

## **Case study: wireless interactive slates**

## Wireless interactive slates case study: Furze Infants School and Manor Junior School (Becta's self-review framework element 7 - resources)

### Contents

<b>Contents</b> .....	<b>2</b>
<b>Background</b> .....	<b>2</b>
<b>School contexts</b> .....	<b>3</b>
Furze Infants School, Barking and Dagenham .....	3
Manor Junior School, Barking and Dagenham .....	3
<b>Methodology</b> .....	<b>3</b>
<b>Technological context</b> .....	<b>4</b>
<b>Discussion</b> .....	<b>4</b>
Impact on teaching and learning .....	5
Impact on pupils .....	6
Impact on learning environment .....	7
<b>Transferability and sustainability</b> .....	<b>7</b>
<b>Appendix</b> .....	<b>8</b>

### Background

Researchers from the NFER carried out case studies with six schools which had been involved in the Test Bed project. Five of these were in Barking and Dagenham and one in Durham. Each case study involved interviews with a key member of staff at the school. Where possible, they interviewed a senior manager and a group of pupils who have experienced using the Test Bed technology. This paper focuses on the use of wireless slates in two case study schools, considering how slates assist teaching and learning and how this technology might be usefully taken up by other schools for whole-class teaching (separate papers focus on visualisers and voting systems.)

#### Summary

- Wireless slates can enhance whole-class teaching in several ways. The most important of these is probably the mobility that is made possible for the teacher. The teacher can walk around the classroom, outline a prepared computerised presentation and engage with pupils at the same time.
- When slates are used with an interactive whiteboard, pupils can contribute without having to leave their seats. This encourages even the more reserved

to become involved in lessons as they are 'not on show' at the front of the class. Also, multiple users can write on the interactive whiteboard at the same time, from any location in the room. One teacher pointed out that the slates give pupils the confidence to contribute to the class.

- When used with intranet-based resources (or a virtual learning environment), slates provide excellent opportunities for sharing ideas and collaborative working, for both teachers and pupils.
- Teachers can respond to different learning styles because they have a greater capacity to monitor and support pupil engagement.

## **School contexts**

The two schools featured as case study schools had been using wireless slates since 2002.

### **Furze Infants School, Barking and Dagenham**

Furze Infants School is a large four-form entry school for pupils aged three to seven years. The current student roll is 336, with an additional 104 children attending the nursery part-time. Pupils are drawn from a wide catchment area, where levels of deprivation are comparable to the national average. The school has a relatively high proportion of pupils from Black and Minority Ethnic backgrounds. As part of the Test Bed project, the school now has specific expertise in the use of wireless slates and visualisers. There is one slate per classroom and for some lessons the slate is passed around the class for use by pairs of pupils.

### **Manor Junior School, Barking and Dagenham**

Manor Junior School is in an urban school (Years 3-6) with a roll of some 480 pupils. The socio-economic context is multicultural, with a 60 per cent Asian population. The Test Bed project has involved installing an interactive technology workstation in all classrooms. This comprises a computer, projector, screen and speakers, DVD player, visualiser and wireless slate. All staff received a laptop computer to help them to undertake work at home and develop their ICT skills. The project has emphasised an integrated and cross-curricular approach to ICT, embedding the use of new technologies across the daily practices of the school. There is one wireless slate in each classroom. There is some variation in the frequency of use of the slates. Some staff are reluctant, but others, especially the younger teachers, use slates in most lessons.

## **Methodology**

Half-day case study visits to each of these two schools were conducted in March 2007. The researcher visited Furze Infants School and interviewed the ICT support teacher and a teaching assistant who had good experience of using the wireless

slates within different classroom settings. The researcher also observed the practical application of the wireless slates in one mathematics lesson for ten gifted and talented pupils aged six and seven years.

The case study for Manor Junior School draws on data from interviews with the ICT co-ordinator, a teacher using the new technologies, a group of Year 6 pupils and a lesson observation of the wireless slates in practice. The visit also included a tour of the school and a virtual tour of the school intranet.

## Technological context

Wireless slates enable a user to interact with a PC /projector combination from some distance away. Some slates can also link to an interactive whiteboard. The slate is portable and lightweight. It measures around 25 cm by 28 cm and is just two to three centimetres thick. It also has a wireless pen. The slate itself requires a rechargeable battery which has a life of up to 30 hours. A Promethean Activslate (as used in these two schools), the AirLiner wireless slate, and similar devices, typically cost between £150 and £300.

