



**Evaluation of the DfES ICT Test Bed Project**

**ICT Test Bed : Learner perceptions of  
the impact of ICT on their education**

**A Cross-Cluster Qualitative Study from the External  
Evaluation**

**Summer Term, 2005**

**Janis Jarvis, Diane Mavers, Diane Saxon and Derek Woodrow**

## LEARNERS' PERCEPTION OF ICT IN TEACHING AND LEARNING

Aims of the study .....	1
Methodology .....	1
PRIMARY PUPILS' PERSPECTIVES OF ICT IN THEIR EDUCATION.....	4
Introduction.....	4
Key Points .....	5
Pupil Attitudes.....	5
ICT across the curriculum .....	6
ICT within the curriculum .....	9
Beyond the curriculum .....	14
Home use of computers.....	16
Resource Issues .....	17
Security.....	19
SECONDARY STUDENTS' PERSPECTIVES OF ICT IN THEIR EDUCATION ..	20
Introduction.....	20
Key Points .....	20
ICT across the curriculum .....	22
ICT within the curriculum .....	24
Beyond the Curriculum .....	27
Resource Issues .....	28
Security.....	29
Home use of computers.....	30
Pupils Logs .....	31
THE LEARNER EXPERIENCE OF ICT IN FURTHER EDUCATION.....	33
Introduction.....	33
Key points.....	33
ICT across the curriculum .....	35
ICT within the curriculum .....	36
Beyond the curriculum .....	37
Home use of computers.....	40
Resource Issues .....	40
Concluding comments .....	42

### ***Aims of the study***

This small-scale study is a cross-cluster and cross-phase survey of pupil/student views on the impact of ICT on their education. Its focus was linked to the two Test Bed themes 'Teaching and Learning' and 'Home/School Links'. Its aim was to explore the student/pupil experience of ICT in the classroom/curriculum in terms of:

Frequency; Nature of activity; Subject variations; Attitudes.

### ***Methodology***

The research entailed a half-day to each of six primary schools (two from each cluster), full day visits to one secondary school in each cluster, and a full day in each of two FE colleges with a questionnaire survey in the third. Four link researchers gathered the data: one for each of the three clusters of schools and an FE specialist who worked across the clusters. Primary schools were selected on the basis of size (at least a two-form entry) and frequency of previous evaluation visits. In the one cluster where there is more than one secondary school the choice was made on the frequency of previous visits. FE departments visited were those participating in the TestBed project.

Focus groups meetings with students were held in each of the schools with students being chosen ensuring, as far as possible, a representative balance of race, ethnicity, gender and ability. In order to ensure ease of communication, teachers excluded children who could speak little English. In each primary school, the two focus groups consisted of pupils from two different Year 5 classes, except in one primary school where the pupils were from Year 5 and Year 6. The secondary groups involved three students from each Year 8 class; the number of focus groups conducted (each of 6-students) varied according to the size of the particular intake. The summer term proved problematic for FE institutions but eight focus groups were held from two of the colleges. In total 160 students were involved in the research:- 36 (12+24) from Sandwell schools, 36 (12+24) from Barking and Dagenham schools, 44 (14 + 30) from Durham schools and 44 (19+12+13)from FE colleges.

For the schools a log of one week's activity was designed to gather factual information, with primary and secondary versioning. The logs covered one full 'typical' week including a weekend. For each school day (Monday to Friday), pupils/students were asked to enter in which subjects they used ICT from two perspectives:

1) *Classwork*

- Which ICT the students used, and how much
- Which ICT the teacher used, and how much.

'ICT' was defined as a computer, laptop, whiteboard, visualiser, camcorder, digital camera, active slate, Activote etc. 'How much' in lessons was defined as (the beginning, middle, end or all) of the lesson in the primary phase and (none, 25%, 50%, 75%, 100%) at secondary level.

2) *Homework*

Pupils/students were also asked for each day of the week including weekends about homework:

The subject; which ICT was used; what for; for how long.

How to complete the log was explained to the pupils/students face to face during the focus interviews and the students completed the log for the following week. Whilst detailed information was not anticipated, the aim of the logs was to provide a snapshot of classroom ICT use, with the possibility of patterns in some subject areas. These were in general independent of teacher guidance and inevitably a variety of interpretations were expected of the term 'using ICT'. In order to ensure anonymity and confidentiality, each pupil/student was given a stamped addressed envelope and asked to post their questionnaire directly to the researchers. 41 logs were returned: 25 primary, and 16 secondary.

More complex issues were covered in the group interviews through six key questions:

1. In which subjects do you use ICT?
2. What kinds of things do you do with ICT? – Examples
3. Are there any subject where you don't use ICT much or at all?
4. What was the best thing you ever did at school with ICT? – Examples?
5. Did you do anything interesting with ICT in school last week? – Examples?
6. Do you ever get fed up with ICT at school? – Examples?

Within the limitations of the defined ICT Test Bed curriculum areas, interviews in the FE colleges explored many of the same issues.

In order to encourage students to speak openly, the group interviews began with an explanation of the importance of finding out students' perceptions for the evaluation programme. In order to enable different voices to be heard, questions were posed to the group in general and were directed to people who had not contributed, and pupils/students were invited to disagree or have a different point of view.

In practice, the primary pupils were highly vociferous. They were also overwhelmingly positive and enthusiastic about the use of ICT in their day-to-day classroom experience. This may have been partly to do with the interviews taking place in school, and more positive children having been selected by teaching staff. Such is the pervasiveness of ICT in the primary schools that pupils sometimes found it hard to distinguish when it was being used and when it was not. This was particularly true of the use of whole-class technologies which have become such an integral part of their lessons that they were not really conscious that this was ICT. It was clear that the schools employed a wide range of ICT devices and the pupils were technologically literate. The logs contained some interesting comments but as expected the varying perceptions of the task made detailed analysis difficult. By correlating pupils from the same classes some impression of the extent of ICT usage was gathered.

Secondary students were, as expected from previous interview experiences, less forthcoming and in some cases said very little; occasionally one or two more self-projecting students sometimes did all the talking. These are factors of adolescence that are difficult to overcome without more lengthy contact. Their caution may in part have been due to a sense of representing their school 'properly'. It was possible, however, to gauge the impact of ICT on different curriculum elements and to extract some attitudinal responses. Whilst teacher controlled equipment was clearly used regularly, student equipment was unreliable and only spasmodically used. The secondary logs were reasonably explicit, and by comparing students from the same classes the variance in perception both added a note of caution and allowed a slightly clearer view to emerge.

FE students were overwhelmingly positive about their ICT -in terms of both helping them to do their course and their attitudes to technology. Although some were initially somewhat reluctant to be interviewed, they were then very willing to talk about their experiences of using ICT on their courses. Nearly all possessed a high level of self-confidence which made them more participatory than the secondary students.

As with the previous study the issues arising, responses of the students and the context tended to be age-specific, and this report therefore deals with primary, secondary and FE responses separately. The major headings remain the same :-

- Key Points
- Learner Attitudes
- ICT across the curriculum
- ICT within the curriculum
- Beyond the curriculum
- Home use of computers
- Resource issues

# PRIMARY PUPILS' PERSPECTIVES ON THE USE OF ICT IN THEIR EDUCATION

<b>Introduction</b> .....	4
<b>Key Points</b> .....	5
<b>Pupil Attitudes.</b> .....	5
<b>ICT across the curriculum</b> .....	6
<i>Whole-class technologies</i> .....	6
<i>Individual access</i> .....	7
<b>ICT within the curriculum</b> .....	9
<i>Literacy</i> .....	9
<i>Mathematics</i> .....	10
<i>Science</i> .....	11
<i>History</i> .....	11
<i>Geography</i> .....	12
<i>Music</i> .....	13
<i>MFL</i> .....	13
<i>Art</i> .....	13
<i>PE</i> .....	14
<b>Beyond the curriculum</b> .....	14
<i>Animation</i> .....	14
<i>Generic resources</i> .....	15
<i>Registration</i> .....	15
<i>Voting Systems</i> .....	16
<i>Emailing</i> .....	16
<b>Home use of computers</b> .....	16
<b>Resource Issues</b> .....	17
<b>Security</b> .....	19

## ***Introduction***

In each cluster six children from each of two primary schools were interviewed. The groups consisted of boys and girls with, where possible, different ethnic backgrounds. In one school eight pupils were interviewed in a mixture of year 5 and 6 pupils.

The pupils were also asked to fill in a weekly 'log' of ICT activities, in terms of usage by themselves and their teacher. 25 logs were returned though they varied in their level of detail.

## **Key Points**

- In all the interviews the pupils were overwhelmingly enthusiastic and positive about their experience of ICT. There was an overwhelmingly positive attitude to the IWB. There was evidence of a wide variety of digital/electronic devices being used in the classrooms.
- It was encouraging to hear these Year 5 pupils using a customary and correct command of technological terminology.
- Breakdowns did not seem to be a problem, largely because the use of technicians had given real security and regular maintenance.
- Whole-class technologies were described as primarily teacher-controlled. There was evidence that use of whole-class technologies is fully integrated into teaching and learning across the curriculum. The size of the screen was identified as one of the greatest benefits of the IWB “*and everyone can see.*”
- The pupils reported hands-on access to ICT in the classroom. Their only complaint was when the laptops “*don’t really work properly.*” The pupil logs showed evidence of pupil use of laptops in class., particularly in geography and history and in maths and English where pupils used individualised programmes.
- Some pupils felt that they had become quite proficient at typing, though many still used one or two fingers. Schools are beginning to address this.
- Pupils are not expected to complete homework by computer and most homework is still handwritten. The imminence of SATs has reduced the use of computers in Year 6 to ensure handwriting is satisfactory. In some cases this has increased attention to ICT in Year 5.
- All but one or two of the pupils interviewed had their own computers at home, a position which seems to have advanced significantly during ICT TestBed. Remote access to the school Intranet was rare, and the disabling of school laptops from the Internet when loaning them out for home use makes them less attractive when home computers have Internet access.
- There was awareness by the pupils of security and safety issues. The children spoke about the need for logging on with passwords and being protected from inappropriate messages.

## **Pupil Attitudes.**

In all the interviews the pupils were overwhelmingly enthusiastic and positive about their experience of ICT. Such is the pervasiveness of ICT in the primary schools that the pupils sometimes found it hard to distinguish when it was being used and when it was not. This was particularly true of the use of the whole-class technologies<sup>1</sup> which have become such an integral part of their lessons that they were not really conscious that this was ICT. This was also apparent in the entries into the logs which the pupils completed. But one pupil did comment that “*laptops had really changed how we*

---

<sup>1</sup> Whole-class technologies (WCTs) include interactive whiteboards (IWBs), whether Promethean or Smart boards, and data projectors, whether supported by visualisers or not. ICT Test Bed clusters, and schools and colleges, made different choices but the reported consequences are generally the same as regards display impact.

