



## Case study: visualisers

## Visualiser case study: Barking Abbey School and Manor Junior School (Becta's self-review framework element 7 – resources)

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### Background

Researchers from the National Foundation for Educational Research (NFER) carried out case studies with six schools that 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, researchers interviewed a senior manager and a group of pupils who have used the Test Bed technology. This paper focuses on the use of visualisers in two case study schools, exploring how visualisers assist teaching and learning and how they might be taken up by other schools for whole-class teaching (separate papers focus on wireless interactive slates and voting systems).

### Summary

- The benefits for teachers in using visualisers include the ability to demonstrate intricate skills to an entire class - all at once. Visualisers can be used intuitively within a lesson, so they naturally complement existing teaching practice. They also assist teachers with pacing a lesson and ensure appropriate levels of pupil engagement.

- The advantages for pupils include having the ability to share their work with the rest of the class. Visualisers also let a whole class view the tiniest artefact or a scarce resource, such as a single copy of a book.
- Teachers make opportunities to share good practice both formally and informally. Efforts are also made to tailor professional development according to individual staff needs.
- Visualisers can bring a topic to life for pupils by displaying to the whole class objects such as books, pictures, and photographs. The use of a large screen helps concentrate pupils' attention on the teacher. Consequently, the teacher is able to gauge pupils' engagement and manage behaviour more effectively.

## School contexts

The two schools featured using visualisers are both in the London Borough of Barking and Dagenham (where Test Bed schools have used the Samsung 950 series of visualisers). Visualisers typically cost between £250 and £1000 depending on specification and features.

### **Barking Abbey School, Barking and Dagenham**

Barking Abbey is a mixed secondary school for pupils aged 11 to 18. It is a Specialist Sports College and a Beacon School. One of the largest schools in the country, it has approximately 1,800 pupils on roll, of which just under 300 attend the sixth form. Traditionally heavily over-subscribed, the school takes pupils from a large number of primary and junior schools from within the borough. It also has pupils from neighbouring authorities. Most pupils, however, come from three local primary schools.

As part of the Test Bed project, the school has made some major changes, moving from an environment with no ICT provision in any of the classrooms to a whole-school approach. The school has a digital projector, visualiser, DVD player, and interactive slates available for use in every teaching area. The school also has in-house technical support staff. It employs a web developer who is responsible for creating an online curriculum and developing the school intranet, among other duties.

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

Manor Junior is 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 the installation of an interactive technology workstation in all classrooms (including the hall), comprising a computer, projector, screen, DVD player, visualiser and wireless slates. All the staff received a laptop

computer to help them to undertake work at home and develop their ICT skills. The ICT suite has been extended and there is a stock of laptops sufficient for whole-class use. The school has also developed a website and has wireless access to the internet. There is also an intranet (accessible offsite), a CCTV security system and plasma screen notice boards. The school also uses other digital technologies, such as cameras. It also now has a full time technician and helpdesk facility.

## **Methodology**

Researchers visited the schools in March 2007. As part of the visit to Barking Abbey, the researcher interviewed the headteacher, the ICT network manager, and a group of four Year 11 pupils. The researcher also had an opportunity to observe the use of a visualiser as part of a lesson and to have a brief discussion with the class teacher.

At Manor Junior School, the researcher interviewed the ICT co-ordinator, a teacher using the new technologies, and a group of Year 6 pupils. The visit also included a lesson observation of the technologies in practice, a tour of the school and a virtual tour of the school intranet.

## **Technological context**

A visualiser is a digital device that has connections to both a computer and a projector. It consists of a 'stage' and a camera. Objects placed on the stage can be projected onto a large screen via a ceiling mounted projector. The image can be captured on the computer and then annotated using software tools or saved for future reference.

The visualiser enables a variety of non-digital resources to be shared with a whole class at the same time. For example, visualisers can be used by pupils to show the rest of the class their work. Teachers can demonstrate a technique to everyone in the class at the same time. Also, scarce resources, such as a single copy of a book, can be viewed by the entire class.

It is possible to zoom in on images and display objects at high magnification, making it possible for everyone in the class to see even the smallest artefacts.

## **Discussion**

### **Impact on teaching and learning**

Barking Abbey focuses on how whole-class teaching technologies, including visualisers, could be used to enhance, rather than change existing practice. All teaching staff have access to a visualiser, which they can incorporate into their lessons to support existing practice.

Teachers have received training on how to use a visualiser and have access to support from in-house technical support staff. These specialists provide ad hoc training and advice and help with any technical problems.

Teachers said that the visualisers are relatively intuitive and easy to use. They felt that this has helped build confidence in using them as a teaching resource. Having opportunities as part of staff meetings to share how they are using the equipment has also been beneficial.

