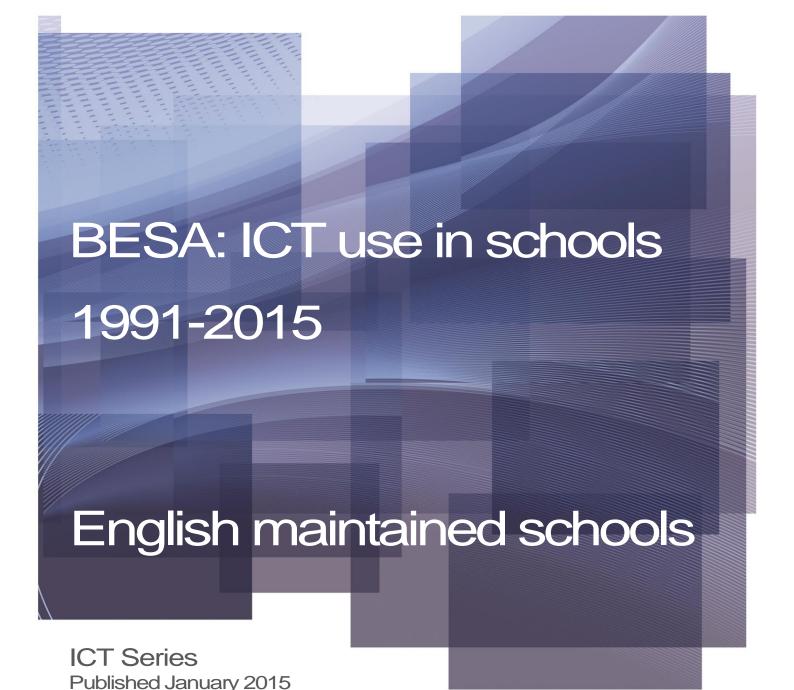


Market Research





Foreword

The digital revolution has changed our world and focused attention on education, just as the industrial revolution before it. Governments world-wide see quality schooling for everyone as the key to a highly educated and adaptable workforce.

Here in the UK, computer technology has played a central part in the drive to raise standards in schools to meet the new challenges. As a result, the country can claim to be one of the world leaders in seeking to harness new technology to improve teaching and learning in the classroom.

There was no 30-year plan or strategy. Teachers, politicians and the technology industry itself have all played their part over the last three decades, as did parents raising funds to provide equipment and children themselves driving it forward with their enthusiasm.

Several official and academic studies of aspects of technology in education have been carried out since computers were first introduced in the 1980s but only BESA has consistently monitored the equipment going into more than 26,000 state schools in the UK.

We began collecting statistics on what schools were spending on technology in the 1980s as part of our annual budget and resource provision surveys. Reports dedicated to the market for educational technology followed in 1994 and 1997 covering both state and independent schools. The following year, 1998, we launched the first of our annual technology surveys. Representative samples of schools have been asked for the last 17 years to describe the technology they were buying and how they were using it in the classroom.

The surveys went beyond purchasing data, recording information on such things as ICT training for teachers and views on the most useful devices and how comfortable staff felt with the new technology arriving in their classrooms.

This independent research into UK schools and their information and communication technology has been a BESA priority, overseen by Richard Connor, our research consultant. Independent verification of our methodology has come from research projects undertaken from time to time on behalf of successive UK governments that had findings consistent with our own.

Taken together, these reports provide a longitudinal study of the headlong rush to bring schools into the information age. To mark the first 30 years of Bett - that first opened its doors in 1985 - we look back on our reports. What went well, what mistakes could have been avoided and what lessons can we learn for the future?



Report

It was the year of the UK's first mobile phone call with a device that weighed five kilograms, Philips produced its first CD-ROM player and clunky BBC Acorn computers were hitting the market.

Margaret Thatcher was at war with the miners, Eastenders went on air, the first Live Aid concert was held and journalists were still using typewriters to record the events.

It was 1985, the same year that the first Bett opened for four days on 23rd January at a fitting location, the City of London's Barbican Centre, the arts complex that had opened three years before to controversy over its brutalist concrete design.

Bett was ahead of its time because the computer was still a rarity in schools. Since its inception in 1933 as the Educational Exhibitors Association, BESA had focused on the market for school furniture, educational materials and stationery. Though it had changed its name and broadened its remit by 1985, equipment, teaching aids and furniture remained its core interest. Only three of the 20-strong executive council came from technical companies

So when Dominic Savage – BESA's newly appointed Director General – first went to his executive council to suggest showcasing educational technology, he was met with some incredulity and great suspicion. Members backed his plans, however, and before long the exhibition had outgrown its venue and moved to the Grand Halls at Olympia. Then, in 2013, Bett made its ambitious move to London Dockland's prestigious Excel Centre where it attracted a record 35,000 visitors. Last year more than 36,000 people attended and 700 exhibitors.