*learn” and another that his sister “had just started school when the technology was installed and she is quite bright now”*

The ways in which the children spoke about resources is evidence that technology is part and parcel of their everyday classroom experience. They were well aware of different functionalities and input devices associated with whole-class technologies such as the touch screen, pens, cordless mouse, remote keyboard, projector, microscopes, scanners, concurrent viewing on a desktop PC and so on. Related, and sometimes surprising in interviewing children of this age, was their customary and correct command of technological terminology such as ‘realigning’ (when IWB writing is ‘dodgy’) and the ‘control panel’, ‘tracking bar’ and their ability to remember and recite sets of instructions, such as uploading to the shared site to enable teacher access.

### **ICT across the curriculum**

The children spoke about school-based ICT in two ways: whole-class involvement and individual use.

#### **Whole-class technologies**

The children reported everyday class use of the interactive whiteboard (IWB) in all subjects, as well as uses beyond the curriculum and in whole-school contexts such as assemblies. Whole-class use was described as primarily teacher-controlled but involving pupils either touching the interactive whiteboard, writing with IWB pens or using devices such as ‘zappers’. Pupils explained that the whole-class technologies were used by all of the teachers all of the time. *“It stays on, and anything they don’t want us to see they click on the desk, no show, so people can do their private work and no-one can read it.”* One pupil explained that the teachers usually worked on the computer while the pupils were doing set work like handwriting. There was an overwhelmingly positive attitude to the IWB:

*Child: The best computers that we could have had was the whiteboard.*

*Child: Yeah I wish you could take the whiteboard home.*

Numerous examples of use across the curriculum were given. The resources in the upper primary context varied – the children mentioned web resources such as still images, animations and ‘games’; scanned images (e.g. pupils’ work); VLE resources (often described as ‘games’); films on DVD; control devices; spreadsheets and databases. As in previous reports, there was evidence that use of whole-class technologies is fully integrated into teaching and learning across the curriculum.

Other pupils commented on the better teacher preparation

*“After school when we go home the teachers can prepare things on their memory sticks”*

*“Teachers usually type on the board – it doesn’t take up as much time because they can type the targets and then come back to them at the end of the lesson – it used to take up to half the lesson for her to write on the board the things she needed.”*

*“We don’t need projectors and those transparent sheets anymore, all the Christmas songs are now typed up and it’s brilliant.”*

The copying down of ‘targets’ (learning objectives) from the interactive whiteboard at the start of lessons suggests habitual use of the IWB in one way amongst others [even if this particular usage does not utilize its full electronic potentialities and perhaps raises questions about whether this is a good use of pupils’ time]. Some schools also had a ‘daily board’ which presented information alongside electronic registration. .

When asked how lessons had improved since the introduction of ICT in school the pupils commented: *“Before it was like the teacher had this fixed whiteboard and bits of paper and now that we’ve got the computers we can look at letters or whatever on the screen instead of the teachers having to make loads of copies and writing it down on the board”*.

In comparing their current school-based ICT experience with what was available previously, some children could not remember a time without IWBs: *“I don’t remember what it was like without interactive whiteboards – I’m always imagining – I just think it would look really, really plain without the whiteboard, because there would be a big open space there because they are so big.”*

The size of the screen was identified as one of the greatest benefits of the IWB *“and everyone can see.”* Another advantage was seen to be its efficiency, convenience, provisionality, automatic functions and orderliness. Before the IWB

- *“we had to use this blackboard and it was awful”*
- *“Your hands get messy with the chalk”*
- *“And sometimes the chalk breaks and it might go into little pieces. And the whiteboard pens don’t break. They are like cotton on there, and it’s better because it wouldn’t break or anything”*
- *“And if you want to rub it off, you have a rubber on the interactive white board”*
- *“There’s like a rubber there you can just rub it, you can just rub it off, and clear the screen”*.

They also appreciated automatic functions such as the ability to modify colour with ease<sup>2</sup>.

### **Individual access**

The pupils felt that they used computers themselves most of all in *“maths, maths, English, maths, science, maths”* - though in some classes it was English and history/geography which received the accolade. [This mirrored the results of the secondary interviews.] The children reported hands-on access to ICT in the classroom (clusters of computers and group sets of laptops) and sometimes in computer suites on a weekly basis. Their only complaint was when the laptops *“don’t really work properly, like the laptops, they load for ages and then you have to plan what you’re going to do and it gets a bit boring then, but most of the time it’s OK”*.

---

<sup>2</sup> These comments concur with findings in the previous evaluation report entitled *Teaching and Learning: the impact of whole-class technologies*.

Digital cameras were also available on an occasional basis, such as for school trips or animation workshops. The teachers also used digital cameras and camcorders to take pictures of pupils at events such as the school sports day which were then shown in assembly to the whole school. Microscopes were also mentioned, together with other electronic sensing devices. In some classes the laptops were available for home usage on a regular basis.

In reviewing the pupil logs which were returned there was clear evidence of extra-curricular pupil ICT activity. Two pupils mentioned Internet activity during break-time, in one case it was clearly an organised 'Internet club'. Other students mentioned using PowerPoint to make a presentation during assembly. Homework was occasionally mentioned, using Colour Magic to draw pictures, Word to write stories and SIR or Global English activities. This was often at weekend when they had the school laptops at home. Some pupils also indicated that they had imported pictures of their school trip and added text.

The pupil logs also showed evidence of pupil use of laptops in class., particularly in geography and history using 'Information Magic' to construct data-bases and using the Internet to obtain information. The other subjects in which there was regular access to computers were maths and English where pupils used individualised programmes such as SIR and Global English. Most of the classes appeared to use laptops regularly but some pupils seemed to have minimal access to using the technology themselves. For some, the morning registration was the only hands on activity.

In comparing pre-Test Bed and current access to computers in school, the primary-aged children spoke about an increase in the amount of equipment and improved resources. They remembered the *"Acorn ones and they kept on turning green, and then we had to get all these CDs to put in instead, so actually the computers weren't very good."* Previously, *"we just had to write it in our books"* but now there were opportunities for a variety of learning activities (see below). As well as 'games', the sorts of activities that the children really enthused about were those that were challenging and creative, for example film-making, searching the web in order to prepare presentations for the rest of the class, making slide shows of digital photographs taken on school trips for assemblies and making e-books for younger children in the school.

Some pupils felt that they had become quite proficient at typing, though many still used one or two fingers. Although some schools had typing programmes, some pupils found them boring - 'though some good typing games were fun – they did recognise that they were useful. One pupil explained that she did not like Microsoft Word *"Because it takes forever typing it, well I'm not very fast at typing it."* Others felt it was a real advantage to be able to type essays into the computer *"Because if people haven't got neat handwriting sometimes they have to rewrite it if the teacher tells them to, and if you go on the computer you can choose your handwriting style or you can just write it plain so everyone can read it."* Another commented *"To me, it's not really about the handwriting. I like writing stories and stuff but my hand starts to ache and when I can do it on the computer I can write pages and pages and pages and my hand doesn't hurt"*.

Pupils are not expected to complete homework by computer and most homework is still handwritten, but they might print off a worksheet from the intranet and then complete it by hand. In English, some pupils type their stories on to a computer at home and others handwrite them. They often commented on using the Internet to find out information which is then cut and pasted and stuck into their exercise books. There was a general tendency to allow more ICT produced work in years 4 and 5 but the imminence of SATs caused a focus on handwriting in Year 6.

### ***ICT within the curriculum***

The children gave numerous examples of the use of ICT in subjects across the curriculum.

### ***Literacy***

The literacy activities the children spoke about were not only evidence of use of a range of ICT resources but also varied ways of learning. The pupils commented that they wrote stories and prepared PowerPoint presentations. One class was in the process of making branching story books for younger children in their school as part of their literacy work. This was viewed very positively. When going out on trips they were usually required to write reports. One class commented on the use of the microscope to look at leaves and seeds and then to write from their imagination. Another class were doing a project on John Lennon for which they had to search the Internet and then write out their findings. They also commented on how if they didn't finish work it could be stored for the next day or taken home to work on. They were also gratified that they could save their project files in their folders – one pupil commented that he still had a project he completed two years previously.

One class 'recited' in great details the process by which they moved work into the shared files so that the teacher could mark it. When she'd marked it they then picked it up and described how the teacher *'takes the redness out'* of the marking<sup>3</sup> – though one pupil confided that he knew how to use the 'tracking bar' to accept the changes and remove the notes.

In another school pupils mentioned the advantages of having a spellchecker. *"Say you're looking for a site and then you spell it wrong, that happens to me a lot, it says did you mean this and then you click on it and it goes to the real site".* *"When it comes up with a red line underneath it you can highlight it and then left click on the words and at the top of it it will show you a list of the words it could be".* Their perception was that this was helping them learn how to spell. *"Because if we do it on the computer it automatically tells us if we spelt something wrong and if we are in our books we have to keep checking it and checking it and you still end up with at least one mistake in there".*

---

<sup>3</sup> The redness is the way in which the teacher marks the changes by using the MSWord tracking changes device

In some schools the pupils stated that they generally liked Global English which they used quite a lot.<sup>4</sup> The children also talked about use of a website called SkillsWise which provides literacy activities. Scanned resources were used as an equivalent to the visualiser: *“We’re looking at advertisements. We scanned in, and we looked at those pictures then we zoomed in to look at the writing.”* However, the provisionality of the IWB allows teachers to use children’s work to show mistakes and how to correct them: *“Like last time we had to do this diary thing, and some of us had mistakes on it, she’s showing how – she put it on the scanner and showed us how to do the mistakes and things, underline it or something.”*

In another class the teacher demonstrates handwriting on the visualiser and the children copy this into their books.

### **Mathematics**

Maths was frequently seen as the subject in which the pupils used the laptop most (and this was equally true for the secondary students). SIR was used a lot in one cluster and was well liked by the pupils. It was using such individual learning systems, SIR and Global English, that led to significant use of laptops by the pupils. A number of pupils mentioned that they had used the BBC website for maths, and the pupils really enjoyed “learning and playing games at the same time” when doing maths problems. The pupils in another school spoke about educational ‘games’ in their mathematics lessons (e.g. money games). Laptops were also used for SATs revision in mathematics. In one class the pupils took it in turns - group by group - to work on the laptops on a weekly rota.

The web-based resource ReviseWise was specifically mentioned. That they liked different levels suggests their appreciation of differentiated opportunities and the ability to choose appropriate levels of difficulty. One child said, *“I think it’s better on the computer, it’s an easy way to learn because they put it in a game.”* However, individual use of the computer in maths lessons did vary. One group of primary children said that *“you’ll be writing down mostly in numeracy”* but that *“some people do get to go on the computers”*. Another child commented that they used to *“play maths games quite a lot but now we don’t.”*

In one school the pupils mentioned ELMO (Sesame Street?) which they liked a lot because the colours were bright. *“I like it because it’s not grey and dull and it makes it easier to understand”*. This software is used particularly for the younger children to help them with their times tables and uses different coloured bricks to reinforce the groups of numbers. Another pupil mentioned learning about top heavy fractions by means of the visualiser. She had particularly remembered this because the teacher used sections of pizzas as illustrative examples.