The absence of wires enables the teacher to walk around the classroom and keep an eye on the engagement of pupils. The slate communicates with other devices through the use of a radio signal. The attached pen enables the teacher to control any software application, write notes and highlight information. Writing can easily be erased.

The wireless slates can also be used by pupils, enabling them to interact with information from their seats (a particular advantage for pupils with mobility difficulties). Slates can usually be used with or without interactive whiteboards. Pupils can input information, which can then be displayed to the whole class, either via an interactive whiteboard or by linking the slate to a PC and a projector.

## Discussion

Interviewees reported that there have been three main factors behind the success of the use of wireless slates at these two case study schools. These are: dedicated ICT support, a whole-school approach and consolidation of ICT skills, and staff collaboration.

- **Dedicated ICT support and training** – at both schools the provision of a dedicated ICT technician to support staff in using ICT has ensured that teachers have had help to address difficulties. This support has meant that lesson disruption has been kept to a minimum when difficulties arise. Also, staff have gained confidence in using the equipment. In Manor Junior School, each year group also has a member of staff who is a ‘champion’ of ICT. The champion provides ICT support to the teaching team, particularly to those who are less confident. The champions emerged naturally as

those staff who were competent and enthusiastic about the development of ICT in practice.

- **A whole-school approach and consolidation of ICT skills** – at both sites, ICT is available in all lessons and is regularly incorporated into a range of different subjects. This consolidation of skills has ensured that staff seek regular opportunities to use ICT in their lessons. This enables them to develop their skills through the regular use of the technologies.
- **Staff collaboration** - at Manor Junior School staff share ideas and resources at meetings and collaborate with other local schools (for instance, attending Test Bed project meetings, observing and being observed). Establishing the school intranet has made it possible to create a resources bank. This contains the curriculum for each year group, where planning information, resources and homework can be accessed. Similar collaborative activities have taken place at Furze Infants School.

## Impact on teaching and learning

A whole range of different impacts on Furze Infants School staff were apparent during the case study visit. Increases in staff confidence in the use of ICT, for example, were noted by interviewees. At the start of the Test Bed project some staff did encounter a technical difficulty with the wireless slates. This was to do with connectivity between the slates, the PC and the projector. This seemed to be the only technical issue. Although some staff are reluctant, confidence in the technology and in the teachers' skills has resulted in all members of staff using the slates to a greater extent in lessons.

Much greater use of ICT technologies at Furze Infants School has allowed school staff to develop their ICT skills on-the-job. However, continued professional development opportunities have also helped staff progress. Staff regularly disseminate information and share ideas with each other at the school. If a member of staff has found a quicker, easier or better way of using the slates within a lesson, this is often shared either formally or informally. Staff are continually looking at ways to better use slates within lessons.

Increased staff confidence and the sharing of ideas were also evident at Manor Junior School. The ICT co-ordinator has established a school intranet as part of the Test Bed project activities. The intranet provides access, via a PC or a laptop, to a home page for each year group, where all the lesson plans, assessments and homework associated with the curriculum for that year group can be found. Most of the lesson plans are for general use, but there are some exercises and tests that were devised particularly for slate use. All staff contribute to this resource bank, thus the burden on individual teachers having to plan lessons has been alleviated. They have more time to focus on the actual quality of their lessons.

## Impact on pupils

At Furze Infants School, the increased use of the wireless slates within lessons has resulted in a number of tangible impacts on the learners. These include increased collaborative learning and improved communication skills, more independent learning, and the acquisition of new skills and knowledge. This, in turn, has enhanced learner confidence.

- **Increased collaborative learning** – the use of the wireless slate during lessons has enhanced collaborative learning. Indeed, within lessons, pupils have ‘computer partners’ and when using the slates they regularly work with another pupil to discuss a response to a question. Each pair of pupils then uses the slate (one slate is passed around the class) to record their response. This is then projected for the whole class to see, thus stimulating a whole-class discussion. As a result, pupils have developed their communication skills and are confident in presenting their opinions to the class and discussing alternative views.
- **Increased independent learning** – the ICT technologies used within the school have provided pupils with enhanced independent learning opportunities. Lesson observations confirmed that pupils work independently with the wireless slates, logging on themselves and following instructions from the teacher. They perform tasks such as opening text documents, searching the internet for images and saving these in appropriate computer folders on the school’s system. The pupils work maturely and appear to enjoy the opportunity to use the technology on this one-to-one level.
- **Acquisition of new knowledge and skills** – the high level of competence demonstrated by pupils is noticeable, particularly when considering their age (six and seven years). School staff also noted that pupil skills development has positively impacted on levels of pupil confidence. Many pupils now interact more confidently with the technology and are using what they have learnt at home.

