



Evaluation



# Evaluation of the ICT Test Bed project

**FINAL REPORT  
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# 1. Introduction

## Purposes of the report

This is the final report of the Evaluation of the ICT Test Bed project. It provides key evidence for policy-makers on the impact of providing very high levels of ICT to schools and FE colleges on: teaching and learning; leadership and management; workforce development; cross-cluster relationships; and home and community links.

By its very nature, a Test Bed project is ambitious and exploratory. It asks the question: "How much can be achieved by this intervention?" The schools' and colleges' action plans focused on specific activities and tentative targets, but the outcomes of the project were necessarily unpredictable. Its aim was to see to what extent high levels of ICT resources could enable schools and colleges to change the life chances of children and young people in areas of relative socio-economic disadvantage.

## The ICT Test Bed project

The ICT Test Bed project (2002-06) was initiated 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 took a holistic approach to ICT implementation in three ICT Test Bed areas of relative socio-economic deprivation. A total of £34 million was invested over four years, which gave the 28 ICT Test Bed schools and three FE colleges access to very high levels of ICT hardware and appropriate software. The funding also provided for investment in staffing release and training support to make the most effective use of this investment. ICT Test Bed work focused on using ICT to:

- raise standards and performance, especially in the areas of school and college improvement, student attainment, and raising the quality of teaching and learning
- enable more effective leadership and management in schools and colleges
- help teachers to concentrate their time on their core task of teaching
- enable more effective collaboration between schools and their local colleges
- provide wider learning opportunities to students, their families and the wider community in a home environment.

All three ICT Test Bed local authorities have high concentrations of deprivation compared to the national average, though manifest in different ways (see *Technical Report 25: Cluster Contextual Data*).

The three school clusters had slightly different compositions. The Greater London cluster comprised three secondary schools, each with one of their junior and infant feeder schools. The inner-city cluster in the Midlands comprised a secondary school with seven of its feeder primary schools. The rural cluster in the North of England comprised a secondary school with nine of its feeder primary schools.

The management structures for the clusters were set up by the local authorities. The style and structures of management set up in the three clusters were very different, in each case suiting the local authority's established patterns of relationships with its schools.

It was important that the project was mounted quickly to provide ample time to recognise the consequences in teaching and learning, so procurement of equipment was rapid. All the schools invested in presentational equipment from the start and wireless networks were installed or upgraded. One critical decision was to employ technicians to support the infrastructure and both the local authorities and schools appointed a co-ordinator with significant release time to support colleagues.

### Three kinds of evidence

The report is based on three strands of evaluation:

#### Quantitative data:

- Benchmarking of changes in performance on national tests against matched comparator schools and national averages.
- Modelling of e-maturity to track institutional change over four years.
- Annual surveys of teacher, pupil and parent attitudes and working practices.

#### Qualitative data:

Site visits including classroom observations, interviews with local authority managers, headteachers, teachers, administrative staff, technicians and students, and document analysis.

#### Action research data:

During the project, more than 90 teachers and para-professionals from the ICT Test Bed project institutions completed 116 action research studies of their innovative work with ICT.

The final summative evaluation reports of all three strands, together with a number of more detailed evaluation reports from the four years of the project listed in Appendix A, are available on the ICT Test Bed Evaluation website [[www.evaluation.icctestbed.org.uk](http://www.evaluation.icctestbed.org.uk)].

## 2. Key findings

### **Learning and teaching**

As technology was embedded, schools' national test outcomes improved beyond expectations.

The impact of ICT on attainment levels was greater for primary schools than for secondary schools.

Effective use of presentation technologies led to greater interaction between teachers and learners.

Effective use of ICT personalised learning by enabling greater learner choice within the curriculum, improved assessment for learning and more learner-directed teaching.

Technology facilitated more effective assessment for learning by making it easier for learners to be more involved in target-setting and for teachers to give individualised feedback.

The use of electronic registration improved attendance levels in some schools by three to four per cent, while behaviour management systems were perceived to have a positive impact on both behaviour and attendance, prerequisites for effective learning.