The growth of resources available in class, such as access to online materials, and the ability to display any object, text, or image to the whole class is also a benefit. *“It’s great to have that flexibility in terms of the resources you can incorporate into your lessons,” said one teacher.*

Teachers said that whole-class teaching is easier as the entire group can discuss an object or image. The teacher does not have to pre-prepare or scan the resource, as they would if they were using a computer-based image or projector. The teacher can draw pupils’ attention to specific aspects of the visualised image. Teachers also reported that the image quality is better than those which are scanned or projected. The visualiser conveys an image exactly like the original.

Teachers can also demonstrate skills to a whole class at the same time. In Barking Abbey School, an example was provided of a teacher using a visualiser to demonstrate soldering technique to a class. By using the technology, the teacher could focus in on the wires and the circuit board. The whole process could be enlarged, enabling even this detailed technique to be seen by the whole group. Pupils did not have to crowd around a desk to try to see and the teacher did not have to demonstrate the technique over again to pupils in smaller groups.

Staff in Manor Junior School said that a key factor enabling them to achieve success in the use of whole-class teaching technologies was that attention has been given to how the equipment enhanced, rather than changed, practice. The whole-class technologies were found to complement current teaching and learning approaches.

In the initial stages of the Test Bed project, all staff received training on the use of the new technologies, including visualisers. Training was provided by both the school ICT co-ordinator and the local authority. Ensuring that all staff were introduced to the new technologies was a priority for the ICT co-ordinator: *“One of the things we wanted was to make sure there was a consistency across the school. I didn’t want to see one class using lots of really exciting things and the class next door in the same year not having access.”* Following whole-staff training, the ICT co-ordinator provided specific training for individuals according to their needs.

Teachers said that the new technologies have enhanced the dynamics of the classroom structure, with the teacher being free to engage with the pupils while directing the lesson. The new technologies available in the classroom make it easy for teachers to quickly access additional support materials. For instance, online resources and information can be accessed throughout the lesson and other materials can be easily displayed by the visualiser.

The visualiser also facilitates teachers' capacity to control the nature and pace of the information available to pupils, ensuring that all pupils are looking at the right material at the appropriate time. The learning objectives can remain visible throughout the lesson allowing the children to have a better understanding of what they're learning. Teachers reported that children feel more involved in what's happening.

### **Impact on pupils**

At Barking Abbey School, the use of ICT is so embedded in the cultural practices of the school that pupils find it hard to reflect on the time prior to the project - when the technology had not been in use. One pupil felt that use of the visualiser could encourage a higher standard of work to be produced in class, *'Knowing that your work could be put up there and that everyone in the class can see it can make you take more care with your writing and try that bit harder. You want it to be good.'* The increased use of visual stimulus can also make it easier to engage some pupils and lead to greater pupil involvement in lessons.

At Manor Junior School, both the staff and pupil interviewees felt that the new technologies enhanced learning, making it more interesting and fun. The use of a large screen, projector and visualiser helps concentrate pupils' attention on the screen and the teacher, aiding the pupils' listening capacity. Consequently, the teacher is able to gauge pupils' engagement and manage behaviour more effectively.

### **Transferability and sustainability**

Staff at Barking Abbey School believe that the use of visualisers is sustainable. Systems and processes are now in place and there is a commitment to build on the work done to date. There is also a willingness to share good practice with partnership schools.

Staff are cautiously aware that elements of the hardware, especially the bulbs, have a finite lifespan and will need to be replaced at some point. However, the school has had time to plan for this and has been able to use funding to build up stocks of replacement parts. It is also exploring ways of reducing future costs.

Within Barking Abbey School, transferability is already well established, with practice being shared in departments and across the school as a whole. All teaching areas are equipped with a visualiser, which teachers can incorporate into their lessons. There are opportunities for teachers to share the different ways in which they are using the equipment at departmental and staff meetings.

Teachers felt that with access to resources and training, other schools could adopt the same practices. Barking Abbey has established a partnership with two local secondary schools. Members of the school management team and a local authority adviser meet regularly to discuss and share practice. The school has also provided the expertise to develop a local primary school's website.

Staff at Manor Junior School recognise the challenge of sustaining the use of the new technologies, particularly in terms of funding. However, they said that the use of the new technologies, including the visualisers, is sustainable given the enhancement they have brought to teaching and learning. In order to try and ensure sustainability, the school has a rolling programme of development. This enables equipment to be updated and replaced on a needs basis. The ICT co-ordinator felt that a key characteristic of sustainable ICT development is the evaluation process. It is important to identify the technologies that work and invest resources into them.

ICT practices are transferable across the school. Visualisers are available throughout the school, not just in isolated classrooms. Training on how to use them has been provided to all staff. Teachers' approaches to using the new technologies are also shared at staff meetings.

The school felt that with resources to purchase the equipment and training for staff, the ICT practices they have adopted can work in other schools. Staff felt that this is particularly true because the technology has enhanced their current practice, rather than changed it. Teachers and headteachers from other schools have visited the school to observe the cross curricular applications of ICT in the school.

## **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.