One class did a traffic survey in the high street. They said that counting cars, buses, lorries and bikes “was really fun.” Back in the classroom, they made a graph on the

---

<sup>4</sup> This was also reflected the previous report of teacher perceptions in *ICT Test Bed : Evidence from the Workforce*

computer – “*a bar graph, a pie graph, all of those.*” Another group described how they used ‘pods’ (a voting mechanism) to choose correct answers – “*they were really good*”- and another spoke about using Excel to make ‘charts’ and talked about its ‘adding up’ facilities.

## **Science**

This was another area of regular use of ICT, not only but also for doing SATs questions! One pupil described how they did virtual experiments on the whiteboard, and the use of microscopes (especially for viewing mini-beasts) was common. One school had purchased some sensing equipment for measuring temperature, light, and humidity and they were measuring germination of seeds and commented on how “*you had to change one thing at a time*”. The pupils logs for one class indicated the use of the Intel Microscope to draw up a table in ‘Information Magic’ about ‘jumping bugs’.

Another group of pupils said that they do not use their own computers in science but that their teacher copies and pastes images from the Internet onto the IWB for science lessons “*and because we are doing plant dispersal we have to write in a science books what kind of dispersals there are*”. Teachers use the web to show things that could not be done so easily without animation, for example the rotation of the planets around the sun and the phases of the moon.

Pupils described how they used the Internet to do research on animals, the water cycle and the planets which they then presented to the rest of the class. In explaining how they access information on the web, one child said, “*The thing that we look for, say if we’re doing a project on water, we we’d type in water on the website, [www.water.com](http://www.water.com), and then it will come up and show us what it is about, all the information all about water.*”

More than one group of primary children talked about using ReviseWise in science lessons which, one child said, “*gives you like loads of information*”. One class learnt about solids, liquids and gases on ReviseWise. Following virtual experience with an evaporation ‘game’, they undertook a scientific experiment where they placed tubs of salt dissolved in water in different locations and observed what happened.

## **History**

In History pupils were directed onto websites by the teacher who shows them initially what they look like on the whole-class technologies. It was clear from the pupil logs that this was a subject in which there was more pupil access to computers than most others. The pupils are then encouraged to take notes from these websites for projects. Two schools had recently been involved in doing project work on the Victorians. As well as researching via the Internet the pupils “*did little leaflets about how we can know about the poor people and how they went to work, how they felt and everything*”.

Pupils have also done some research on toys on the Internet. They had to find out what the toys were made of and what sort of person would play with them. This was popular because it felt like a game as they had to click on objects to find what

materials were used in their construction. Although they then had to write up their findings, which was not as much fun, they did enjoy the research.

Another group described how they had studied the ancient Egyptians and had to research Tutankhamen and prepare a PowerPoint presentation.

*“I think that especially for stuff like history and humanities, the computers are really good, because in history, where we’ve been learning about (our town), what you can do, you can look on the computer for all these pictures and stuff, that’s what we do”.*

*“When we were doing about the Victorians and (our town), we went to the ICT and Miss told us a website and I went on the website and it showed me like the map of the olden days of (our town)”.*

In their history curriculum work, one class of primary children used the computer suite for web access. They searched for websites themselves and their teacher told them which to look at. They wrote notes and then presented what they had found to the rest of the class. The children said they enjoyed this but in another group one pupil was rather bored with constant researching on the Internet.

The evidence from the pupil logs showed that history was indeed one of the most computer rich subjects.

## **Geography**

This was another subject in which projects were used and led to web searching. The pupil logs evidenced the use of ‘Information Magic’ to construct data-bases and some training in the use of logical connectives such as AND and OR. One class used the Apple-Mac suite to prepare poster presentations.

In one school they had first looked at the recent tsunami on the large screen in assembly and then followed this up on their own laptops in class. In another cluster there were extensive links with schools in other countries which were contacted through e-mail, and this led to extensive web-searching for relevant information. This cluster-wide initiative was a consequence of significant head-teacher involvement including a number of exploratory trips to Tanzania, Canada and Europe. They had recently had a European week.

In another school the pupils had received letters from pupils in America and had replied by drafting lessons on paper, typing them onto Word and then the teacher emailed them to America.

The children spoke about using the web to access geographical information. *“In geography when we do water cycles, sometimes we go on the computer [...] sometimes we find out information and we copy it down in our books.”* One class used the web to prepare for a school trip by looking at the route on a map and seeing what the location looked like in advance.

## **Music**

At one school the pupils were particularly enthusiastic about the work they had recently been doing on the computers in Music. Several cited this subject as their favourite. *“We were going on this thing where you can create your own tunes, you have things like drums and guitar. You can do some samples. You mix them up and you have to keep on pressing the buttons and you come up with different tunes”* They liked the fact that sometimes you could get voices on to their compositions as well. A number of schools found work on keyboards attracted pupil interest.

Another school used their Apple-Mac suite to edit digital videos of school events and add soundtracks. This school also had ‘music of the day’ presentations and PowerPoint presentations to introduce different types of music, classical and songs. They had recently had a task of identifying the films from which a collection of Disney songs derived.

## **MFL**

The children spoke about use of the computer to learn French. *“It makes you learn new words and stuff for French, how to say hello and goodbye and my favourite pet and my favourite colour, and all of those things.”* These seemed to be bespoke resources created by teachers for the VLE for matching pictures and words. [In one cluster there was regular video conferencing support for French and Modern Foreign Languages appeared to be ICT active at secondary level in all the schools.]

## **Art**

Pupils mentioned particular software applications and programmes that they enjoyed using. One of the most popular software packages seemed to be Colour Magic which is used for designing and decorating posters and stamps. More than one group had been using this programme to put borders around stories and projects and designing posters and colouring them in. One group also enthused about making T-shirts using Colour Magic. It was also used to enhance photographs and create calendars using photographs taken on the digital cameras.

Another group mentioned that they also used the draw function on the ‘roamers’<sup>5</sup> to create patterns and images as it moves over the page. They described how they used Composer to drag things down and print them.

At one school the pupils were very proud of some work they had recently completed making CD covers. They had looked at existing CD covers and then by using the webcam they could capture their own image on screen and then make a design round it to make it look like a commercial CD cover. They used many different techniques and the results were very good. Many of them were displayed on a wall in the school.

An interrelationship between electronic potentialities and ‘traditional’ media enables expanded ways of creating art. When they were studying Picasso’s blue period

---

<sup>5</sup> The ‘roamer’ is a programmable robot used to explore control technologies.

(during the winter), one class of primary children took digital photographs and printed out an enlarged copies *“then we’d have to draw around it, like charcoal, and we had to colour it in blue, like different shades of blue.”*

**PE** was a subject where they could not see much use for ICT (this was also very apparent in the secondary students logs where PE never incorporated ICT). One pupil did remember, however, that a coach had come into school to help with football and used a video camera, and another had found a website on which you could design PE games.

## ***Beyond the curriculum***

### ***Animation***

In a number of schools the pupils were particularly enthusiastic about their animation experiences, explaining clearly in detail how they had to *“click the camera three times and then moves the models”*. They had done a short film about fireworks as preparation for Guy Fawkes Night and commented that it didn’t really take all that long.

Another group said they very much enjoyed making step animation movies using plasticine models. Their chosen topics were varied, for example *“a polar bear eating a seal – it was really horrible – because we had to do life cycles and things”* and *“a goal keeper missing the save”* and *“Me and my friends we did a scene about star wars. There was this guy and he fell off this creature and then he got trampled all round”*. They explained the process: *“We connected the digital camera to the computer and then when we were taking the pictures we had to move them the slightest bit, otherwise it would look like he was jumping from there all the way down there, so it would look really weird.”* Presenting their films to parents on the IWB in assembly gave them a ‘real’ audience.

For one afternoon per week over a three-week period, Year 5 children visited their local secondary school to undertake an animation project. Related to their literacy work, their task was to make a cartoon on the theme of the witches from Macbeth. *“It’s like a little cartoon of Macbeth, and it’s only an extract. And it’s from ‘when shall we three meet again?’, then the lightening, all the rain we start from there.”* Grouped in pairs, this was collaborative work. The children explained that the pictures *“don’t move themselves”*, so animation must be designed. Constructing a soundtrack *“with all the witchy voices and all the noises and sounds”* involved speaking and creating noises which had to then be coordinated with the visual: *“It was like a time line, it shows the sound and how long it will go on for, and if it’s too long, you have to pick it out.”* A ‘real’ audience was important. They observed and commented on one another’s progress (*“After each time, we’d put our chairs at the front, and we’d look at each others’, what we’d done so far”*) and were able to show their films subsequently (*“They stored it because instead of going on the website all the time you can just store it, so it’s stored here on the computer”*). The children spoke about this learning opportunity with enthusiasm (*“We were animators”*; *“It was like a real cartoon”*) and said how much they enjoyed it (*“It was really fun”*).

## **Generic resources**

During school trips, children are able to take digital photographs. They subsequently make these into make slide shows “to show everyone else in the class who didn’t go what happened so they didn’t miss out on anything” or to display in assembly.

One child mentioned that she liked using Microsoft Excel and in particular a recent project they had undertaken in their ICT lessons where they had been making timetables and menus. They used Excel to add up the totals of their burger menu and although it was not a maths lesson they had learned that by pressing the E-shaped symbol they could add up columns of figures.

Another child liked Microsoft Word. *“It’s like a whole plain paper and you can like post pictures and then make bad ones look prettier with colours and art works”.*

For a treat the pupils at one school mentioned that they watched DVDs on the big screen and they particularly liked this as it felt as though they were in a cinema. .

Project work, whether in literacy, RE, geography or history can however pall when over-done. *“Sometimes you get to research on the Internet then you write it up, and then you have to do more research and write it up and do it again and again – and sometimes I get fed up of doing it again and again.”*

Another pupil enthused about searching: *“And I really like Google because if I can’t really find anything that really helps me I go on Google and it searches it, like finding out all about the Victorians. There was one on the Victorians where you had to fill in a timeline where the Tudors and all that come”.*

Detailed descriptions of the VLE were signs of familiarity with this resource. Children spoke about the domain options on the Learning Gateway (school, college etc.) and the opportunity to “look at the child and the progress and the results and everything”. They liked the levelled educational ‘games’ that are available: *“You can choose on the site, maths, French, you can click on your key stage and there’s loads of different games that you can choose from to help you with different parts of maths.”* Teachers sometimes used these games as a motivator: *“We played games at the end of the day if we were good”.*

## **Registration**

MIS systems are being rolled out in the clusters at different rates. Groups in different schools in the one cluster spoke about using the IWB for registration. One child commented, *“And it goes to the computer in the secretary’s office, so then they just email the register to you. It’s a lot easier because before we had to do it on the clipboard and somebody had to take it to the office [...] It’s quicker this way.”* In one cluster they used the slate and pen for registration. In one school they *“pass it along from person to person”* whilst in another, it stays on the teacher’s desk and they can use the pen on the board. They look for their name and double click on the square next to it. Anyone who is absent gets a U by their name and then it is sent off. Anyone who arrives after the registration has been sent off has to report to the office because they are late. The pupils all thought that this form of registration was much

quicker than the teacher marking in a book. However at the other school the pupils remembered that they had started completing registration with the 'zappers', but this only seemed to last for a couple of days. They thought it was much better to do it that way because taking registration on paper took too long as the teacher had to keep looking round to see who was there and sometimes the register was late.

