate whole-school practices relating to storing data:

I keep everything on my computer. I mainly use Excel: it helps me to have a good overview of what's going on. All marking is on the network, and I pull staff with me, leading by example.

Some schools had implemented effective ICT-based strategies for producing annual reports to parents on their children's progress. Teachers at three of the case-study primary schools stated that they prepared reports on their computers. One participant (the mathematics co-ordinator in a three-form-entry primary school) explained:

Recently we had a lot of reports to do: I did all 90 reports for mathematics, then emailed them to colleagues to do the English and science reports. I couldn't have done this without the CfT computer, because it was done in the school holidays.

On the other hand, a participant teacher at Primary School D commented:

For reports it's difficult to fit everything in the boxes – we've tried – we have to write quite a lot for each child and it's too hard to use the computers.

At Primary School F, it was school policy that reports to parents should be hand-written: one teacher admitted that she drafted her reports on computer then copied them in the required hand-written format.

Although not widespread, there was some evidence that participants in the CfT scheme were either currently contributing material to the school website, or were planning to get involved in developing a forthcoming school website. One participant at Primary School D had put material on the school website, and one at Primary School H explained:

I was on a website design course with the ICT co-ordinator, and we agreed that we'd work on the school website together: we could use it for maths and homework pages on the web for children to access.

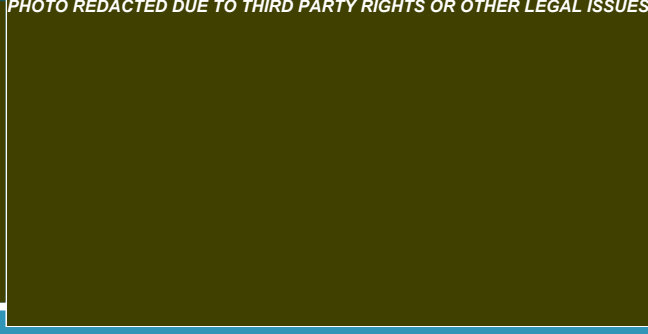
This teacher had already developed a website for her daughter's business use:

My daughter runs a dance school: she wanted to have a website so we bought the domain and set up a website. I'm in the infancy of doing this, but I've got music and words and peanuts that dance – it's definitely a hobby, but a useful hobby. I wouldn't have done this without the CfT computer: I needed the space and time to practise, which having my own machine has allowed – designing a web page is trial and error.

There were relatively few examples of participants in the CfT scheme utilising ICT in professional activities outside their own school. Those mentioned revealed a subject or key-stage focus:

I haven't used it to collaborate with other teachers yet, but from next term I'm going to be part of a science research group. Communication by email will be an obvious way to communicate with group members.

I have the A-level English Consortium Group: conferencing about how we are teaching the course and using materials, sharing ideas and fulfilling the obligation to standardise coursework. I find it satisfying and enjoyable to participate in this.



5 Comments on the CfT scheme

5.1 General comments

Overall there was a very positive response from teachers regarding the Computers for Teachers scheme. Many of the teachers who were interviewed were pleased with the way it had operated, mainly because Phase 1 of the scheme had taken an open-to-all approach. The scheme was said to have enabled them to purchase a fairly good computer that they could not have afforded themselves, or for which they would have had to save for some time.

The teachers who were interviewed identified several positive outcomes from participating in the scheme. These outcomes related to both professional and personal use of ICT. Most participating teachers commented on the improved organisational skills they had acquired as a result of having a computer at home, coupled with the time that they were able to save by working in a relaxed environment and not having to negotiate access to a computer.

Many were using the computer to keep in touch with friends and family by email. One participant said:

> *My dad was 80 last year and we were having to arrange celebrations from two different countries and email was invaluable for that and saved lots of money. I didn't have to keep phoning them.*

The improved confidence mentioned by most participants as a direct benefit of the CfT scheme was often due to the increased access afforded by having a personal computer. This confidence was confirmed, in some cases, by other members of staff, who had themselves gained new knowledge from their colleagues' improved skills. One teacher commented:

> *I had to have sick leave so I used [email] to send plans to the headteacher – wonderful, useful, but it's no use if I'm the only one who can use it; there needs to be someone at the other end who can deal with it so we have tried to get everyone involved.*

Phase 1 of the CfT scheme was also reported by many teachers to have 'come at the right time', as they were about to undertake training and would need to practise the skills being introduced to them. A number of teachers reported that they now developed their use of ICT at home, whereas before having their own computer they would have given up trying.