To enable learners to get the maximum learning benefit from using the internet, internet protocols that safeguarded learners' welfare without being overly prohibitive were required.

Some changes to teaching and learning strategies were inhibited by tensions between the priorities of different government policies and agencies with regard to ICT.

### **Leadership and management**

Institutions that were more e-mature improved their performance levels significantly more quickly than those which were not. However, there was a dip in performance until the ICT became embedded and staff developed the requisite skills.

Managing the implementation of large amounts of ICT required a strong vision, an extended planning phase, staged investment and support throughout.

Schools needed to build sustainability – of both resources and pedagogic change – into their change management strategies from the start.

Ready access to databases, which enable better analysis of data, made assessment and planning more systematic. However, there was a need to ensure that the amount of analysis required was not over-burdensome.

Management information systems (MIS) enabled leaders to better identify the particular needs of their school community through improved data analysis.

## Workforce development

The involvement of ICT changed the working practices of teachers and extended the roles of administrative staff and technicians.

Well co-ordinated and sustained professional development opportunities were important in developing ICT skills and confidence of all staff and embedding the use of ICT. Informal, on-the-job training was very effective when supported by in-school champions.

Where new technologies were introduced into all of a school's classrooms at the same time, a culture of sharing and mutual support developed as the whole staff faced the task of embedding the technology into their pedagogy. Collective need led to collective solutions being found and shared.

Access to reliable technology and daily use led to rapid improvements in teachers' skills and improved management of workloads.

Shared server areas and virtual learning environments made it easier for teachers to find, store, share, create and reuse resources and lesson plans. This ensured long-term value from the initial high investment by the workforce.

## Cross-institution links

Effective cross-institution collaboration required a common purpose and leadership from the top. Plenty of time for staff to meet and establish trust needed to be built into the process, with roles and responsibilities clearly identified. This was especially important in the cross-sectoral collaboration.

## Home and community links

The majority of students in ICT Test Bed schools, as in other schools, now have access to computers at home. Loaning ICT equipment to learners helps to bridge the digital divide.

ICT made it much easier to share assessment information with parents via school websites or learning platforms.

Schools slowly increased their use of email – and, in some cases, text messages – to communicate with parents, enabling them to respond to parental enquiries more rapidly. However, establishing a two-way dialogue with parents was more challenging.

Increasing home access to ICT and the internet was operationally difficult for schools. It was very time-consuming and required careful planning.

## 5. Workforce development

### **The involvement of ICT changes the working practices of teachers and extends the roles of administrative staff and technicians.**

The annual surveys have shown year-on-year growth in ICT competence and confidence for staff, students and parents at all levels, demonstrating that those sampled are now very much part of the e-society that pervades life today. The growing e-maturity of the workforce manifested itself not only in the increasing level of skills of the more advanced staff, but also in the widening of participation in developing and using ICT resources across the whole staff within the project institutions.

ICT enables teachers to use new, more efficient methods of locating and creating resources. They can search, create and adapt materials using a much wider range of sources than previously to form new learning activities. The initial making or researching of classroom resources is hard work for teachers, but the ease of storage and retrieval is making a major impact on future lesson preparation.

Resources which supported teachers in creating their own materials (providing clip art and video clips as well as construction tools) were deemed valuable by primary teachers, whereas secondary teachers used generic word-processing, presentational and spreadsheet programs.

ICT creates a new and increased culture of sharing of materials and resources between teachers, through shared server areas or online learning environments at all schools levels. In primary schools, sharing of resources happens within year groups and in secondary schools within departments.

The use of presentation technologies (data projectors and ancillary equipment such as interactive whiteboards and visualisers) led to rapid development of teachers' ICT skills, and a more interactive style of teaching. The value which arises from preparation of slides and lesson images fits closely with what teachers like to do and encourages them to plan their lessons in greater detail. In doing this, their computer skills were implicitly increased and ICT became an embedded natural part of their classroom.

When the planning and presentation is accomplished in advance, the teacher can concentrate in the lesson on the pupils and their responses, creating an easier forum for discussion and interaction with the pupils. The ease of adapting, adding and saving interactive whiteboard pages leads to more teacher-student interaction in developing conceptual statements and greater coherence and consistency in these descriptors over time.