### **Voting Systems**

We have commented elsewhere on the different perceptions of the use of voting systems, or 'zappers' or 'pods', but where they were used the primary pupils were enthusiastic. They liked the zappers a lot and one pupil explained *"it comes up with the right answer and it tells you how many people got this correct and how many people go the answer wrong and it shows you when you've done it, down the bottom. When you press the button, your answer, it goes blue."* They felt that this was much better than putting their hand up *"because you put your hand up and you have to wait for the teacher to pick you and you're sitting there with your hand up for a long time"*. Also *"everyone gets a go and all"*. They also liked the confidentiality aspect of the voting system. They were able to save face in front of their peers but at the same time the teacher would know that they had not understood something. *"I think it's better because if you get the answer wrong then the teacher knows that a person needs to know more about it but the rest of the class don't know do they?"*

### **Emailing**

Pupils at one school did not use email at school although several did mention that they used it freely at home. At another school, the pupils had recently been having lessons on how to use email. They used an area called the Cybercafe where they completed exercises which taught them how to recognise which emails can be safely opened and which avoided. *"In the Cybercafe ...you got to go and do all these exercises. Like there's this boy and then he gets sent loads of emails and you have to click on them, then you get to choose what he should do, like delete it or check it for viruses, then at the end it tells you if you got it right or not"*. In another cluster regular e-mail contact was carried out with schools across the world.

### **Home use of computers**

All but one or two of the pupils interviewed had their own computers at home, a position which seems to have advanced significantly during the TestBed development. These had generally not been supplied by the school but had been bought by the children's parents. In one cluster there was still some enthusiasm or taking home the school machines, even though they were Internet-disabled. It is interesting that they seemed not aware that this might be related to catching viruses, and thought that the cards were taken out so that they couldn't go into 'naughty website'.

Many of the children explained that their parents were computer literate, one described his father as a 'computer expert', another that his mum was a 'computer whiz' and so it was evident that many of them were well supported at home. Two schools in one cluster had had some success in recruiting parents to courses on using ICT, mounted by the local FE College (another ICT TestBed institution). In some

cases there were distinctions drawn between the parents, *“Mum went on a computer course and has got a job as a secretary, but my dad couldn’t use it to save his life”*. Some pupils did have frustrations in sharing access with other members of the family, one pupil complained that he is unable to get on his home computer because his older brother constantly uses it for IT: *“He’s got a strong B and he’s trying to get an A, so he’s always on it, so I don’t get to go on it now.”*

Most of the pupils used their computers at home regularly and were able to try out other aspects of ICT.

- *“I’ve got a computer in my bedroom and I get to use it all the time and I like the CDs Microsoft Media”*.
- *“I go on the Internet and then I go on games”*
- *“I think the best thing on a computer is MSN”*
- *“I write stories on mine, it isn’t connected to the Internet”*

In one cluster the children were enthusiastic about home computers supplied by Test Bed but there was evidence of some disappointment with regard to connectivity and hence available resources: *“The school gave us like a computer, and then two years later they gave us the Internet”*. One child said, *“I always go on, because we got a free CD with it, it’s called Switch On, it’s got all these games with it, I always go on that.”* Another added that *“some parts of that CD don’t work.”* Children said that they *“write stories or make pictures and bring them into school and show the teacher.”* At the time of the research, connectivity (described by one child as ‘free for a year’) had been or was planned to be made available to families of this age group (Year 5). In practice there was disparity in that some already had home access to the Internet and others still could not get online.

The children spoke about access the learning gateway, and one commented, *“I always go on the school website.”* They looked forward to being able to access homework on the computer at home or being emailed homework by class teachers. There was some disappointment regarding emailing homework to teachers: *“Our teachers used to say don’t go and email us homework”* [there is clearly a potential problem in unimpaired access to a teacher’s mailbox].

Remote access to the school Intranet was rare, schools are still very nervous of allowing access. In one school the pupils were not particularly enthusiastic about the school website although were aware of its existence as it had been shown to them in assembly. They did not think that their parents used it at all as they had paper copies of newsletters to take home which gave them all the information they needed. In another school, however, the website has access to the intranet and pupils can log in to find out their homework. It is also used to broadcast the school’s achievements. *“We’ve got this intranet and if someone don’t get their homework you can go on the school website and it’s got all the homework up there”*.

### **Resource Issues**

Breakdowns did not seem to be a problem, largely because the use of technicians had given real security and regular maintenance. Sometimes the network was down and they couldn’t get to the Internet. The pupils described how the teacher turned everything off and then re-started it, they were clearly confident that this usually sorted out the problem.

In one school the pupils commented on the disruption was caused by the necessity of regular cleaning of projectors. They were aware of the images becoming less clear and then the projectors being taken away. *“They don’t break down they just get fuzzy and then we have to take them to clean them. The graphics board stops working if you leave it and don’t do anything. If you’re just like working it then you just stop for a minute and then try and work it again, it doesn’t work and turns itself off....we have to use the whiteboard for ages because they have to go to Kent. It took them more days than it was meant to, didn’t it”*

There was an awareness of technical hitches, and there were hints regarding teacher attitudes (from the children’s perspective). One child said, *“Sometimes the whiteboards aren’t as good as they seem because sometimes the whiteboards kind of cease or they don’t work properly, and our teacher probably prefers the blackboard to the whiteboard.”* One group of children spoke about the school technician and an expert teacher, as well as expert pupils who could solve technical hitches.

The pupils all agreed that using the whiteboard was a backward step and disliked putting up with a squeaky pen. The only teacher that used a whiteboard normally was the PE teacher who used it to draw diagrams, they thought that all the other teachers only used it when the projectors were not available.

Pupils in one cluster commented that the images were sometimes difficult to see when the sun was bright. *“Sometimes it don’t work because sometimes when we get sun it don’t show up that bright”* Although the schools had blinds these sometimes had gaps and in that case the IWB was moved in front of the blinds so that the children could see. They reported that often the lights are switched off and lessons take place in a darkened classroom, however *“we can see the board easier. And all the light comes off the board. It helps us see the work as well. When we write we can see from the light off the board and on the projector they’ve got these little lamps so if it gets dark and you can’t see the work that’s on there, they’ve got the lamps to light it up and you can click on, zoom in and zoom out and make it bright or make it a bit darker, so it’s easier to see”*.

The pupils occasionally had problems with the printer but these seemed to be minor glitches that everyone encounters from time to time. The following accounts will probably sound familiar.

*“Sometimes the printer is a bit annoying because sometimes it don’t work. It happened to me, it kept printing and printing and it didn’t work but the printer said it wasn’t but then at the end of the day there were thousands and thousands of sheets printing out of the computer and I couldn’t stop it!”*

*“...it was 18 pages and when I got to the last page the whole thing started going back in and it ate the paper. You had to yank it out and all different colours were splodged everywhere”*.

## **Security**

There was awareness of security and safety issues. In one cluster teachers insist on parental approval for the use of the Internet for pupils and a letter of permission must be obtained before they are allowed to use it.

The children spoke about the need for logging on with passwords and being protected from inappropriate messages (*“if somebody has emailed somebody in a bad way”*). They were also aware of rules and repercussions: *“If we send a bad email to somebody else we will get emailed to the Head Teacher and you will be put off the VLE, and you won't be able to log on anymore.”* The children looked forward to electronic messaging with teachers, and electronic information rather than paper-based letters to take home.

In one cluster after several thefts of projectors, security has been stepped up in both primary schools visited. There is extensive use of CCTV and in one school bars have been put up at the windows. Projectors have individual security devices attached to them. The pupils were pragmatic about the extent of the security. The CCTV footage was considered useful for sorting out disputes and they felt that it enabled justice to be done in some cases. *“Sometimes it's a nuisance, sometimes it's alright. Because sometimes when you can get proof of something. Because sometimes you can get wrongly accused like you can say can we go and have a look at the camera and see who is lying who's not and then you find out the truth and you don't get punished wrongly”*.

## SECONDARY STUDENTS' PERSPECTIVES ON THE USE OF ICT IN THEIR EDUCATION

<b>Introduction</b> .....	<b>20</b>
<b>Key Points</b> .....	<b>20</b>
<b>Student Attitudes</b> .....	<b>21</b>
<b>ICT across the curriculum</b> .....	<b>22</b>
<b>ICT within the curriculum</b> .....	<b>24</b>
<i>English</i> .....	24
<i>Maths</i> .....	25
<i>Science</i> .....	25
<i>ICT</i> .....	26
<i>MFL</i> .....	26
<i>Geography</i> .....	26
<i>Art/Design and Technology</i> .....	27
<i>Music</i> .....	27
<i>PSHE</i> .....	27
<b>Beyond the Curriculum</b> .....	<b>27</b>
<b>Resource Issues</b> .....	<b>28</b>
<b>Security</b> .....	<b>29</b>
<i>Hardware</i> .....	29
<i>Software</i> .....	29
<b>Home use of computers</b> .....	<b>30</b>
<b>Pupils Logs</b> .....	<b>31</b>

### **Introduction**

Year 8 secondary students in all schools reported that teachers use ICT on an everyday basis across the curriculum. The only exceptions were drama and PE, although use of computers in GCSE PE was anticipated. Students recognized that, apart from in the lesson itself, teachers use computers to develop 'work plans', to prepare class work and to record attendance in electronic registers. Teachers nearly always use ICT at the beginning of the lesson, they said, but sometimes throughout and sometimes within the main body of the lesson to explain a key concept.

Students reported that registration was always completed on computer and in PE the teacher has a PDA on which he recorded registrations. The secondary schools have lesson by lesson registration.