Conversely, there were very few disadvantages mentioned as a result of owning a CfT computer. Several teachers interviewed commented on their dissatisfaction with the hardware suppliers, saying that these were very slow to rectify problems that arose during the first 12 months, and that they felt that some suppliers had been more interested in achieving sales than providing support.

One of the main problems appeared to be a lack of information. One teacher reported that many colleagues had been put off by lack of choice over the machines they could purchase. Other teachers suggested that the information given to them by suppliers had been too technical and that suppliers had not advised enough on the software that was available with the machine. In some cases, it was felt that the software on the computers purchased was not compatible with the software in school. Some teachers felt pressurised into making decisions:

> *The way it was organised was poor in many respects. I rushed in quickly because I knew the money was dwindling: the limited money created a panic buy.*

A final comment from many of the participant teachers was that they would have liked to have received more detailed advice on hardware and software before they purchased their computer. One teacher found that the software on the computer did not match that on the computers in the school, which had implications – at least initially – for completing work at home. Although many of the ICT co-ordinators at the schools tried to give helpful advice on the packages that would be most useful for their staff, there were a number of schools in which this did not happen. In most of these cases, teachers asked friends or relatives for advice.

> *You don't know what you're going to need. There should be some facility for help if you need it, like knowing about extra memory, etc.*

Despite some negative comments on the scheme, all of the participant teachers interviewed had seen advantages since acquiring their computer under Phase 1. It was reported that their experiences had encouraged many more teachers to want to become involved in future schemes. However, this had not always been possible, as these comments illustrate:

> *The second round was only for KS3 maths teachers; the third round, those of us who paid [under phase 1] won't have access to the new*

laptops. I think all teachers should have access to a machine because the bulk of use is for school work. I think the running of the scheme needs more freedom.

I was cynical when it stopped. Loads of teachers were ready to have a go but ran out of time. You had to have the money yourself to afford it. If the Government says IT [is] an essential tool, they should provide them for us. You'd get it if you worked in a bank!

A disadvantage of increased ICT use in the classroom, mentioned by two participant teachers and three non-participant teachers, was the potential reduction in social interaction between children:

…children could end up not talking to each other, but interacting with machines all the time … talking at screens rather than facing each other.

5.2 Value for money and level of subsidy

Many of the comments from beneficiaries regarding the CfT scheme related to the financial aspect of participating in a scheme of this kind. The scheme was seen by all participants to represent good value for money.

All participant teachers interviewed were satisfied with the subsidy provided by the scheme – the general opinion being that it was fair or good. One teacher stated:

We get something out of it so we should have to put some money in.

Another teacher said:

It was good, although I was worried when I thought there was going to be tax to pay on it.

Another teacher was very positive about the subsidy, pointing out that they had never received funds for a personal resource before and that it was the first 'perk' of the job that teachers had experienced for a long time. One participant commented:

The £500 grant made a big difference to me. I had it on nine months' interest-free credit, then paid it all off at the end.

However, another, while admitting that the subsidy was generous, commented that a higher level of subsidy would have been better.

Although the general view of the level of subsidy was positive, there were a few concerns voiced regarding the payment of the balance. A few teachers reported that they had decided against taking part in the scheme because of the amount of money that they still had to contribute, and that much depended on the financial status of individual teachers.

I used personal money to pay for the rest of it – savings. It worked out quite well for me, because I had the money at the right time.

I think they should have been provided for all teachers…I funded the rest through a bank loan, but I would have preferred not to have had to [do that].

