Tablet PCs in schools
A review of literature and selected projects

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What is a Tablet PC?

A Tablet PC is a lightweight computer, which allows the user to interact with software using a pen (digitiser pen). It runs Windows XP Tablet Edition, with built-in support for handwriting recognition. The user can handwrite notes, enter data and navigate by touching the screen with the pen. Tablet PCs come with Journal (a 'freehand notebook'), support for speech recognition, and inbuilt wireless networking capabilities.

There are two basic types of Tablet PC:

- 'Slates', which lack keyboards, although they can be connected to a USB keyboard or docking station

- 'Convertibles', which come with an attached keyboard and can be used in either slate or 'clamshell' mode.

For further technical details see Becta's Technical Paper – Tablet PC (2004).

This review highlights key findings from a literature search and review of projects using Tablet PCs in English schools (for details, see Methodology, p12). Many of the findings for Tablet PCs apply equally to other mobile devices such as laptops.

The Tablet PC's benefits arise from the combination of its pen input, small size, shape and wireless networking capabilities.

Key benefits

Promoting curriculum access

- The Tablet PC provides an intuitive and immediate interface owing to its 'notepad' design and the facility to use a digitiser pen to write and select information.

- It also removes potential barriers to curriculum access for students who have difficulty controlling a mouse, lack keyboarding skills or prefer writing by hand.

Improved communication

- Handwritten notes can be converted into typed text.

- Journal diagrams can easily be drawn, annotated and shared.

- Marking and administration of 'electronic documents' increases the efficiency of pupil–teacher interactions.

- A Tablet PC plus data projector enables whole-class presentations and sharing of work.

- Wireless access allows network communication across the school site and beyond.

Improved motivation

- Pupils find Tablet PCs easy to use and are motivated to work using them. Teachers cite this motivation as a significant factor in pupils' academic progress, most frequently with regard to handwriting skills.

Key issues

- Innovative practice is supported when the appropriate infrastructure and technical support exist. Reliable and fast wireless access is vital in extending and enhancing pupils' learning experience.

- The initial cost of the Tablet PC and auxiliary hardware remains a key factor limiting uptake.

- Schools need to find ways to overcome problems of short battery life, low screen illumination and lost digitiser pens.

Becta
ICT Research

The Open University

Range of uses

In some of the classrooms studied students used Tablet PCs to access materials such as video, web links or work sheets. In others the Tablet PCs were used with data projectors in place of interactive whiteboards. The portability and shape of Tablet PCs (particularly in slate mode) allowed students to move around, to collect data for example. Wireless networking facilitated their use in crowded classrooms. The most frequently reported use of Tablet PCs was in relation to handwriting: to improve skills, as an alternative to keyboard or mouse for interacting with a PC, and to save handwritten classroom notes as Microsoft Word or Journal documents.

The many current applications of Tablet PCs in English schools fall into two broad categories: using Tablet PCs to support and improve traditional school tasks; and using Tablet PCs to extend practice.

Supporting existing practice

To improve handwriting
The most obvious aspect of the Tablet PC is its ability to recognise handwriting: many schools reported using this feature. These schools found handwriting recognition and portability to be the most useful attributes of the Tablet PC. They were used extensively to encourage and support handwriting skills development for those children who experienced persistent or age-related difficulties with writing. Several schools reported that children found using the Tablet PC motivating and used them to practise and develop fine motor control skills. There are reports of handwriting recognition being successful where children have had poor or impaired motor skills or where they have experienced specific language and writing difficulties. In most of these cases pupils have used the Tablet PC on a daily basis primarily in school, but in a small number of instances also for homework.

Several schools reported that children found using the Tablet PC motivating and used them to practise and develop fine motor control skills.

For older children Tablet PCs can be used to make handwritten notes in a lesson, to file and sort notes and later turn them into typed text or keep as digital ink in Windows Journal. Journal allows users to copy, store, search and share notes, diagrams and formulae easily and quickly. A minority of respondents used the Tablet Input Panel to write directly into Word documents.