### **Key Points**

- Students were generally very positive about the impact of ICT on their learning and the teaching. All of the students were agreed that computers have helped their studies and motivated them to learn but some felt that the momentum had been lost
- Students commented that they could understand things better with the use of whole class technologies because of the different sources of information now available to them.
- Students reported hands-on access to ICT in varying degrees, depending on the subject and its cycle in the timetable, the number of computers available in

the classroom and ICT suite availability. It was clear from student comments that quite a lot depended on the teacher. This produced a variable experience for students

- Maths was the subject, other than IT, in which students had most access to laptops; Modern Foreign Languages had the most use of whole-class technologies by the teacher. The most popular use of ICT for the secondary school students was the making of PowerPoint presentations and developing animations. They found Excel tedious and repetitious. They felt that in ICT lessons, *“you do the same thing over and over again”*
- Homework was almost always required to be printed rather than submitted electronically. Access to a printer could be contentious where the teachers requested printed work but this was challenged by the cost conscious controllers of the printing facilities.
- Students commented strongly on the deterioration in equipment and especially where this was a result of other students’ deliberate misuse, which appeared to be a common occurrence. Classroom laptops were reported by many students as being unreliable (due to batteries and poor wireless networking) and they also noted the deteriorating quality of the light from the projector bulbs.
- Students showed an awareness of poor resource spending decisions and wanted more involvement in such aspects as what was presented on the school website and they wanted more ownership of the computer equipment. It felt to them that there were too many rules which shut them out.
- School filtering systems led to some complaints, as did school control of e-mails.
- Almost all students had access to computers at home; the most common use was for downloading information from the Internet for their projects. Personal use included playing games and using the MSN network for talking to friends. They rarely had access to school networks from home.

## **Student Attitudes**

Students were generally very positive about the impact of ICT on their learning and the teaching. *“I’d be lost without it. It’s improved teaching, that has been very positive, like with the pen – we can read it all the time.”* Clearly underneath the natural cynicism of Year 8 students they were very comfortable with the technology and it had become an essential part of their expectations. Students commented that they could understand things better with the use of whole class technologies because of the different sources of information now available to them. Lessons could be made more fun than just working out of a textbook and they felt that they were progressing faster and most people were working together more and at the same pace. They particularly valued the clarity and visibility that came with whole-class technologies, and commented that teachers did generally come with well prepared scripts for the board. They also commented that the teachers used the Internet as a part of normal lessons.

## **ICT across the curriculum**

It was clear from student comments that quite a lot depended on the teacher. This produced a variable experience for students, clearly an underlying issue in secondary education. Some teachers in the same departments used the whole-class technologies a lot whereas others did not. Students in one cluster were conscious of the varying abilities of teachers to make full use of the whole class technologies and felt that some teachers relied too heavily on the technician to support them. *“The teachers haven’t been taught how to use it and they’re not sure. There’s a lot of calling the technician in to fix stuff, but that breaks up the lesson. You don’t get enough time to get your work done. It happens a lot but not every lesson”.*

The visualiser was also used in assemblies as a means of congratulating students on particular achievements. Medals and certificates can be captured on screen and displayed for the whole school to see. Students also have citizenship lessons in assembly using the visualiser.

Students reported hands-on access to ICT in varying degrees, depending on the subject and its cycle in the timetable, the number of computers available in the classroom and ICT suite availability. There are apparently some disparities between students’ experience of class-based ICT within the same department. For example, one student said, *“We don’t really use it for English or Maths – sometimes we do but not a lot”* whilst another said that ICT was used a lot in maths lessons. Some of this was clearly related to phased use of ICT within the curriculum (one group knew that they were due for a period of laptop use in geography) partly through sharing the availability of laptops and other resources. However, this is also likely to be related to the differing abilities of teachers within departments to make use of the whole class technologies. Some of this variability is no doubt equalised over the whole school career and sampling only one year of students can produce a non-representative picture.

In one cluster, students commented that whilst they used to watch videos on the screen, now some of the teachers just put words on the visualiser from paper and *“don’t use what we have to its full potential”*. Another student described a lesson where the teacher just read something off the screen and *“I was just drowsing....she could use PowerPoint, she can use Publisher, Word, you can use all this stuff but she doesn’t. They should put more effort into what they do”*.

The BBC website seems to be a widely used classroom resource. Whilst many students were ambivalent about ICT in teaching and learning, one commented, *“There’s always something good on there that we would like to do.”* On the other hand Repetition of activities can get tiresome *“I don’t like computing – we go on the BBC website every time and do the same thing.”*

The most popular use of ICT for the secondary school students (also the primary school pupils) was the making of PowerPoint presentations. The students interviewed all considered themselves to be competent users of PowerPoint and could produce animations. But they enjoyed seeing what everyone else had done. At one school they had all presented a PowerPoint called ‘All about me’ when they first joined the

school. This was something they really enjoyed because they felt that this style of working also gave them an insight into each other's personalities. *"You can tell by the style of some people's work what they're like. There was this boy I know quite well but I didn't know how he worked until I saw (his PowerPoint) because I didn't know he was that kind of person. So I think it's better seeing than hearing, talking to me"*. Students also felt that PowerPoint was something that even those students with less ability and confidence on computers could use. *"Some people make it funny if they're not very clever at the subject. One boy did lots of bits on his PowerPoint and it was funny so we concentrated more than we would and sometimes that is just as good as someone who is really clever and doing loads of things."* They also liked the fact that they could share their work with everyone and not just the teacher. They found this very motivating.

The least popular was Excel which is used in Maths, IT and Science. They did not find Excel difficult to use but found it tedious and repetitious but at the same time recognised its value. *"Excel is something that you need to know"*.

Students in one school commented that they would have liked to have more input to the school website where they felt that the content was aimed more at adults. They would prefer to see their own work on the website and felt that they could make valuable contributions to it if they were asked. They had ideas for putting competitions on and displaying artwork. *"They should show special things that the children have done in the school"*.

They felt that they would like more ownership of the computer equipment. It felt to them that there were too many rules which shut them out. They expressed the wish to be able to personalise computers by designing backgrounds but at the same time they did recognise that some students abuse the system by downloading *"bad things and sending bad emails"* and felt it was justified when these students were banned from using the Internet. The use of emails varied, but one group of students used them quite a bit and were about to start email pen palling with some German students. In one school the students had developed a way of chatting through their laptops in class until this was stopped because of swearing and bad language and because it detracted from working. Music channels are also often blocked in order to avoid distractions.

Students in one cluster reported that they had recently been using digital cameras in IT lessons to contribute to a forthcoming presentation about the school. They had been going round the school taking pictures of classrooms. More often, the teachers use the digital cameras to record particular events at school and the students recalled that Red Nose day had been recorded and then shown to the whole school in assembly. This seemed to be popular with the students and an effective way of promoting cohesion within the school. *"It's quite funny seeing everyone because they don't know they're being taken so that you're in a certain pose and it can be embarrassing!"* The students commented that the video was particularly effective because the technician had taken the time to add in short videos on life in Africa and it looked very professional and was also educational. As one student said *"we learn more by seeing the things"*. In another school the students used digital cameras very rarely and video cameras not at all.

At one school, use of the ActivSlate had not been very successful and currently only one teacher was using it regularly. They felt that whilst the principle of mobility was a good idea, in reality, *“If you’re at the back of the class with the writing slate you have to hold it up in the air or it doesn’t work. You can’t walk around with it. The nearer you are the clearer it is”*. The students were disappointed because they could remember interacting on the board in Year 7 and also at primary school. Some of their frustration is related to their perception that the school has been given a lot of money and not spent it wisely. *“After all, our school is getting so much money ...they should buy what they are going to use”*.

All of the students were agreed that computers have helped their studies and motivated them to learn but in one cluster, some felt that the momentum had been lost. *“It really helps with my education. In Year 7 we were all motivated because we can relate to IT and at the same time we were learning something but now because we don’t use it that much, our grades are going down”*, *“If people get bored they muck about. If you’re not bored, yeah, and you’re going on the computer all the time, you’re going to do a lot more work because that’s the way it is”*. In IT lessons some students remarked that they felt very impatient when the teacher was showing them what to do. They just wanted to get on the computers themselves. They liked the way the teacher could take over their computers and show them what to do. The students interviewed all agreed that they would like to do more work on computers and less using textbooks and paper. They looked forward to a time when they might have their own individual computer in school and the teacher *“could just log in and check your work”*.

### **ICT within the curriculum**

The Year 8 students gave examples of ICT use in subjects across the curriculum.

#### **English**

One group said that the ‘big screen’ is normally used by the teacher at the start of English lessons only, but there are limited opportunities for hand-on access: *“English is not that much to be honest [...] in English we don’t use it that much.”* They said that they do not use the school computers in English because of time constraints, but they take work on floppy disc to complete at home. One school did have regular weekly lessons using the laptops, using Global English, which was perceived as a rich source of hands-on experience.

ICT is used mainly for writing letters, poems and essays in English, some students said, although they can choose whether they word process or write by hand. The redrafting potentialities of the computer should not be underestimated. Although provisionality is not new, its benefits remain highly significant for written composition. Interestingly, one student felt that using the computer to write reports in English depersonalised his work and although he admitted that more work could be produced by using the word processor and writing by hand takes longer *“I just think that sometimes you should write it out by hand because it makes it more your work”*.

One class was assessed on presentations using PowerPoint on the theme of Frankenstein. This entailed speaking, not just showing the presentation. The students said this was ‘good’ and ‘alright’. One English teacher was seen as adept at using

animations in her PowerPoint presentations which was popular with the students. Video was also used regularly and the value of whole-class technologies in incorporating videos was valued.

### **Maths**

Maths was the subject, other than IT, in which students had most access to laptops; in part through the use of SIR as an individual scheme but also through the use of learning games on the Internet. An advantage of a maths resource widely used in one secondary school was that *“it will be linked definitely always with the subject”*. One of its functions was seen to be providing *“like worksheets, find out how to add, multiply and divide and stuff.”* Other features of the resource used with the whole class, like *“explaining what to do”*, was not always viewed positively: *“It gets boring and people like fall asleep.”*

In one cluster the maths teacher used an Internet resource where tests are provided and the students do these for homework. They also used Excel where they had been doing equations. They described how the teacher gave them homework on the Internet which they could do from home and the results went back to the teacher automatically so he could see how they had done, when they had done it and what their results were. However, all the students interviewed had their own computers at home and access to the Internet. Those without these facilities at home would rely on using the computers in the library.

In another cluster there was a clear timetable of weekly access to the laptops, and the students had been collecting and analysing information using pie charts. They also used the Internet regularly to utilise mathematical games and activities.

### **Science**

ICT can enable teachers to do things that cannot be done so easily or even at all in other ways. There was no hesitation in naming science as a subject where ICT – and in particular the whole-class technologies – was used regularly. The ability to show animations and videos was considered to be a benefit of the ‘big screen’ in science. There is little use of laptops in science but a significant and varied use of the whole-class technologies.

One group particularly enjoyed making and presenting a science topic (*“It was really good you know”*). Having chosen a focus on drugs, one student accessed information from the BBC website and created 15 slides in his PowerPoint presentation. The students liked the opportunity to share what they had learnt (*“it was really good to find out”* from others) and to make comments. The context was organized sensitively, so that *“like you’re not forced [...] if you’re not feeling comfortable with it.”* The students agreed that they learnt a lot not only through their own research into topics of their own choice, but also about other people’s subject matter.