Since that first exhibition schools in the UK have been transformed from the days when the computer was banished to the office or IT room to the present when technology plays a central role. It is now an intrinsic part of school life from management to teaching and learning in the classroom. Every school now has a website and usually a learning platform giving pupils access to curriculum materials 24/7. There's electronic registration, smart cards for meal payment and email contact with parents. Interactive white boards and touch screens are revolutionising whole class teaching while tablet technology and smart phones have the potential to make personalised learning a reality. Now schools are moving tentatively towards a system in which each child has his or her own device, provided by the school or smart phones and tablets brought in from home.



A thousand flowers bloom

The UK education system is not based on prescription and schools and colleges are largely free to adopt technology and use it as they wish. Attempts by governments to use ring-fenced funding and approved lists of suppliers or resources to influence take-up have not always proved successful.

"The phrase 'let a thousand flowers bloom' has, by and large, been the policy mantra that has worked and it is probably the single most important reason why such a high proportion of UK schools are using ICT effectively," says Dominic Savage. "It doesn't stops mistakes being made but it is a wonderful driver for innovation and choices that suit an individual school".

While business and industry were embracing the new technologies, successive Conservative governments under Margaret Thatcher and John Major until 1997 were not keen on prescribing how IT should be used. The Thatcher Government, however, did sponsor the Microelectronics Education Programme (MEP), conceived in the late 70s by Jim Callaghan's Labour government. Shirley Williams was the Education Secretary at the time and the IT team at the then Department of Education and Science was led for many years by Dr Philip Lewis.

Led by Richard Fothergill, the head of biology at a London technical school, MEP was given £8 million between 1981-84 to explore how computers could be used in schools "to help prepare children for life in a society in which devices and systems based on microelectronics are commonplace and pervasive". Teams of teachers, programmers and publishers developed software to run on the then available computers and demonstrated it at 14 regional information centres across the UK.

Though a small programme, it caught the spirit of the age and began to change attitudes. Its progress was watched eagerly here at BESA and in 1983, working with MEP, we took the Great British Micro Show to Singapore and Switzerland to showcase our fledgling UK edtech industry. It was enthusiastically received and there was a feeling that we in the UK were pioneers in educational technology.

By 1994 when our first report dedicated to technology in schools was published, computers were just being introduced and CD-ROMs were by far the most popular form of new technology. Just four years later, in 1998, the number of computers in the UK's state schools had grown to 820,000 and a few schools were already using the internet.

It was a significant achievement but still there was no strategy or Government policy on equipping our schools. In 1997 Tony Blair, then the leader of the Labour Party in opposition, commissioned businessman Dennis Stevenson to chair a commission to examine ways of getting computers into schools and training teachers to use them.



The inquiry report *Information and Communications Technology in UK Schools* did not bombard the reader with statistics but said schools must be given technology as an "act of faith". He compared computers to electricity that he described as an invention first regarded as a strange, almost frightening wonder of the age but one that had since come to serve every aspect of society.

It was a leap of faith into uncharted or at least unproven territory, says Dominic Savage: "There was a feeling that we were ahead of everyone else in bringing technology to schools. We were pioneers and when you are pioneers sometimes things go wrong and sometimes they go right. The fact that our schools to this day are hosting visits from education ministers and officials, literally from around the world, who want to see how technology is used in our classrooms suggests that we got more right than wrong."

Helping hand

So fast was the take up of technology that expenditure had grown to nearly a fifth of school spending on resources by our 1997 report on budget and resource provision. "With static school budgets, the expansion of spending has come via other means, such as central government funded projects, PTA fundraising, commercial software offered at lower education rates and voucher schemes to save for equipment," said the report.

Parents saw the potential of computers to help their children learn and had become avid collectors of supermarket tokens to fund school ICT purchases. Tesco computers for schools boasted that more that £70 million worth of ICT equipment was given to schools between 1992 and 2001. Which? Magazine suggested shoppers would need to spend about £220,000 to get enough vouchers for a computer but schools were undeterred, launching appeals for tokens and providing public drop off points for them.

Schools were about to get a helping hand from a new Government that would succeed in making educational technology a policy issue. Tony Blair, while in opposition in 1996, told the party's annual conference in Blackpool that the age of achievement in education would be built on new technology. "In time no child will be without access to a computer and no school unable to use them properly," he promised.

Labour's landslide victory in the polls in May 1997 started an unprecedented focus on tooling up schools for the 21^{st} Century. Andrew Thraves, the chair of BESA, looks back on Blair's first term of office as a "golden" period. "Money was going into schools for whiteboards, laptops and training.