Accessing software using handwriting recognition
Where children had poor writing skills, teachers adopted different approaches to help them access PC software packages. Some used Tablet PCs with an integrated keyboard to bypass their frustration when handwriting was not recognised. Having the option of an integrated keyboard was seen as essential in these circumstances. In two other cases teachers reported actively discouraging keyboard use and encouraging pen input in order to develop handwriting skills. The preferred input device – pen or keyboard – depended on the amount of handwriting that was recognised, the child's motivation to use handwriting recognition, and their typing skills. Where pupils were working away from desks, on the move or standing, they used the pen much more easily than a keyboard, and hence more frequently.

Marking and annotating work
There were schools where both teachers and pupils were using Tablet PCs to add written comments to documents. The addition of 'reward stickers' using 'gif' images was occasionally reported, as was the electronic exchange of assignments between pupils and staff. After receiving pupils' homework electronically, teachers could add handwritten annotations to Journal and Office documents and return them to the pupils. The fact that pupils could act on teachers' comments and then remove these, leaving a 'clean' final product, was seen as a positive feature of use in several schools.

Presentation

Presentation and sharing of work was done either via a wireless network to other pupils' Tablet PCs or through a projector for whole-class display and teaching. Several schools reported a move away from interactive whiteboards toward the installation of wireless projectors in each classroom to support Tablet PC use. Several schools saw a Tablet PC plus data projector as being more versatile and cost effective than an interactive whiteboard.

Extending practice

Art work: painting and drawing

Tablet PCs were being used in drawing work, where the ability to hold a pen is a significant advantage, and was seen by teachers as more natural and effective than using a mouse. The Tablet PC display can be turned in every direction and therefore suits both left and right-handed children. Tablet PCs are highly valued as an interface for digital art. For younger children the use of a pen gives a direct and immediate effect, which teachers reported as an important factor in using painting programs and art activities where objects are moved around by clicking and dragging.

Continuity of use between school and home

Pupils have used Tablet PCs to develop a piece of work in a number of different locations without having to change computer, although this is not widespread.

Integrating ICT in the curriculum

Tablet PCs were reported as influencing a school's decision to move from a 'fixed ICT suite' approach to using ICT in the classroom. In one case, Tablet PCs were used to deliver discrete ICT teaching but in the main classroom. In others, it influenced a change to teaching ICT skills as an integral part of the other curriculum areas. Around 30% of schools in the study highlighted the benefits of a whole-school wireless network and a wireless connection on the school field, enabling seamless integration of ICT into all aspects of work at the school.

"Creative writing was a great success mainly because the children were very well motivated when using Tablets."
Primary ICT teaching and learning manager

"Teachers are very positive about the use of Teacher Toolkits [which include a Tablet PC controlling a wall-mounted PC and data projector] as a presentation tool and for access to the internet during lessons… Usage in secondary schools has been significant, with Teacher Toolkits being used in 30%–40% of lessons and in up to 80% in some subjects."
LEA project manager

"They are the most natural and immediate interface for digital art."
Primary ICT co-ordinator

Tablet PCs are not "instead of [other] ICT equipment – rather they supplement them. They are ideal for use on school trips or where mobility is key. Schools have used them on field trips and school journeys. They are ideal for collaborative group work."
Primary ICT adviser

"Adding comments directly onto typed or handwritten documents …[and] add a smiley face as a reward, using a gif image."
Primary class teacher

Mobility

Tablet PCs can be used outside on sports fields or during field trips. In these situations, being able to hold the Tablet PC in one hand and input data with a pen was seen as a significant benefit. In the classroom, staff were released from the front of the classroom and could demonstrate students' work via a wireless data projector.