Another school used a program called ‘Crocodile Chemistry’ *“it is a simulator thing, you have Bunsen burners and things and make your own experiments”*. They mentioned the BBC Science website and an activity related to positioning organs within the body. They also mentioned the electronic microscope which is connected to the whiteboard to enable class observations.

## **ICT**

The students considered it quite a joke to say that they use ICT in ICT lessons. Spreadsheets, collecting and analysing data, and finding images for presentations were mentioned. They said they enjoyed designing leaflets and advertisements but found control technology tedious. One group of Year 8 students complained that ICT as a subject is boring “all the time”, but use of ICT in other lessons for presentations and research is okay (“*I don’t get bored*”). They said that, in ICT lessons, “*you do the same thing over and over again – analyse every piece of work you do – and even though you have to learn, it’s boring*”; “*It’s like the lesson and you’ve already learned it and you have like another four lessons on the same thing.*”

## **MFL**

Modern Foreign Languages had the most use of whole-class technologies by the teacher of any subject. In MFL, the students used PowerPoint to make presentations about what they like to eat to the rest of the class. They said it can be embarrassing to speak to the class “*in like German or whatever language you’re doing*”.

In one cluster quite complex PowerPoints were used in a particularly interactive manner to enable pupils to match and translate words. The students also use the Activote pods regularly in French. Students in one cluster reported using a programme in French which had all the exercises and vocabulary but also watched French TV. “*We watch a whole conversation and try and pick up something. What words you know. Like children’s programmes and stuff*”. They had also recently used video clips of a family “*and you had to think of what part of the family. They said it in French and they described themselves and then you’ve got to write down what they’re saying and then you read it again.*”

In one cluster a small number of students have been studying Latin. The course is on computer. This was popular as translations are quicker on screen. The computer course enables students to immediately translate a word just by clicking on it, although they then had to put it in the correct version or tense to fit in with the sentence. Other students in the group commented that they did not have this facility in French and still had to look things up in the back of a book. The Latin students are also encouraged to email in their homework.

## **Geography**

Students reported using the ICT suite during lesson time to find web information. The Year 8 students in one group said, “*We use it (ICT) in geography mostly*”. They were of the opinion that the direction to particular websites by the teacher is “*really good because he explains to you and he helps us to understand stuff.*” The intimation is that good teaching and learning is to do with good teachers as well as the quality of resources.

In one cluster the students had recently been making PowerPoint presentations to the rest of the class on a project about Brazil. They felt that making PowerPoint presentations was much better than writing it all out.

In one school it was clear that geography was the subject which led the students into using their home computers most for homework – indeed from the way they talked it

was the only homework they did. They were regularly finding information from the Internet to support their school work.

### ***Art/Design and Technology***

The students spoke about designing breakfast club posters for a competition. These were displayed in the school hall. One school used electronically controlled sewing machines regularly, used computers to plan their designs and used Excel to analyse consumer tests on their cooked products.

### ***Music***

Students commented on the ability to hear music through keyboards attached to the PC and the potential for improving compositions. There also appeared to be quite a lot of use of videos in music – some students entered ‘watching videos’ in their logs as an example of them using ICT - a questionable definition!

### ***PSHE***

Year 8 students in one secondary school have access to the computer suite for PSHE in three-week blocks. This often entails use of the web (the BBC website in particular) and results in PowerPoint presentations to the rest of the class. There was a mixed response as to whether the students enjoyed this or not. Those who liked this learning opportunity said that they get to use the computer (which they like), that *“you get different ideas”* and that *“you feel like doing it yourself”*. It was a little surprising in the student logs to find PSHE/Citizenship as one of the more consistent subject-uses of computers.

One school had run mock elections and one student commented that they had downloaded material from the Internet to make election PowerPoints – he commented that the right candidate had been elected!

### ***Beyond the Curriculum***

Students particularly enjoyed creating animations and making websites for new students. Free choice was also popular. This was granted at the end of term or if they finished their work in time (*“if you complete the work you’re allowed to go on and do what we want”*). They said they use this time to listen to music and play games (playing computer games in school is not normally allowed). Repetition of activities can get tiresome *“I don’t like computing – we go on the BBC website every time and do the same thing.”*

Making PowerPoint presentations was popular with most students and many had been taught how to use it in their primary school so considered themselves to be ‘expert’ users.

In one cluster, some of the students had recently started to learn touch typing. They were very excited about this. The screen has pictures on it and the way the work is presented is *“really fun instead of just going to sleep”*. They also play games in touch typing. They particularly like the instant scoring system which would tell them immediately the speed they had typed at and how many mistakes they had made so that they were immediately motivated to try and beat their previous score, much like the more commercial computer games they might have at home.

## Resource Issues

The students said there is a 'big screen' or an interactive whiteboard in 'nearly every room' in the school. It was considered that whole-class display technologies are more efficient than the blackboard because *"you get chalk everywhere and you look a mess"* and because writing can be prepared in advance and displayed immediately. It was unclear whether the IWBs are used mostly as a display technology or for their interactive properties. Opportunities to write on the IWB were appreciated by one group who said this happens often and in all subjects. A student from another group commented that they get to use the pens *"only if we have teachers ask questions and we answer them on the board"*. One student felt that ICT can help with understanding concepts: *"Like if they're tired or something and they don't understand then they can like show it on the PC and it shows you how to do it and it's easier to understand."*

Classroom sets of laptops were seen as very unreliable. *"I don't like the way the laptops don't work - the batteries are low and when a lot of people are using it it is very slow to get on and the servers regularly go down."* *"The IT suite works OK but the laptops are always broken - the batteries are flat and you have to go up to the technicians' room and it takes up time."* *"The laptops hardly ever work - its sometimes OK first time to log on in a morning and log off, then in the afternoon it doesn't work. Teacher's machines work 'cos nobody else uses theirs - they don't have to log on and off."*

With regard to computers in ICT suites, one student commented, *"Some of them don't work but there should be enough to go round."* Where classrooms do not have enough computers for one per person, they take it in turns. In one cluster the students commented that although there were computers available for them to use, some were *"very old and too slow, they take about half an hour to load up"*.

In one cluster the students were quite outspoken about their perceptions of unfairness in the allocation of resources in the school. There had recently been some thefts at the school *"You know people were robbing the projectors, we had to wait a really long time until we got another one. Some kids, their parents don't care about anything"*. Resources have subsequently been used to improve the security system but the students felt that there were more fundamental requirements. *"and the money that they have used for a security system should have gone to our canteen because right now we don't have a canteen"*. Another student commented *"I think all the money they spend on new computers they should spend on our canteen as much as I like computers and as much as they help. I decided I was going to tell the truth to you and not just praise it, but I'm disappointed and to me, it's really disgusting"*. They also felt that the money had been spent securing equipment that was failing anyway. *"At the beginning of the year everything was really good, everything worked, but now nothing works any more. And all of the money that they've spent is a waste because nothing works."*

The students interviewed also commented about the lack of respect some of their fellow students had for the equipment and they found this frustrating. *"People in our school year, even at the beginning when the new IT room was there, people kept on sticking chewing gum under the tables and breaking the chairs. In the IT room,*

*because of that, they put carpet, and that was a bad idea. They should have just left it plain because if there's chewing gum, it won't stick to a hard floor. People just don't care".* Another student said *"Some people do not take care of anything, they just think it's their property ...there are people writing on the computers and you think, why, why would you want to do that? Why wouldn't you want it to be nice and clean?"* Other students complained that the balls had been taken out of the mice and that the sound did not always work. They all commented on the school's dependence on the technician who was very quick and efficient but occasionally was called upon to work at the upper school on another site.

Access to the printer was a very contentious issue in one school where they felt that they were encouraged by the teachers, on the one hand, to produce printed work, but often thwarted by the cost conscious controllers of the printing facilities. *"Some people don't have printers at home and they have to come to school early in the morning to do it and they're not allowed to print out their homework and they get into trouble and ....it's not nice. And they're always complaining about how it costs too much money but the thing is we're not using it for other things, we're using it for our school work. If they want us to do good then they should allow us".* *"They say well when the colour cartridges have gone, that's it, there's no more colour for this school".* Some students have discovered that they are less restricted by using the ones in the Learning Support Unit where printers are faster.

At one school the students had noticed the deteriorating quality of the light from the projector bulbs. Also the remotes are compatible with all the projectors and so these are often 'borrowed' from class to class and subsequently some disappear altogether. Although they found these distractions irritating they were fairly pragmatic as they remembered that even when using the ordinary whiteboards, the pens constantly ran out and teachers had to find replacements. Blinds in some classes are *"proper broke and it's really hard to pull them down"* which makes it difficult to see in the summer.

## **Security**

### **Hardware**

The increased security measures in one school have included the purchase of metal casings to surround the projectors. This has caused some problems as the projectors slip out of alignment. *"With the metal casing you only see half the screen. They need to move it slightly and make sure it's in the right position".* Other students in the same school reported that in almost every classroom the image was not straight and in one class the projector was propped up with a small toy to keep it from moving.

### **Software**

One school's filtering system was a thorny issue for many students because the 'blocking' does not allow them full access to the Internet. Some complained that they do not have Internet passwords for free access to the Internet (the passwords are changed every day) and *"they don't let you go on the Internet without a password."* Passwords are given out by teachers in lessons on an as-needed basis, they said. This gives access to a limited range of websites: *"You can go on the BBC but some of the websites, most of the websites are blocked except for BBC."* In another school the students felt very frustrated at the number of websites that were blocked and what they saw as over zealous interference in their work. *"And she kept coming on to our*

*computer and crossing out bits that we needed and she wouldn't explain ... the librarian said we were going to break it but we were trying to do our work and they never explain nothing....they think that children are never right.*" One student explained that sometimes it could be difficult researching on the Internet for science subjects. In particular she had recently been studying STDs and found that every website was blocked.

Similarly, students felt that they should have more control of their use of email. They had been told that all their emails *"go on a certain file so teachers can check that they're not being rude. I reckon we should be allowed to use it because if you've got people on the other site that you want to speak to you can speak to them that way. The teachers don't like us using it"*.

### **Home use of computers**

Students in one cluster were pleased to have received a home Test Bed computer but were frustrated that connectivity had been so heavily delayed (*"like a year"; "they have taken so long"*) with the consequence that those without a home ISP were unable to *"link it up with the school"*. Disparities in Internet access were evident across the secondary groups in one cluster. One student commented, *"I have one of my own and the school's, and when I want to go on the Internet I use my Dad's and every time I just want to do work I use my own."* Another uses the Internet to revise (Bitesize). The students also saw a potential benefit of connectivity as being able to access web information for research in subjects across the curriculum, and that this was *"really boring before"* (Internet connectivity).

