

# Making a difference with technology for learning: evidence for school leaders

Increasingly, research evidence demonstrates the role that technology has to play in delivering benefits for schools and for learners. Here Becta presents the research evidence that every school leader needs to know.

Further details of the research can be found in *The Becta Review 2005*<sup>1</sup> and *2006*.<sup>2</sup>



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# 1

## Technology for learning helps raise standards

*Some subject results are known to improve by half a grade when pupils make use of technology to support their learning.*

### The impact of ICT on test results

The ImpaCT2 study (2003)<sup>3</sup> analysed the relationship between pupils' use of ICT and gains in national tests. The study found evidence of a positive relationship in almost every case.

Here are some examples of the positive outcomes of using ICT:

- **Key Stage 2 English and Key Stage 3 science:** statistically significant gains, equivalent to a term's progress in both subjects.
- **GCSE science:** the gains represented over 50,000 pupils moving from grade D to C
- **GCSE design and technology:** the gains represented 10,000 pupils moving from grade D to C.

### The benefits of broadband internet access

Improvements in pupils' performance are supported by use of the internet in class. Schools making good use of the internet in the year following broadband implementation demonstrated statistically significant improvements in the percentage of pupils getting more than five A\*-C grades at GCSE – on average a 4.4% increase.<sup>4</sup>

Currently over 95% of primary and 99% of secondary schools have broadband connectivity of 2 Mbps or better.<sup>5</sup>

### The benefits of 'e-maturity'

#### Characteristics of schools with the technology provision and greatest improvement in results

- Technology informs rather than leads decisions about learning and teaching.
- Resource deployment issues are addressed head on, often with a move to more flexible approaches, such as the use of wireless laptops.
- Effective technical support is a central element of the whole-school strategy for ICT.
- The role of ICT in supporting improvement is a corporate activity involving all staff.<sup>6</sup>

*The results of 'e-mature' schools improve faster than those of other schools.*

In 2004, just 10% of primary and 14% of secondary schools were 'e-mature' or 'e-enabled' (PwC 2004), and there is evidence that this could be stalling school improvement.

Schools in DfES-funded ICT Test Bed local authorities have received support to accelerate 'e-maturity'.

The national test results of ICT Test Bed schools have improved – and the rate of improvement has been faster than in equivalent comparator schools in core subjects at Key Stage 2<sup>7</sup> as shown in the table below.

Subject	ICT Test Bed improvement 2002-2005	National improvement 2002-2005	Comparator improvement 2002-2005
KS2 English L4+	+8.6%	+4%	+3%
KS2 Science L4+	+2.8%	0%	0%
KS2 Maths L4+	+2%	0%	0%

National data<sup>8</sup> shows that school e-maturity is statistically linked to:

- higher Key Stage 3 scores
- higher overall point scores and a greater percentage of A\*-C grades at GCSE
- better Key Stage 3-4 value add scores.

Secondary schools demonstrating strong development in e-maturity over the last four years also demonstrate a faster improvement than other schools in:

- Key Stage 3 average point scores
- the percentage of A\*-C grades at GCSE
- Key Stage 3-4 value-add scores.

### Making the most of your investment in ICT

Becta has developed a self-review framework (SRF) to help schools make the most of their investment in ICT. The SRF helps you to understand:

- how well you are doing
- how you can do better.

Once you understand your school's development needs, you can build strategies for improvement through effective whole-school approaches to using technology.

# 2 Technology helps to improve attendance

***Technology has an important role to play in reducing the 50,000<sup>9</sup> unauthorised absences every day in UK schools.***

School e-maturity correlates with lower absence rates.<sup>10</sup> Secondary schools demonstrating strong development in e-maturity over the last four years also demonstrate a faster decrease than other schools in absence rates.

E-registration systems can help to further improve attendance. A three-year study of e-registration systems found that unauthorised absences reduced by 20% in pilot schools, while the national percentage did not change.<sup>11</sup> A major benefit of the technology is that it highlights 'selective attendance' by pupils.

Integrated e-registration systems, which automatically link attendance recording with monitoring and reporting, have the additional benefit of reducing administrative burdens and have been received positively by parents.<sup>12</sup>

## **A parent notification system helps tackle truancy**

A telecoms-based service is helping over 350 UK schools tackle truancy while reducing costs and improving staff efficiency.