Collaboration

Tablet PCs were being used to develop collaboration and group work in classrooms. One approach was through networked sharing of information. Teachers reported that this was very helpful in crowded classrooms. Having pairs of pupils sharing a Tablet PC has been used to increase opportunities for discussion. In joint problem-solving tasks the pen input has been used effectively for brainstorming ideas. Because pupils can store their work electronically, a wide range of work can be accessed and shared, avoiding the difficulties of sharing hard copies. Notes can be emailed to fellow pupils, and pupils are potentially less reliant on teachers as an information source or for distributing copies of relevant materials. As with laptops and PCs, work from class sessions can be saved to a shared network area and accessed when needed.

Audio and video

The Tablet PC's audio and video facilities allow the insertion of audio comments into pupils' homework. One school reported that this increased the quality of interactions with parents. Teachers and pupils also created video files of lessons to support subsequent revision and teaching. In another school students used Tablet PCs and video cameras in PE lessons to monitor the development of their own work and skills. They were also able to insert their comments and share their thoughts with classmates. One centre for children with learning difficulties used Tablet PCs to augment materials with audio snippets, pictures and children's own diagrams to increase their access to the curriculum.

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Tablet PC management

Tablet PCs are significantly changing the ICT practices and infrastructures of some schools. The versatility of Tablet PCs enables them to find a niche in existing classroom practices. However, their potential is also influencing school choice about future classroom design and curriculum delivery.

Tablet PCs are relatively new to English schools and many 'Tablet user' schools are piloting them with small groups of children. In some cases this is for a particular subject; in other cases a group of children use Tablet PCs for a large percentage of their schoolwork. For schools attached to a funded research project it is typical for a larger number of pupils to have access to personal Tablet PCs and several cases of 1:1 ownership were reported for targeted year groups. The supporting infrastructure, such as wireless networks and technical support, was evident in schools with higher numbers and a wider use of Tablet PCs.

Schools have developed numerous approaches in deploying Tablet PCs. The following examples illustrate this diversity.

Single Tablet PC per class
One Tablet PC (often with a data projector) was issued to each teacher/class. A teaching assistant often oversaw children's use of the Tablet PC and its movement between them.

Equipment allocated to one group of children
Each child in one class was loaned their own Tablet PC for that year.

A bookable resource for all curriculum areas
One or more sets of 15 Tablet PCs were kept on a charging trolley and moved between classes. This style of organisation was often supported by a school-wide wireless network or the use of mobile wireless access points.

Some schools had ICT technicians to support their use. Classroom assistants were often trained to use the Tablet PCs and related technology, and often took the lead in overseeing activities such as using digital cameras and downloading images.

Located in one area
This might be an ICT suite or a general teaching room. In one special education centre on a secondary school campus, children were taught in groups of five. Pupils and teachers each had a Tablet PC and groups booked the set for particular periods. The Tablet PCs remained in the centre and were not used when pupils attended lessons in the 'main school'. In a children's hospital school Tablet PCs were assigned to individual children whilst in an orthopaedic ward. A wireless internet connection brought teaching activities to their beds during their stay.

A resource for home
Some schools allowed children to take Tablet PCs home, though this was by no means universal. In one school the Tablet PCs are lent to individual children targeted for literacy support for half a term and are used mainly at home, but brought into school at least once a week.

Across the curriculum, a whole-school approach
A small number of schools have invested in large numbers of Tablet PCs for all staff and/or for all the children in one or more year groups and/or in class sets of Tablet PCs for use in specific curriculum areas.

Many schools report using a Tablet PC with a data projector. This is seen as a neat and flexible approach, better suited to smaller classrooms than a laptop/desktop and data projector or interactive whiteboard.