In the other two clusters the students almost all had access to computers but these had not been supplied by the school. They were aware of inequalities in computer provision and that some students just had to do their work using pen and paper but it also meant that some students could do research at home and others did not have the facilities. Computers were available for student use in the library and could be accessed before or after school but at break times it was difficult because too many students were chasing too few computers. Access to printers was also restricted, particularly for colour printing, so many were printing their homework out at home. In general homework could not be presented electronically but had to be printed off.

Some students have discovered incompatibilities between the software on their home computers and that on school computers. This has affected their ability to transfer work from school to home for completion. Others found that computers had given them a 'valid' excuse for missed homework. The new 'the dog ate my homework' is simply that the computer crashed.

Common home computer uses were using the Internet for information for projects, but there was also a strong commitment to using the MSN network to talk with their friends. There was some downloading of music but it was not general and Internet games were popular.

## Pupils' Logs

16 pupil's logs were returned, and although not entirely reliable (due to different perceptions of what constituted ICT and indifferent attention to the task) it was possible to glean some interesting information. Although anonymous there were clearly students in the same classes, evidenced by the subjects studied in each day and this gave some collaborative evidence for the measures. Six classes were identified (2 from one cluster, 1 from another and 3 from a third) and approximate averages found for the length of day spent using ICT – which for the teachers was almost entirely using the whole-class technologies. For the students it generally related to using computers – either in ICT suites or class sets of laptops. The use of ICT for registration was not included in the calculations.

	Proportion of time per day spent by pupil using ICT	Proportion of time per day spent by teacher using ICT
Class 1	0.1	0.2
Class 2	0.17	0.34
Class 3	0.1	0.2
Class 4	0.15	0.33
Class 5	0.2	0.5
Class 6	0.18	0.25
OVERALL	0.15 = 45 minutes per day	0.3 = about one third of the day

Homework was also interesting in that whilst 10 students admitted to doing some homework with the exception of one prolific student (with 7 references) they noted only one homework using ICT each per week. RE was the most persistent with 5 entries and English second with 4 entries, geography had 3, maths and art 2 each and science 1 entry. Each homework took about one hour and was generally described as 'research' or 'finding pictures'.

Subject usage was also analysed:-

Subject (approx number of lessons per week)	Percentage of lessons with pupil usage at least 50%	Percentage of lessons with pupil usage of 100%	Percentage of lessons with teacher usage at least 50%	Percentage of lessons with teacher usage of 100%
English (4)	20	10	30	5
Science (4)	2	1	44	17
Maths (4)	27	25	42	13
MFL (3)	15	12	75	20
ICT (1)	100	80	60	25
DesignTech. (2)	25	25	20	15
Geography (1.5)	12	12	47	12
History (1)	12	6	33	12
PSHE/Citizen'p(1)	20	13	33	6

Some subjects differed significantly between clusters, notably Design Technology and MFL where in one cluster there was significant use of ICT and much less in the others. The patterns on the core subjects remained very similar. It is worth noting that science made much use of teacher technology but almost no pupil access, and mathematics was confirmed as a vehicle for high pupil access. Other subjects (RE, Art, Music, PE) showed little use of ICT except by the teacher, though music scored quite highly due to the promotion of watching a video as pupil/teacher involvement.

# THE LEARNER EXPERIENCE OF ICT IN FURTHER EDUCATION

<b>Introduction</b> .....	<b>33</b>
<b>Key points</b> .....	<b>33</b>
Issues to consider.....	34
<b>ICT across the curriculum</b> .....	<b>35</b>
<b>ICT within the curriculum</b> .....	<b>36</b>
Science .....	36
Hairdressing .....	36
ESOL.....	36
Photography .....	36
Built environment.....	36
Childcare .....	37
Plumbing .....	37
HND Design .....	37
<b>Beyond the curriculum</b> .....	<b>37</b>
Learner perceptions of tutor use of ICT .....	38
Learner attitudes to ICT.....	39
<b>Home use of computers</b> .....	<b>40</b>
VLE/shared areas.....	40
<b>Resource Issues</b> .....	<b>40</b>
<b>Concluding comments</b> .....	<b>42</b>

## ***Introduction***

This report is based on learner feedback from 11 different curriculum areas in the three ICT Test Bed colleges. The study took place during the summer term in 2005. Data was collected by interviews with learners as they neared the end of their courses at the college. Eight focus group interviews were conducted with learners in two ICT Test Bed colleges. The groups were of mixed gender, ethnicity and age and were taken from all ICT Test Bed curriculum areas. In the third ICT Test Bed college, 13 students completed a question sheet about their use of ICT and this was supplemented by feedback from learners in written and video reports.

## ***Key points***

Students in ICT Test Bed areas are overwhelmingly positive about ICT – both in terms of helping them to do their course and in their attitudes to technology. They see ICT as a useful, in some cases essential, tool in helping them succeed on their courses. Students reported many types and frequency of use of ICT in different curriculum areas and with different tutors. It is however clear that the guidance and support from their tutors is a vital factor in maintaining their momentum and motivation.

ICT test Bed has made their life easier in a number of ways

- It has removed the need to go to the Library and share what may be older and slower hardware.
- They can cut and paste into their work and this saves typing
- The spell checker helps them with their writing

- It is easier and quicker to get information from Google than books
- In some subjects, information on the web is more up to date than the books in the library
- They can get course notes and assignments from the VLE.

ICT Test Bed has improved their work and their learning in a variety of ways

- better presentation of assignments and portfolios
- fewer spelling mistakes
- tutor has more time for individual help
- use of digital cameras and video
- digital portfolios
- better access to hardware for study purposes
- access to a wider range of information
- learning materials available online for consolidation and revision, particularly when they have trouble with specific topics

Students rated word processing and the Internet as the most useful technologies, probably reflecting their priorities of completing their assignments and getting as high a mark as possible for each one.

Printers are the next most important component of ICT equipment; reflecting the still largely paper based assessment system in colleges. Students regularly print out pages from the Internet so they '*don't lose the information*'. As yet, few colleges charge students for printing and large amounts of paper are used. Consequently, failure of printers for whatever reason is an important cause of frustration with ICT.

### **Issues to consider**

- Hardware is frequently criticized for being slow; slow to log on and slow Internet access are the most common comments
- Losing work due to technical problems causes frustration although students do realise that more frequent saving of work would avoid much of this
- Students are reporting some health and safety issues with using laptop computers for long periods.
- Power issues with laptops are increasing; as the batteries age, the length of time they can be used is decreasing and access to power sockets is sometimes a problem.
- Students with lower levels of skill and confidence in the use of ICT find there is an assumption of good ICT skills that causes problems for them.
- Some more mature students appear to be reluctant to use ICT on a regular basis.
- Few students have good keyboard skills and this can slow their progress.
- In some cases, other (non ICT) equipment has not been updated along with the ICT equipment
- There is a need for college systems such as technical support to perform to a level commensurate with the ICT.

## **ICT across the curriculum**

Within the curriculum, ICT Test Bed has had two main effects; it has enabled areas that already had ICT equipment to update and expand their resources and it has brought ICT hardware and software into curriculum areas which traditionally did not have such resources. In these areas, students reported that the new equipment “*has made a big difference*”.

Some students are able to access a computer at any time they are in college while others have some classes in ordinary classrooms and only use the computers once or twice a week. “*We can get a laptop out when we want and use it for Internet or whatever. This has been very helpful. There isn’t any waiting for equipment.*”

New resources and capabilities that have been made available to students as a result of ICT Test Bed include

- Interactive whiteboards
- Plasma screens
- VLEs
- Specialist software
- Specialist equipment such as printers, scanners
- CD and DVD writers
- e-portfolios
- video conferencing

Within the curriculum, ICT Test Bed students are using ICT for a wide range of tasks and activities including

- Sending email
- Communicating using Messenger type programs
- Word processing
- Storing their work
- Spreadsheets
- Finding and evaluating information on the web
- Extracting information from the web
- Creating presentations using PowerPoint
- Taking and manipulating digital images
- Scanning from photographs, books and magazines
- Integrating multi media components into documents
- Playing music
- Playing games
- Creating and editing digital video
- Creating and copying CD/DVDs
- Using the VLE
- Video conferencing

## **ICT within the curriculum**

Learners gave many examples of the use of ICT in subjects across the curriculum. It was common across all ICT TB areas to find that students were using the technology to create their own presentations in order to present the results of their research or assignment work to the rest of the class. These were often created by working in small groups although some students did create individual presentations.

### **Science**

In a Science group, video conferencing has been used to enable students to continue with their class even though the tutor has moved to the USA. The college team had to overcome a number of technical problems but the students have found the online teaching and learning both helpful and enjoyable, *“It’s as good as it was when the teacher was here, so it means we can continue with the same teacher, teaching us in the same style that we’re now used to”*. Another commented *“it’s just like a normal lesson”*. However, another student commented, *“it does require patience at times and imagination to see how different elements can be used together but if this effort is made it is certainly an option worth pursuing.”* In spite of the technical problems, the classes generally worked well with what was a relatively small group of students but such interactions may prove more difficult to manage with larger groups.

### **Hairdressing**

Students have made extensive use of digital cameras to create evidence for their NVQ portfolios. The portfolio is presented on CD or DVD and has been well received by the external verifier and the awarding body. A DVD has also been created for use as a publicity tool on visits to schools or job centres. Students have also created presentations and included these in their portfolios. Class demonstrations have been videoed and made available to students via the VLE. Students also used discussion groups on the VLE to communicate with the tutor and each other.

### **ESOL**

Students reported that they enjoyed using specialist software programs such as word matching programs, plurals, grammar trainers and online dictionaries and these helped them with learning the language. Students were working on an assignment which required them to create a PowerPoint presentation. They said they were enjoying this as it gave them the opportunity to describe some of their interests and this helped them learn about each other as a group.

### **Photography**

Students have benefited from increased storage space for their digital project work on a dedicated server. They have access to a 3D studio with industry standard equipment for practical work and technical studies. Students have welcomed the wide format printer which has enabled them to create some really innovative work for their portfolios.

### **Built environment**

Students were making extensive use of course materials on the VLE. They valued their easy access to a dedicated computer suite for their curriculum area where a tutor was available to answer questions and help with specific topics. Students were able to access AutoCad for design work and used Messenger software to send work to

themselves, to other students and to the tutor. This was said to be useful because they can use it as a file storage area and pick their files up at home.

### **Childcare**

Students have used PowerPoint to create presentations for their portfolio. They have also used the Smart board to create flip charts to record class discussions and to create diagrams, for example, spider diagrams where students took turns to add to the diagram. Using the interactive boards has given them valuable experience that they can use when on placement or working in nurseries, where many have whiteboards. Students have also worked with children from local nurseries. The children brought their drawings into college and students helped them to convert the pictures to digital format and recorded their voices. They then created a storyboard using MovieMaker and created CDs for the children to take away.