6 Conclusions

The views of participants in Phase 1 of the CfT scheme that have been presented in this report represent only a small proportion of the total number of beneficiaries, whereas the earlier DfES survey amassed responses from approximately 2,500 teachers. Nevertheless, this qualitative study collected information from more than 40 participant teachers in 32 schools, covering both the primary and secondary phases. In addition, the findings from both the telephone interviews and case studies were consistent in showing evidence of positive impacts on individuals and their pupils, and on other colleagues in beneficiaries' schools.

The qualitative research described in this report provides further evidence to support the findings from the DfES survey of participants in Phase 1 of CfT. The report has also highlighted examples of the range of positive impacts that participation in the CfT scheme has had on beneficiaries, including:

- greater efficiency in carrying out professional activities, such as lesson preparation and administrative tasks
- improved levels of ICT competence and confidence, which in turn make teachers more likely to use ICT in their lessons
- increased access to ICT generally and specifically internet access.

In addition to these direct impacts, the qualitative research has identified a number of indirect impacts, such as:

- increased opportunities for pupils to use ICT themselves in lessons and to use resources that their teachers have prepared using ICT
- more interest in the CfT scheme on the part of other teachers at beneficiaries' schools
- contributions to whole-school ICT development by improving the knowledge, skills and access of some of the teachers.

Of course, the extent to which the CfT scheme has had an impact at whole-school level depends on a number of factors, including the number of teachers who received a grant under the scheme and the prevailing school culture relating to the sharing of resources. In some schools only one teacher received a grant, whereas in others a third (or more) of the teaching staff benefited under the scheme. Clearly, there were greater opportunities for mutual support and increased possibilities for influencing whole-school practices when more than one teacher in a school received a grant.

As noted in this report, senior managers in two schools (one primary and one secondary) commented on the positive whole-school developments since teachers in their school had benefited from Phase 1 of CfT. However, both stressed that these developments could not be attributed solely to participation in the scheme: other factors, such as NOF (and other) training and increased levels of ICT resources in their schools, had undoubtedly also had an impact. Consequently, it is appropriate to consider the CfT scheme and its impact on individual teachers and more widely within their schools as one among a number of schemes promoting and encouraging increased use of ICT by both teachers and pupils.

Appendix 1 – Methodological details

The original research design comprised 15 case studies plus six regional sessions (three for primary and three for secondary teachers) designed to gain the more general views of a large number of beneficiaries through focus groups of teachers without burdening individual schools.

The research methods originally chosen to collect data were:

1) interviews with:
   - participant teachers
   - non-participant teachers
   - pupils in classes of participant teachers
   - headteacher/ICT co-ordinator
2) classroom observations of participant teachers
3) analysis of school documents
4) regional focus-group sessions.

Revisions to the research design

The original aim of the project was to contact 150 teachers who had previously indicated in their response to the DfES questionnaire that they were prepared to take part in further research. It was anticipated that this number would make it possible to recruit enough teachers to participate in 15 school case studies and six regional focus-group sessions for teachers who had participated in the CfT scheme. An initial sample of 150 teachers was selected using the following criteria:

- willingness to participate
- key stage taught
- geographical location
- age
- major subject taught
- responsibilities held
- gender
- ethnicity.

The selected sample was contacted by email and follow-up letter. However, only six responses were received in total – four of those being negative.

It was decided, therefore, to draw a second sample of an additional 150 teachers from those who had completed the DfES survey earlier in the year. All teachers who appeared in the initial sample were removed from the database to ensure that they were not contacted again. The sample was selected to represent as far as possible the characteristics of the original sample (see criteria above).

After a reconsideration of the research design, the regional focus groups were replaced by 30 telephone interviews. It was thought that this method of data collection would attract a greater number of responses as it would be less demanding on teachers' time and could be conducted at a time convenient to them. The telephone interview schedules were based on the original interviews designed for case study use, which allow for similar information to be obtained on a number of areas from a larger number of beneficiaries.

The teachers in this second sample were contacted by email, followed by a letter or further email correspondence (according to the preference of the individual teachers). They were invited to assist in the evaluation either by involvement in a school-based case study (if their headteacher was willing) or by participating in a telephone interview with a member of the research team.

On receipt of a positive response from the teacher regarding involvement in a case study, headteachers were contacted to arrange case-study visits to schools.