"The investment in technology reflects our fundamental belief in the ability of the Tablet to transform the educational ethos in a way that the interactive whiteboards never really did."
City academy assistant head

"Tablets are returned to the lapsafes when not in use. Pupils are informed by their teachers in which lessons the Tablet PCs are required and students are able to pick up their Tablets at the allocated time (registration, break, lunchtime)."
Technology college assistant head

"PE teachers each have a Tablet [PC] that at present is mainly used for administration."
Sports college development administrator

"This is not just an issue of adding new equipment, it is indeed a complete paradigm shift, as we see the benefits of this equipment to support the embedding of ICT across the curriculum as well as improving communication and sharing of documents." **Primary headteacher**

"…used in groups of 15 and timetabled out for two half days to each class – children work in pairs. Teachers can negotiate 30 machines at once if they want." **Primary associate headteacher**

"At Foundation level tend to work - whole class (Tablet and data projector) then teacher working with one group."
Primary associate headteacher

Lessons learned

The evidence suggests that schools initiating a Tablet PC strategy should start with a set of clearly identified goals, including anticipated outcomes. Having a proactive head teacher, along with the opportunity for teachers to share what they are doing, is important. Key teachers should be allowed time and resources to innovate and try new practices enabled by Tablet PCs. Reliable and fast wireless networking, adequate technical support and careful planning are essential in ensuring the effective deployment of Tablet PCs. Set-up and maintenance costs, including repairing damaged screens and replacing lost pens, were reported as being a significant consideration.

General issues

The following issues may also apply to other mobile devices.

Infrastructure
A wireless network allows pupils and teachers to take advantage of the portability and wireless potential of Tablet PCs and other mobile devices. Most of the schools without wireless networks in our study commented on the need for them. In contrast, schools with wireless networks commented on the ease of extending and developing classroom activities.

Technical support
Setting up the Tablet PCs can take a long time and good, ongoing technical support is essential. Many schools noted the importance of having a technician and at least one school described the importance of having an ICT consultant, which they fund by 'sharing' him with other schools. Problems were reported where adequate technical support was not present, or when a single teacher carried out these duties.

Insurance
For some schools getting adequate insurance cover for the Tablet PCs was an issue, particularly where children were taking their Tablet PCs home. The security of Tablet PCs needs to be considered and can be a significant problem in some areas. This has led a small number of LEA insurance personnel either to recommend that schools do not buy Tablet PCs of any kind, or to place a large premium on insuring them.

Costs
Purchase prices, which are consistently higher than laptops of a similar specification, were often seen as prohibitive. Additional hardware costs must also be taken into consideration. For example some peripherals require an external port adaptor to allow them to be connected to the Tablet PC, which does not have 'legacy ports'. Several LEAs reported that they did not recommend Tablet PCs to schools owing to their high initial cost compared with laptops.

Battery life
Battery life (approximately three hours) is too short to last the whole school day, so developing an effective charging regime was seen as vital. Several schools used a charging trolley, which was overseen by a technician or classroom assistant. This helped to support a workable charging regime, allowing children to dock and charge their Tablet PCs between uses.

Slow boot-up speed
Teachers recommended turning the machines on before lessons and leaving them on standby when not in use. A charging cart with ventilation allows the Tablet PCs to remain turned on when charging.

Network speed and reliability
Slow wireless networks were reported as being an issue as they restrict the use of video materials in the curriculum. Temperamental networks undermined teachers' confidence in incorporating the use of Tablet PCs into lessons and reduced pupils' enthusiasm for using them.

These general and specific factors interact and are reflected in teachers' and pupils' experiences of using Tablet PCs. Some schools do not gain the full potential benefit of Tablet PCs, using them either as laptops or as paperless writing pads. For some, overcoming the financial, technical and cultural barriers to effective Tablet PC use was seen as too risky, too time consuming, or a distraction from teaching.

Specific issues

Lighting levels
Strong light can restrict pupils' Tablet PC use – for example when used on field trips or lessons outside the building, or where glare from interior lights make viewing the screen difficult. This factor restricted Tablet PC use, particularly when used in slate mode.

Robustness
Tablet PCs are more robust than teachers expected, but add-on 'rubber bumpers' are useful in preventing damage due to knocks. Several schools reported problems with the reliability of some (particularly the early) models of Tablet PC.

Pens
Many schools reported problems with pens being lost or damaged. Tablet PCs with a tethered pen helped to solve this problem. In some cases schools charged parents for a replacement pen.