The training of teaching assistants gave them an improved status and confidence in the classroom and this was invaluable in developing ICT use and resources. Teaching assistants also helped ensure continuity when supply teachers were needed since they were familiar with the systems and resources to be used in class. In some project schools, teaching assistants developed specific skills such as animation and video editing to support teachers and students.

Teaching assistants support individual pupils and groups in working on computers in their classrooms, and they support teachers, especially at the foundation stage, in conducting assessment tasks.

Technicians had enhanced roles and were vital for the school or college to maintain its high level of use of ICT. As the ICT investment developed, so technicians had to develop further skills and knowledge. Their need for training was not always recognised and like the administrative staff this needs co-ordination and support by the local authorities.

Improved MIS systems and administrative processes made administrative roles more demanding but produced significant gains in the availability, use and accuracy of data at all levels of the organisation. They often led to closer co-operation between teaching and administrative staff in securing and maintaining the data. These staff needed training, not just when new systems were implemented but to enrich their existing skills. This was found to be best co-ordinated by the local authority so as to provide for staff who are often isolated in their own schools.

In primary schools, MIS have revolutionised the role and skills required for school secretaries, providing greatly enhanced status and involvement in the educational process.

From fairly low levels of ICT resource at home in the first year of the project, by 2006 the majority of teaching and support staff could access ICT at home and at school.

**Well co-ordinated and sustained professional development opportunities were important in developing ICT skills and confidence of all staff and embedding the use of ICT. Informal, on-the-job training is very effective when supported by in-school champions.**

Training needed to be co-ordinated with the introduction of the equipment so that staff were able to practise their newly learned skills. It needed to be timetabled carefully so that participants do not feel overwhelmed. Poor initial training can lead to staff not taking up the new resource and recovery of the initiative is difficult and time-consuming. Training also needs to continue after the initial phase in order to ensure that new learning can take place and so that 'bad habits' can be addressed.

The local authorities and Becta offered training and carried out an analysis of staff skills which was used to develop a programme of continuing professional development (CPD) matched to skills requirements. The change management tools, developed by the National Remodelling Team in 2003 to support workforce reform agenda, were very helpful [<http://www.tda.gov.uk/remodelling/managingchange/tools.aspx>]. Some providers of resources and equipment have provided excellent support and managers should explore with suppliers the support offered before committing to a new resource. Central systems – such as MIS and learning platforms, in particular – needed good training packages.

For primary schools, a progressive programme of training for representative teachers from the schools was cascaded back into the schools very effectively. Most schools had members of staff who had become accomplished with certain pieces of equipment, and then supported and sustained activity undertaken with that equipment by their colleagues. The key was the corporate and co-ordinated approach taken between and within the schools.

One school followed a planned four-week cycle:

Week one involved a model lesson and demonstrating a piece of equipment.

Week two involved team teaching.

Week three was spent using the equipment and experimenting.

Week four was an assessment of how and when to use the equipment.

Primary ICT co-ordinators also played a major role in raising skills levels within schools using their increased non-teaching time to work with colleagues in order to develop their use of the technology. External trainers were used for specific events and the FE colleges in the clusters offered a range of training opportunities to school staff.

Secondary schools also brought in external trainers for specific subjects. Change management training organised by the local authority was valuable in helping to implement the project. As the project progressed, secondary schools drew more on their own resources for staff CPD, using the specialist IT and other teachers, technicians and content developers to deliver specific training. Advanced skills teachers (ASTs) played an important role in designing and delivering this training. ASTs who have been trained in coaching skills have then coached colleagues within the department and sometimes within the wider school.

The most effective training was often informal, involving teamwork and mutual support. Training became more effective when staff could see what colleagues were doing, take part in more informal team learning and practise with the equipment on their own. The development of 'champions' with expertise in particular equipment was valuable – both in primary schools and within secondary departments – in providing support at the point of need. This was particularly effective when the role of 'champion' was spread among colleagues and not focused on a single school/department expert.