Similar views were expressed at Manor Junior School. Both the staff and pupil interviewees felt that the slates enhanced learning, making it more interesting and fun. The slates helped to stimulate interest and motivation in a subject. In addition, the learners were clearly confident in using a range of ICT applications. Pupils spoke of the enjoyment and ease associated with their use of websites, online resources, educational games, presentations, word processing, spreadsheets, and the wireless slates. The majority of pupils also use computers at home to complete schoolwork. The staff commented that the pupils’ advanced ICT skills and experiences will be valuable for adult and working life.

Manor Junior School interviewees also emphasised the importance of the interactivity which the slates permit. The use of the slate (there is one slate per classroom) enabled the teacher to face the pupils throughout the lesson. They also helped the teacher to identify the pupils' levels of engagement and to move around the classroom to individuals. The wireless slate can also be passed around the classroom, allowing pupils to interact with the lesson, taking turns to direct the main screen as other pupils watch. As one teacher said, "*Children can get really involved in the learning and they're not just sitting there reading a textbook.*"

## **Impact on learning environment**

The more frequent use of the technology has enhanced the learning environment of Furze Infants School, especially in terms of developing the staff's ability to respond to different learning styles. Through Test Bed funding, the school has employed an additional support teacher to work with gifted and talented pupils. The wireless slates are frequently used within these lessons. They enable pupils to actively participate and extend their learning by discussing each other's responses. In addition, school staff noted that the visual nature of the technologies means that the teacher can present concepts and questions in different ways to the pupils. As the pupils are able to see the idea in front of them, many can understand the concept much quicker than they would if it were just orally presented to them by the teacher.

At Manor Junior School, the slates, along with the use of visualisers, have enhanced the dynamics of the classroom structure, freeing the teacher to engage with the pupils, while directing the lesson. The new technologies available in the classroom make it easy for the teachers to quickly access additional support materials. For instance, online resources and information can be accessed throughout the lesson, and online educational programmes allow pupils to work through the activities at their own pace.

Teachers felt that the slates had enhanced the pace of their lessons, ensuring a steady flow of information. The computerised presentation of the lesson means that the pupils are not sitting impatiently waiting for the teacher to finish writing on the board or handing out paper. Instead, the teacher moves through a pre-prepared slide presentation, displaying information at a steady pace and in manageable chunks to maintain pupil engagement.

## **Transferability and sustainability**

ICT is integral to the school, with each classroom having slates, visualisers and access to laptops. In addition, the provision of a Test Bed Community Room demonstrates the school's commitment to ICT and will ensure that the school continues to provide it as a learning opportunity to pupils.

Staff at Manor Junior School felt confident that the use of the new technologies was sustainable given the enhancement these have brought to teaching and learning. In order to try to ensure sustainability, the school has a rolling programme of development. This enables equipment to be updated and replaced on a needs basis. There is evidence that using slates can be transferred to other contexts. All staff are developing the use of the slates (to different extents) and all have access to them. They make a point of sharing expertise as they develop their skills. If the technologies were not available in all classrooms, this would be a barrier to sharing, as some staff would have no opportunity to use it.

The evidence from both of these schools suggests that other schools should easily be able to incorporate the use of wireless slates within their teaching processes. School staff pointed out that other schools would need to provide good technical ICT support (such as a dedicated technician). In Furze Infants School staff made this comment in direct response to the initial problem the school had with the slates. However, staff also said they appreciated the ICT support they did have. The fact that at Manor Junior School some older staff were not using the slates in everyday practice does suggest that perhaps the training required is more than just an initial input. Interviewees suggested that the levels of confidence and experience required for using the slates may be slightly higher than for some other technologies.

Other factors to consider are:

- offering relevant training opportunities for staff that is specific and appropriate for each member of staff and not just blanket training
- seeking current examples from other schools as to how slates and other ICT technologies can be embedded into the classroom.

## Appendix

The ICT Test Bed Project was set up by the Department for Education and Skills (DfES) to explore how ICT can be used to support the Government's wider agenda for education reform. The project has been implemented in schools in three local authorities: Barking and Dagenham, Durham and Sandwell. Each school is involved in using whole-class teaching technologies.