Software
There is a lack of software designed to take specific advantage of the features of Tablet PCs. Several teachers reported that, unless external advice could be obtained, selecting appropriate software that made best use of the Tablet PCs in particular curriculum areas could be very time consuming.

Very few schools were aware of the differences between the original version of Windows XP Tablet PC Edition and the latest release (Windows XP Tablet PC Edition 2005). Even schools that were aware of the new version were unlikely to know that the handwriting-recognition facilities have been significantly enhanced in the latest version. Similarly, while most schools did report using Journal, very few mentioned using OneNote, which is an enhanced note-taking application.

Several schools reported using painting or drawing applications with their Tablet PCs. A number of others specifically mentioned using the annotation facilities in Microsoft Office for making handwritten comments.

"The biggest difficulty encountered was that of the screen lighting. Viewing the screen is difficult in many conditions and this meant that the student could not easily use the Tablet when and where he wanted to. Glare from lights or windows made it difficult to see."
Special school deputy head

"The school was not wireless enabled and this limited the impact of the work. Students were not able to send and share work or access the internet freely."
Secondary ICT co-ordinator

"… general working life is too short… Rubber bumper is good feature. It can get knocked and break."
Primary ICT co-ordinator

"Don't underestimate the amount of time it takes to support mobile ICT compared to fixed desktops, eg installation of software…. Our Tablets are slow compared to our other desktop and laptop PCs."
Technology college assistant head

Benefits

The potential benefits of Tablet PCs depended on the purpose and context of their use. Factors such as schools' infrastructure, technical support and curriculum issues had a significant impact. The following examples were noted in a wide sample of schools but were not found universally. Most of the schools we contacted perceived Tablet PCs as highly versatile, 'child friendly' and having advantages over standard laptops.

The schools attributed the benefits of the Tablet PCs to the combination of its pen input and handwriting recognition, its shape and small size, and wireless networking capabilities. Some schools, but not all, mentioned the following points.

Tablet PCs are an excellent tool for motivation. Pupils who previously have found curriculum areas difficult have attempted and reattempted tasks with energy.

Promoting curriculum access

Most schools mentioned the mobility that Tablet PCs provided, allowing them to be used wherever pupils needed them, particularly for cross-curricular work. A few schools specifically mentioned using Tablet PCs for field trips or home use, or in specific circumstances (such as for pupils in hospital, or for those who were in a special unit or excluded from school). Several schools commented that Tablet PCs provide a natural and immediate interface for digital art and multimedia work.

There were several examples where Tablet PCs:

- enabled curriculum access for students who have difficulty controlling a mouse or lack keyboarding skills
- supported students with vision and hearing impairments through easy modification of text size, colour, contrast and audio. Audio notes were used by a small number of schools to annotate and comment on pupils' work
- were associated with improved behaviour and self esteem of pupils
- promoted collaborative learning.

Improved communication

In several schools Tablet PCs had been used to:

- convert handwritten notes into typed text or, in Journal, to draw diagrams easily before annotating and sharing them
- construct and share diagrams and mind maps, without losing their original format
- create and perform whole-class presentations (in conjunction with a data projector) with ease
- make marking and administration more efficient (for example, the transport of books or folders of work could be eliminated and pupils 'handed in' homework in electronic form which was annotated with handwritten comments)
- provide audio comments on pupils' work, thus improving communication with parents (one school)
- link with a docking station and data projector so that students could easily lead the class and/or share work, from their own Tablet PCs
- support flexible use through built-in wireless networking capabilities (in conjunction with a wireless network infrastructure).

Improved motivation

Many pupils were reported as finding Tablet PCs easy to use and as being motivated to work using them. Teachers cited this as a significant factor in pupils' academic progress, most frequently with regard to handwriting.

"Tablets are very good – particularly in terms of their versatility. Many things appeal to the children – particularly the way the pen can be used to create Word documents. The built-in wireless connections also mean that internet access is good."
Primary headteacher

"Tablet PCs are an excellent tool for motivation. Pupils who previously have found curriculum areas difficult have attempted and reattempted tasks with energy. The portability of the Tablets linked with the data projector means whole-class involvement."
Infant headteacher

"Pupils value a single, searchable, store for all their documents. They do not need to carry large paper files and books."