There were targets that schools should aspire towards and targets for which the Government held itself to account in terms of the implementation of ICT in schools. Labour wanted to be seen as new and fresh and ICT went along with the young government feel. Then, from 2004, spending on infrastructure under the Building Schools for the Future initiative gave the opportunity to put technology centre stage and make sure it was embedded and worked effectively in the new buildings," he says.

Blair was able to ride on the wave of enthusiasm among teachers and pupils for new technology. In 1997 we reported that while spending on furniture was going down, the amount devoted to hardware and software that year was increasing by eight percent to £135 million, just slightly below the budget for stationery. It was a significant sum at the time but 18 years later, in 2014, schools were spending £596 million on ICT and the budget is expected to rise to £623 million this year.

Though Government support and funding played a significant role, the enthusiasm of teachers for technology was a driving force. A high proportion of companies that are members of BESA were started by teachers who thought they could teach their subject a lot better with the right ICT resources and set up companies to prove it. Many successful edtech suppliers in the UK began life that way.

The late Nineties was a busy time for the UK's educational technology industry as one Labour Government initiative followed another. In 1998 Britain became the first country to give educational technology its own quango - the British Educational Communications and Technology Agency (Becta). The agency played a role in the drawing up of a new primary curriculum in 2009 in which ICT was elevated to a core skill alongside literacy, numeracy and personal development. Becta had grown to 250 staff by the time it was axed within two weeks of David Cameron being elected Prime Minister in 2010. Michael Gove, Cameron's first education secretary, also called a halt to the planned introduction of Labour's new primary curriculum.

Our 1998 survey found that only one percent of secondary and seven percent of primary schools were without at least one computer. However, the headline finding was the growth in internet connectivity. The report states: "In 1995 there was virtually no internet use in schools. It is a dramatic development that in 1998 we now report 34 percent of primary and 87 percent of secondary schools having some internet connectivity. The results suggest that just over 10 percent of computers in schools are connected and that pupils have some access in 9,000 state schools."



New opportunities

In 1999 Labour launched the New Opportunities Fund using National Lottery funding to provide £230 million until 2002 to be spent on ICT training for teachers. On the basis of questionnaires completed by teachers we estimated that only a third of teachers had computers with internet access at home at home that year and a very high proportion said they needed training before they could make best use of the technology arriving in their classrooms.

By June 2000 the number of computers in schools had risen to 851,100 and our report notes the increasing interest in portables. Of the total computers that year, 280,000 or nearly a third were laptops. Nine in 10 schools were connected to the internet with an average of 16 connected units per school. The proportion of teachers with a computer with internet access at home had increased to two thirds.

Lottery funds had not solved the training problem, partly because the training on offer was often pitched too high and not well matched to the needs of teachers, some of whom did not know how to turn on a computer. There was also an urgent need for on-going support for them as the technology developed. Asked how well teachers could use technology, ICT co-ordinators thought less than half – 47 percent – on average were confident and competent and that was mainly at word processing tasks. A third of schools said 70 percent of their staff were not confident and competent with ICT.

The New Opportunities Fund programme may not have gone far enough but at least it provided some training, says Dave Smith, the Computing and e-safety adviser at the London Borough of Havering. He was involved in organising training at the time and believes that the lack of training was a mistake. "We spent a lot of money on technology but not nearly enough continual professional development and improving pedagogy," he says. "Becta ran ICT test beds and one of them, in Barking and Dagenham, spent 60 percent on equipment and 40 percent on staff training and technical support. The balance was about right but generally schools were spending their technology budgets on equipment. Staff were lucky if training got as much as 10 percent of it."

The need for more training for teachers in using technology was a recurrent finding of our annual reports. Many of the teachers had never before used a computer or an interactive white board let alone mastered the intricacies and quirks of software such as Microsoft Word or Excel. Expensive equipment was not always being used to its potential.

Setting up the equipment itself became a challenge and our reports in the early 2000s found teachers complaining that it took too long, reducing the time for teaching.



High tech school of tomorrow

As the political parties mobilised for the General Election in 2001 Blair was able to claim significant progress in his drive to improve access to technology for both teachers and pupils. Our 2001 survey shows that as he went to the polls the number of computers in schools had passed the million mark to 1,081,080. Computer access for pupils was good in 36 percent of primary and 45 percent of secondary schools.

Shortage of good quality software had been a constant complaint from schools since we first launched our surveys. The education software industry had found itself torn between the need to spend money on research and innovation and the price sensitivity of the education market.

The companies, many of them those small businesses launched by teachers, were also facing a threat from the BBC Jam, the BBC's new and free digital curriculum with multi-media resources commissioned by the Labour Government. However, BBC Jam faced a legal challenge over breach of competition rules because it was being launched by a public body funded by the Government.