I've learned more from \*\*\* or from \*\*\* about little tips of shortcutting. I think it's time we started looking at what we've got in the school and using it. (Secondary schoolteacher)

We hold weekly training sessions... the staff team get together in small clusters and train each other, show each other techniques and ideas. They are not told 'do it'; they do it as they're professionals. (Secondary head of ICT)

Action research supported professional development and pedagogical change. It was valued highly by the staff in primary schools and in FE colleges who took part. The participation by secondary teachers was very low, reflecting the general lack of priority for generic CPD by secondary teachers, for whom subject-focused development is central.

### **Introducing new technologies into all classrooms at the same time created a culture of sharing and mutual support, as the staff as a whole faced the challenge of embedding the technology into their pedagogy.**

Installation of ICT equipment in all classrooms at the same time proved to be one of the best ways of getting staff to form a mutual support group and learn together, as collective need led to collective solutions being found and shared. In the long term, this had a profound positive effect on embedding pedagogic change. This was true in all the ICT Test Bed primary schools, in some secondary school departments and in the selected curriculum areas in the three colleges. The key lesson here is that embedding change in pedagogic practice is more likely to occur if there is a combined focus by all staff on using new ICT equipment and software, rather than a gradual introduction over time.

### **Access to reliable technology and its use on a daily basis led to rapid improvements in teachers' skills and improved management of workloads.**

Daily use of presentation technologies led to rapid gains in teachers' ICT skills. Interactive whiteboards and visualisers with data projectors were easily the innovations most readily welcomed by the teachers and the one to which they were most committed.

Personal access to PCs or laptops had a major impact on teachers' roles and that of the support staff, giving flexibility and choice with regard to the location of work. One consequence of the increased skills developed by teachers and support staff was that they felt more confident in dealing with technical hitches and failures.

**Shared server areas and virtual learning environments made it easier for teachers to find, store, share, create and reuse resources and lesson plans. This ensured long-term value from the initial high investment by the workforce.**

Teachers have always shared ideas and activities, but the ease of access and immediate availability of other teachers' resources made a significant difference in the corporate planning and development of teaching resources. It also brought with it new tasks for organising and maintaining resources.

There was a need to do assembly on Monday and two minutes later whack together a quick presentation. That was with the lower school. Walking in on Wednesday, I saw my presentation up on the screen being used by the teachers in the upper school, adapted to meet their needs. I thought that this is fantastic.  
(Primary deputy headteacher)

ICT created a new and increased culture of sharing of materials and resources through shared server areas or online learning environments at all schools levels. The establishment of shared network access was a major instigator for such staff activity in sharing resources and ideas. The common availability of these resources and planning made it easier to incorporate and support supply teachers and to induct new teachers into the school ethos. It also provided greater consistency for the learners.

Some schools joined with others in their cluster to create resources and others were supported by experienced 'content teams' from the local FE college or the partner secondary school.

Content creation teams and resources developed by groups of teachers were found to be helpful but they were generally used as a stimulus for ideas rather than as presented. Animations and small flash programs created by the content creation teams were particularly useful, but they should be developed closely with teachers so as to provide a source of expertise enabling teaching staff to become more skilled. 'Ownership' of resources – that is, teachers having a close understanding of, and sympathy with, what the program contains and is trying to achieve – is a critical issue for teachers and hence content development needs to be tailored for individual and local needs.

Establishment of virtual learning environments did not get fully underway until the third year of the project, when they had become fit for purpose. This was frequently a learning experience for schools and developers alike. Where virtual learning environments have been initiated, there is evidence of secondary school students having growing access to them, though at the moment only a small number of parents access these resources with any regularity.

The development of the learning platform in one of the ICT Test Bed clusters has been trailblazing. It was not simply a matter of identifying technical solutions but also a matter of major cultural change, and it is not surprising that the learning platform is still at a relatively early stage of development at the end of the ICT Test Bed funded period. The use of the learning platform was due to the hard work and commitment of staff and senior managers, and has been achieved through the careful choice of initial innovation topics presenting 'quick wins' for teachers and other users. Email and communication gains were an early development, (see the focused study: *A Case Study of the Learning Platform(s) in One Cluster*).



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