One school is developing entirely "paperless courses".
Two secondary schools

"Sharing handwritten notes and drawings personalises communication, and the 'richness' of the ideas can be communicated to others."
Secondary school teacher

Overview of projects

The project review identified 90 schools or projects in England that were using Tablet PCs (for details, see Methodology, p12). In most of the schools involved the initiatives were relatively small and confined to a single class or group of children or staff. This section highlights examples of some of the larger research projects and/or longer-term school-based evaluations in England, illustrating the range of work currently under way. Two examples of international research are also included.

Projects in England

Warwickshire E-Learning Community Project (PFI)

In the initial pilot phase, schools were issued with Teacher Toolkits, which include a Tablet PC connected wirelessly to a wall-mounted PC and data projector. The Tablet PC is used to control the wall-mounted PC, which is connected to the hardwired network and the data projector. This overcomes limitations inherent in using a wireless Tablet PC directly with a data projector, for example allowing video to be presented more easily. In the next phase of the project 1,500 Teacher Toolkits will be rolled out across schools in the LEA. The Teacher Toolkits have been allocated to cover most Year 5 and Year 6 classrooms in Warwickshire primary schools and in the majority of English, maths, ICT, science, geography, history and MFL classrooms in Warwickshire secondary schools.

http://www.we-learn.com/pfi

Anytime Anywhere Learning – Birmingham's Tablet PC projects

Eight schools in Birmingham used slate Tablet PCs to evaluate their use in the curriculum. The equipment was deployed differently in each school. For example Bishop Vesey's Grammar School used a class set of Tablet PCs bookable for use with any class, with a particular focus on science, maths and humanities. The school also operated an outreach programme with one of its feeder primary schools.

http://www.bgfl.org/services/itaal/projects.htm

Djanogly CTC, Nottingham

Students and seven teachers were involved in piloting the Microsoft Innovative Teachers programme, which incorporated Tablet PC usage. Djanogly is due to move to a newly built Key Stage 3 centre which will have a fixed wireless/wired projector in every room. The building will be completely wireless, but wired networking will also be used in order to enable efficient video streaming and to develop the use of digital video editing. The intention is to provide each Key Stage 3 student with their own Tablet PC. A trial in Key Stage 4 maths has looked at the impact of digital paper on learning and is being written up into a formal case study. Other studies have looked at the use of Tablet PCs for digital video editing, music composition and art.

http://www.microsoft.com/uk/education/learning/ case-study/default.aspx?SearchType= All&SearchString=0

New East Manchester Education Team (formerly East Manchester Education Action Zone)

Five schools were involved in the project, each undertaking a small action research project. These five schools shared 35 Tablet PCs. The initial investigations included the development of handwriting, creative writing with gifted children, and improving the re-drafting process in written work.

http://www.digital-think.info/eaz.htm

Greenwich Millennium Primary School trials

This was a trial of 15 prototype Tablet PCs in the classroom. Their use was evaluated across a range of curricular activities, including a dictation trial and field work.

http://www.lgfl.net/lgfl/leas/greenwich/schools/ millennium/web/projects/intro

Kent LEA projects

A number of schools in Kent have invested heavily in Tablet PCs and are using them extensively with students and staff. For example, Hugh Christie Technology College has provided all its Year 7 and Year 8 pupils with Tablet PCs; The Cornwallis School has provided most of its teaching staff with a Tablet PC as well as investing in five class sets for use in specific curriculum areas; Invicta Grammar School has provided every teacher with a Tablet PC and data projector as well as equipping all of its Year 8 pupils with Tablet PCs.