An automatic parent notification system contacts parents via SMS text messaging, voice calling and email on the first day of a pupil's absence.

After registration, data on absent pupils is automatically transferred to the system. The data is transmitted to the text messaging and phone system, which calls/texts or emails parents until a response is received. Text messages and emails received in response from parents appear next to the child's records.<sup>13</sup>



# 3 Technology supports personalisation

Personalisation is the tailoring of education to individual needs, interests and aptitudes.

Through personalisation, all learners can be given the opportunity to excel.

Teachers see that technology may be used to deliver the benefits of personalised learning, particularly in secondary schools. Teachers appreciate the role of technology in enabling differentiation and offering choice, but there are differences between subject departments as to how effectively technology is used.

## Greater curriculum choice

Technology supports greater curriculum choice. For example:

- In Cambridge, video conferencing and web-based tuition deliver Latin teaching in schools that do not have dedicated Latin teaching staff. Participating schools now offer learners Latin to GCSE and A-level.
- In Brighton, an e-learning programme gives students across Brighton colleges access to A-level law.

## Features of learning platforms (eg virtual learning environments)

Learning platforms help the large-scale delivery of personalised learning by providing:

- a place to store, find, access and use materials
- a platform on which to build and deliver learning activity
- a common and consistent interface and way of working
- secure and controlled access to differentiated materials
- communication tools that enable information and resources to be shared
- tracking and monitoring of student activity, performance and progress.

## Inclusion

*Schools can use ICT to improve access to learning and enhance inclusion.*

A key aspect of personalisation is the aim to improve access to learning for all learners when and where they require it.

Technology provides specific benefits for learners with disabilities or impairments as well as those unable to attend school because of illness or for other reasons. For example:

- communication aids offer access to learning for those with specific communication difficulties
- technology can enable providers to reach specific groups, such as travellers or house-bound children.

## The Communications Aids Project

The Communications Aids Project (CAP) project provided technology for pupils with significant communication difficulties, with the aim of making the curriculum accessible, assisting interaction with others, and supporting the transition to post-school provision.

Children reported positive changes in areas such as functional abilities and their quality of life, including a decrease in feelings of embarrassment, frustration and being treated 'like a baby'. The positive impact of equipment on children's participation in learning experiences was also noted.<sup>14</sup>

## Continuity of learning

Technology can provide opportunities for learners to learn outside the classroom. Schools are supporting the extension of learning through:

- remote access to the school network and learning platforms
- mobile devices, such as laptops, mobile phones and PDAs, to use within and beyond the school
- equipment loan schemes for pupils and staff
- access to lunchtime, after-school and breakfast clubs where ICT is available
- the provision of email accounts.



# 4 Technology improves efficiency and reduces administrative burdens

*A range of technologies streamline administrative tasks, delivering time savings for practitioners.*

## **Virtual learning environments**

Effective use of virtual learning environments in schools has been found to save an average teacher more than half an hour a week of time spent on routine tasks. If all schools used learning platforms and virtual learning environments effectively, £694 million worth of teachers' time would be saved.<sup>15</sup>

## **Integrated e-registration systems**

Integrated e-registration systems (see above) save teachers on average over an hour a week and deliver better quality information on learner attendance.<sup>16</sup>

## **Digital resources**

### *Lesson planning*

Teachers report that by using digital resources in lesson planning, more-carefully planned lessons using a richer range of resources can be produced without spending extra time planning. This represents the equivalent of gaining half an hour's preparation time per lesson.<sup>17</sup>

### *In class*

The use of interactive materials in class enables learning outcomes to be delivered with more pace, freeing up time for more focused interaction and consolidation – teachers report that this amounts to an average 10 minutes per lesson.<sup>18</sup>



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# References

Full information about most of the original sources summarised in this document can be found in *The Becta Review 2005*<sup>1</sup> and *2006*<sup>2</sup>. Any additional material is fully referenced.

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Millburn Hill Road  
Science Park  
Coventry CV4 7JJ  
Tel: 024 7641 6994  
Fax: 024 7641 1418

Research email: [research@becta.org.uk](mailto:research@becta.org.uk)  
Becta main email: [becta@becta.org.uk](mailto:becta@becta.org.uk)  
Web: <http://www.becta.org.uk>

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