Recruitment issues

Many of the reasons for declining to take part in the research outlined by teachers were related to concerns about extra workload for the school. Other reasons included the following:

- There were instances where teachers felt that the school itself was too busy, but they agreed to participate in telephone interviews as an alternative. However, some teachers reported that a demanding school day and family commitments meant that even this was impossible **(26)**[4].

[4] The numbers in brackets indicates the frequency of each response.

- Some time elapsed between teachers completing the original DfES survey (May 2001) and the invitation to take part in a case study (November 2001 and January 2002). This meant that many teachers' circumstances had changed since they originally indicated that they were willing to be involved in further research (for instance from full-time to supply teaching, or retraining for a different profession) **(8)**.
- Staff changes and Ofsted inspections meant that schools did not feel able to accommodate the research we were hoping to undertake **(5)**.
- Particularly in small primary schools, it can be difficult to release staff to take part in interviews during the school day. At the same time, teachers and headteachers do not want to give up their lunchtimes or spend time after the end of the school day in interviews **(4)**.

The responses to both the first and second attempts to email a sample of teachers were both relatively low, and did not produce the target number of case studies and telephone interviews. The team therefore decided to telephone all those teachers in the second sample who had not already responded. Evening and/or weekend telephone calls were made to teachers, using the home contact details that they had given as part of the DfES survey, and at the times respondents had indicated that it would be best to contact them.

From these telephone calls, we obtained further explanations about why we had received a poor response to the original email: many teachers had changed their email address since filling out the questionnaire; and many teachers seldom checked their email. As a result of the telephone calls to teachers at home, further participants were identified for both case-study visits and telephone interviews.

Participation rates

i Case studies

The participation rate for the case-study element of the project was as follows:

	Number of cases (sample 1)	Number of cases (sample 2)	Total
Contacted	150	150	300 (150 primary, 150 secondary)
Positive response	1	7	8 (7 primary, 1 secondary)

Most of the case studies were carried out in primary schools. This was unavoidable, as some of the secondary schools that originally agreed to participate subsequently withdrew.

ii Telephone interviews

The participation rate for the telephone interviews was as follows:

	Number of cases
Contacted	120
Positive response	24 (19 primary and 5 secondary)

All of the teachers who agreed to participate in a telephone interview were from the second sample to be drawn. The interviews were conducted either during the school day or in the evening, depending on when the interviewee was available. Most participants were primary school teachers, but almost a quarter were teachers at secondary schools, each of whom taught a different curriculum subject. Participants represented a fairly equal geographical distribution. All of the teachers interviewed had purchased a desktop computer through the CfT scheme, apart from one secondary-school teacher who had purchased a laptop. Again, it should be noted that more primary teachers than secondary teachers were willing to be interviewed. In considering the findings presented in this report, it must also be remembered that the sample of teachers interviewed during case studies and in telephone interviews is not necessarily representative of the whole population of teachers.

Appendix 2 – Details of CfT beneficiaries in case-study schools

	Location of school	Beneficiary	Key stage	Time in teaching	Gender
Primary School A	North	ICT co-ordinator/class teacher	1	7 years	Female
		Class teacher	1	10 years	Female
		Class teacher	2	11 years	Female
		Class teacher	2	10 years	Female
Primary School B	East Midlands	ICT co-ordinator/class teacher	2	18 years	Female
		Class teacher/assessment co-ordinator	2	18 years	Female
Primary School C	South East	ICT co-ordinator	1	19 years	Female
		Class teacher	1	2 years	Female
		Class teacher	2	1 year	Male
		EMAG teacher	1/2	16 years	Female
Primary School D	South West	Class teacher	1	10 years	Female
		Class teacher	1	26 years	Female
Secondary School E	South	Languages teacher	3/4	10 years	Male
		Languages teacher	3/4	6 years	Female
		English teacher	3/4	20 years (including13 years teaching abroad)	Male
Primary School F	East	Class teacher	2	11 years	Female
Primary School G	South East	ICT co-ordinator/class teacher	1	24 years	Female
Primary School H	West Midlands	Headteacher		33 years	Female
		Class teacher	2	13 years	Female
		Class teacher	2	12 years	Female

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