The Kent LEA primary ICT team has a set of 16 Tablet PCs which are loaned to teachers as part of an introductory course. An increasing number of schools are purchasing small numbers of Tablet PCs to integrate in existing networks as part of LEA-funded projects. The course set has pre-installed, licensed software to support the primary curriculum (in

addition to Office and the XP Tablet pack). The course focuses on the uniqueness of the Tablet PC in supporting identified pupil groups, in addition to support for interactive whole-class teaching – ideally with a wireless projector. Course members use the Tablet PCs for six weeks, and then report back on how they have been used and on the benefits for learning and teaching.

http://www.kented.org.uk/ngfl/news

Bristol City Learning Centre projects

In 2003, at Ashton Park School, 30 Year 11 students identified as underachievers attended a lunchtime/after-school club and used the Tablet PCs during lesson time, and for coursework and revision. Results from this project indicate that handwriting recognition is valued. Students also valued having one place to organise and store work. Using USB memory sticks with Tablet PCs was rated highly by students. However, using their Tablet PCs in lessons drew unwanted attention to these individuals initially. This project is being extended across three secondary schools.

Sussex Homework project (2004–2005)

The project explores the development of an interactive TV system for use at home and school with 6–7-year-old children in two schools. The children watch interactive TV and engage with associated interactive elements on their Tablet PCs. The project is exploring a pedagogical framework called the BroadBand User Model.

http://www.informatics.sussex.ac.uk/ideas/ homework.htm

North e-Learning Centre, Nottingham

The North e-Learning Centre has evaluated a number of different brands of Tablet PC. Staff, pupils, home tutors and pupils educated off site use 30 Tablet PCs. A recent project, using the Microsoft Learning Gateway on Tablet PCs, provided home-educated pupils and those in hospital with access to this learning portal.

http://www.nottinghamschools.co.uk/eduweb/ Department/department-template.aspx?id=185

Norfolk Classroom of the Future project

Tablet PCs were bought as part of the Classroom of the Future project involving three different schools each with one new 'classroom'. All of the pupils that came into these new classrooms were issued with their own Tablet PCs, which they use across the curriculum.

http://www.norfolkesinet.org.uk/pages/viewpage. asp?uniqid=1291

International projects

Project DUPLEX, Drexel University (Philadelphia, USA)

This project is investigating using Tablet PCs to design and run interactive courses. While it focuses on the teaching of maths at graduate level, it has relevance for all teachers using Tablet PCs.

http://www.syllabus.com/summer2003/pdf/ T11a.pdf

Microsoft case study evaluations (USA)

Microsoft has published evaluations of several case studies in different educational contexts. One example is the Ocoee Middle School pilot (USA). This school project evaluates pupils' use of their own individual Tablet PC and full-time internet access. The pupils access web-based curriculum documents and other teaching materials and are supported in taking control of their own learning.

http://www.microsoft.com/education/ OcoeeMiddle.aspx

Details of further projects are also available from Microsoft's website.

http://www.microsoft.com/windowsxp/tabletpc/ evaluation/casestudies/default.mspx

Bibliography and further reading

This is a selection of publications related to Tablet PCs in education. Their wide range reflects the fact that the uptake of Tablet PCs in schools is still in its infancy, and consequently the available research in the area is limited. Many of the publications are project reports or news items, rather than peer-reviewed papers.

A companion publication '*Tablet PCs in Schools: Case study report*' Twining, P et al (2005), is also available. Download from http://www.becta.org.uk/research/reports

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Methodology

The literature search was carried out in late 2004 using electronic databases and web searches. Published information about school projects in England was largely found in reports. Journal articles and conference papers provided contextualising information in relation to the broader, international field of mobile learning. Some 30 key publications describing specific uses, reflecting on experience, or providing evidence of benefits and limitations were scrutinised.

During the same period all 154 LEAs in England were contacted by phone. LEAs where Tablet PCs were in use were asked to provide information via an online questionnaire. Relevant online discussion groups were also invited to provide details of schools or projects that were using Tablet PCs via this questionnaire. The literature and project search identified 90 schools or school-based projects that were using Tablet PCs in England. All 90 were contacted by phone in order to obtain details of their Tablet PC use.

Acknowledgements

Authors

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