### **Plumbing**

Mind mapping software has been used by a plumbing class to create installation diagrams. Students reported that they liked taking part in the exercise and felt that the technique engendered a lot of discussion and this helped their learning as *“it builds knowledge bit by bit so you can ask if you don’t understand”*. Teachers have been using mind maps in this interactive way since the 1960s (Buzan, 2002<sup>6</sup>). Use of ICT adds a new dimension to the technique by enabling much larger and more sophisticated maps to be created. ICT also improves presentation of the map and its various sections, facilitates the use of photographs and enables the finished product to be printed.

### **HND Design**

Students reported that the Smartboard has helped them in learning to use the various software packages they need for the course. They commented that the large size screen has been beneficial for displaying images and designs which the class can discuss and evaluate. The class has been working on a project based on the Olympic bid where each student chose their own specific pathway; some of the projects were creating an Olympic torch, a stop watch and a travel card. Design students also make extensive use of MSOffice software particularly word processing in writing up and evaluating their projects.

### **Beyond the curriculum**

The wide range of ICT enabled activities discussed here suggests that learners need a matching range of ICT skills. All the students in the study were nearing the end of their courses and not surprisingly most rated their ICT skills at a high level. Most claimed to already have good ICT skills when they started their college courses. Of the others, most said they were able to get by with help from other students and tutors. All student groups felt there was an ethos of helping each other and sharing tasks. A minority of students said their skills were still not very good and suggested that ICT can be *“a bit confusing when you don’t know how to use the computer properly”*. Students for whom English is a second language can find ICT particularly confusing

---

<sup>6</sup> Buzan, T (2002) How to Mind Map. Harper Collins.

and some more mature students expressed reservations about using computers. It is not surprising that those who lack skills and confidence may be reluctant to use ICT in the ICT intensive environment that ICT Test Bed has created, as their lack of skills will be apparent for all to see. To address this, all courses include specific ICT sessions for students at some point in the week, particularly in the early stages of the course. These sessions are often linked to ICT key skills. Students said that these were helpful in helping them gain skills and confidence in using ICT.

With the increased level of ICT use in ICT Test Bed areas, and its increased importance in their course, some interviewees commented that keyboard skills would be helpful as they could get their work done more quickly. Few students had had the opportunity to gain keyboard skills at school and many are one or two fingered typists which inevitably slows them down. Some students had experience of keyboard trainer programs from school or college but few had persisted long enough to develop good keyboard skills; keyboard trainers were generally seen as boring. A common comment was that they found writing (and by inference writing at the computer) difficult. Some are looking forward to voice recognition software doing the task for them.

### ***Learner perceptions of tutor use of ICT***

It appears that not all tutors make use of the ICT to the same extent reflecting their individual preferences and perhaps skills. Some tutors are reported as using the interactive white boards '*all the time*', particularly in the theory parts of the courses. Some tutors are integrating video clips with their presentations and making them interactive through the IWB. Learners were accepting of the differences and not judgmental about their tutors' use of ICT. We must be careful about gender stereotyping but one or two comments were made (by male students) about their female tutors who they felt were not using the technology as much as their male colleagues. "*She uses the board less, but that's because she doesn't know how to use it and gets in a mess*". However, students are more than willing to show their superior ICT skills and clearly enjoy being able to help tutors when they get in a mess!

PowerPoint was mentioned by several students as helping them with the theory elements of their course. Students commented that "*the slides are clear and easy to see*" and tutors were "*using video and animations in their presentations*" that helped to illustrate the topics. Students were often given printouts of the slides which they liked because it reduced the need for them to take notes. Additionally, many tutors were uploading the PowerPoint presentations to the VLE for the students; this enables students to review the material and is a benefit when they lose the original printout..

In several curriculum areas, students talked about specialist software that their tutors used. For example, mind mapping software was used by a construction class to create installation diagrams and ESOL classes used specialist language software both in whole class interactions and for self study.

## **Learner attitudes to ICT**

Learners were generally extremely positive about computers and how they were used on their courses. One student said he “*avoided ICT at school*” but had found that ICT had been very helpful on the course at college.

All students in the study stated that they made frequent use of the Internet for information for their assignments. The use of books appeared to be declining although there was an appreciation that information on the web can be misleading or even wrong and that books were more likely to give them reliable information. In some curriculum areas, students commented that the books in the library were insufficient in number or out of date and the Internet was then their major source of information. More mature students were more likely to use books to find information.

Students generally felt that ICT makes their college life easier

- email is used to communicate with fellow students and tutors and to send and receive assignments.
- messenger type software facilitates communication in classrooms and outside and provides storage space
- spell checkers and grammar checkers help them create correct text
- word processors help them present well formatted text with images and diagrams
- the widespread use of PowerPoint presentations means they are given printouts of the slides and need to take fewer notes. They can frequently access the presentations at a later stage on a shared area or the VLE
- The VLE provides access to course information and learning materials at any time and any place for practice or revision. They can learn at their own pace and some tutors have created tests and quizzes where they can get instant feedback and scores.

To realise these gains, learners are not only being expected to learn new ICT skills as discussed earlier but are perhaps being asked to work in different ways. Many students have a traditional view of education and may find it difficult to interact effectively with resources like a VLE. The VLE means that students can access their course materials at times when they want to, which may not match the expectations of their tutor. In some cases, this access is restricted to within college but increasingly they can access their learning materials from anywhere.

Students are appreciative of being able to access their course materials online. They now have the opportunity to take more responsibility for their own learning and even to take control of the learning. Some of our learners have realised this and one commented, “*because we were partners in a new form of teacher and student relationship, I felt I had more responsibility for, and control over, my learning*”. For this student, it had clearly added to his performance on the course and to his self esteem.

Another learner commented, “*we can get our assignments or look at the syllabus at any time, Sometimes we have to ask [the tutor] if we can have the next assignments.*” Again, this demonstrates learners taking increased responsibility for their learning.

However, a VLE can be merely a way of presenting documents; the tutor controls what is there and when the learners can access it. Learners then have little or no additional responsibility for their learning and may even have less independence than with traditional methods.

A very small minority expressed a general reluctance to use ICT and these tended to be more mature students, female students and students for whom English is not their mother tongue. As discussed earlier, more mature learners have generally used ICT less than younger learners, and language problems can make using ICT more difficult for some learners.

### **Home use of computers**

Most but not all of the students interviewed had computers at home. Similarly, most, but not all, of the students interviewed were regular users of the Internet in their leisure activities. One student commented that although she had a computer at home, she couldn't get on the computer "*because of her children*". Students reported that they used their home computers for e-mail and leisure activities but also to help with their courses. Several students said they didn't have some of the specialist software they needed at college so did their work at home where they had the software.

### **VLE/shared areas**

Increasing numbers of students were using their home computers to access learning materials for their course using the VLE or web sites created by their tutors.

*"having stuff on the VLE is helpful. We can revise for tests. If we miss a class we can get the notes easily. There are videos of class demonstrations"*.

Some tutors have created assessments for the students to do on the VLE. *Tutors have created quizzes*". Students said they quite liked these as it helped them revise by giving them an idea of how much they knew and what they still had to learn..

This ability to access materials from outside college has helped specific groups of students such as NVQ plumbing students who are mainly self employed and sometimes cannot get into college if they have a job to do. Another student had a long stay in hospital but was able to continue with her course by accessing the course materials from the hospital. Prior to this capability she would not have been able to continue with the course.

### **Resource Issues**

All ICT TB students are in the enviable position of having dedicated hardware and software within their own curriculum area or physical location. Very few students expressed any real dislike of ICT or disadvantages in using ICT in their own areas. There was a comment that use of a word processor to produce assignments produces well formatted and professional text but it appears to be much smaller than their original hand written notes and it appears as if they have done less work.

Students were pleasantly surprised by the range of hardware and software available on their course; most had not expected to be using so much technology so often. However, they do not feel the same about computers within general college areas such as libraries and learning centres. These were generally described as “*slow*”, “*don’t work properly*”, “*don’t have the software we need*” and “*have to wait for a computer*”. Students also said that learning centres were sometimes closed when they needed to use a computer and complained that Internet sites were too tightly controlled both by Internet monitoring software and by the learning centre staff.

It should be noted that these comments describe the reality of ICT for most FE students whose main access to computers is through the college learning centre. Even students in ICT TB curriculum areas sometimes complained of “*not being able to get on a computer when I need to*” or there being “*too few computers for student use*”.

Most but not all ICT TB areas took the decision to purchase laptops for student use. We therefore have seen the much publicised disadvantages of laptops, namely the health and safety issues related to small screens that sit low down on the table or desk. As well as the health and safety problems, laptops commonly suffer from issues with batteries and power and need careful management if they are to be effectively used on a regular basis. Batteries deteriorate over time and students commented that the batteries seemed to drain faster when they were using the Internet. The ICT TB laptops are nearly two years old and students say that they can only be used for about an hour before the battery runs out. There are further problems when other students do not return the laptops to the trolley, fail to connect them up properly or to plug the trolley into a power socket so the laptops are not recharged properly. Once the battery has run down, the laptop needs to be plugged into a power socket if the students are to be able to carry on working. Students reported further problems in finding a power pack or finding a power socket as few classrooms have sufficient power sockets for the laptops. This effectively means that once the battery has run down the laptops can no longer be used and this limits their access to the ICT.

A small number of students said they got “*fed up*” with using ICT at times. The main reason for this was frustration and irritation caused by technical difficulties such as losing work because they were unable to save their work. However, in this case they did admit that they often didn’t remember to save “*until the end*”. Other frustrations arose due to printers not being available or to slow connections that meant students lost a large amount of class time waiting to log on or download Internet pages. Some students reported that they didn’t have access to some specialist software that was needed for their course and in some cases had bought their own software for use at home.

There is a clear need for college systems such as technical support to perform to the level needed to support the increased amount and sophistication of the ICT. Even something as simple as not having a replacement ink cartridge can frustrate students, reduce their motivation and prevent them making progress.

In some practical subjects, students also reported that other (non ICT) equipment had not been updated along with the ICT and this could cause minor problems or restrict what they were able to achieve in the workshops.

### ***Concluding comments***

Student priorities are assignments and good marks – at the most basic level, ICT TB has made it easier for ICT TB students to get on a computer to find information for their assignments, to word process them and print them ready for handing in. ICT TB has enabled some curriculum areas to use ICT to streamline their assessment processes through techniques such as e-mail, online marking and the VLE. As well as streamlining the processes, ICT Test Bed has enhanced the assessment products, the students' work. ICT Test Bed has provided a range of other technologies to enhance coursework, assignments and portfolios. This has clearly increased the students' satisfaction with the course and made the whole college experience much more rewarding and enjoyable.

Ofsted priorities and hence of great importance to college managers and teaching staff are retention, achievement and attendance achieved through providing a good learning experience and good teaching. ICT Test Bed has provided the equipment, training and resource development opportunities to enable the teachers to use ICT to make the learning experience more enjoyable. This should be reflected in the figures for retention, achievement and success and subsequently in the Ofsted process.