In response to the threat, Tony Blair launched Curriculum OnLine in 2001 and announced £50 million worth of e-learning credits (eLCs) for schools to purchase software from the curriculum website. In 2003 the eLC budget was increased to £280 million over three years . BBC Jam finally went live in January 2006 but folded in March 2007 after BESA and a group of its members took the breach of competition case to the European Commission which found that BBC Jam did indeed represent illegal state aid.

Meanwhile Estelle Morris, who replaced David Blunkett as Education Secretary, had opened the 2002 Bett with a video of the Government's vision for the high tech school of tomorrow, suggesting Labour had lost none of its enthusiasm for using technology to drive up standards. By then number of computers in schools had shot up by more than 300,000 to 1.4 million and Labour announced the Laptops for Teachers initiative costing over £100 million over two years. Teachers made a contribution to the cost but then the laptops were their own, to use as they wished. Allowing personal use of the laptops was fundamental to the scheme's success says Dominic Savage. Other countries that have restricted their use to work have found laptops much more likely to be left unused.

The teachers' laptop project was the first big event to make a difference, says Barbara Higginbotham, an Area Sales and Training manager for Data Harvest. "The second was the arrival of interactive whiteboards. Actually it was the digital projector that was the real success. Suddenly teachers could use their computer as a modern blackboard. But, instead of chalk letters, equations and diagrams, they could make use of video clips, pre-written quizzes, images and digital equipment such as dataloggers and digital microscopes to the turn the invisible to visible."



By the time Tony Blair had won a third term of office in 2005 Britain's schools were some of the most technology rich in the world with nearly two million computers. Almost all secondary schools – 99.9 percent - were connected to the internet. Four fifths of primaries used interactive whiteboards and 99 percent of secondaries. But despite recent investments in software through eLCs, our surveys found that the demand for technology had moved on so quickly that only 28 percent of IT managers and 15 percent of teachers felt their schools were well-equipped.

Asked to rank the contribution of different technology to raising standards teachers thought in 2003 that pupil access to desktops and laptops was the most important. Two years later, in 2005, teachers put at the top of the list ICT training for teaching and whole class teaching aids, such as interactive whiteboards.

But with almost all secondary schools connected to the internet in 2005 and all primaries by 2008 teachers were facing a new obstacle to using technology – bandwidth. Internet bandwidth was considered less than half the optimal level in 2007.

In 2008 the Labour Government, now led by Gordon Brown as Prime Minister, rolled e-learning credits into a new fund, the Harnessing Technology Grant that was to provide £639 million between 2008-11 to help schools and local authorities improve their services, such as broadband infrastructure, learning platforms alongside digital learning resources. Despite the recession, ICT budgets reached their peak of £420 million across the UK by 2010. By then the purchase of hardware had slowed down and personalised learning and learning platforms were changing the way computers were used in schools.

Interactive Blu Tack

There's little point in buying a cart if you haven't got the horse to pull it and the analogy sums up the downside of Labour's otherwise successful drive to equip schools with new technology. In the early days companies supplying the hardware would very often package up training for teachers as part of the purchase or license price. But when Becta drew up its approved lists of suppliers and products it emphasised the need to keep prices as affordable as possible. Suppliers, needing to keep costs as low as possible to get on the lists, came under pressure to leave out or reduce the training element and leave it to schools or local authorities.

A lot of whiteboards, for example, got sold on the basis of the lowest prices and the substantive training was stripped out of the package, says Dominic Savage. "Whiteboards were going up on walls without teachers being trained to use them and, not surprisingly, they got used as glorified projector screens." Part of the problem was Labour's £350 million scheme to get whiteboards in every school.



"Had it been left up to schools to decide how to spend the money there would have been a smaller and more effective build-up of using that particular technology with much more training and it would have had a far greater educational impact," he says. "Charles Clarke, secretary of state at the time, was the most consistent ministerial supporter of technology and his enthusiasm and readiness to fund schemes was helpful. The problem was their delivery through Becta, which in turn, had to work with a very unhelpful regime of government procurement rules."

Even in 2007, when 91 percent of primaries and almost all secondaries were using whiteboard technology in the classroom, only 31 percent of primary and 16 percent of secondary schools said the majority of teachers were very confident in using them.

As late as 2012 Dave Smith recalls going into a school in another local authority and noticing pictures fixed with Blu Tack onto interactive whiteboards: "I asked the teachers what they were doing that for. They didn't know that instead of printing off pictures from the internet and sticking them to the whiteboard, they could just click and drag them to the board from their laptops. When schools needed it most, the training just was not there," he says.

Our report in 2013 showed schools shifting to tablet technology and by 2014 we found 47 percent of computers in schools were portable laptops and tablets. A new phrase had come into being - "screen down" – classrooms where tablets are on the desks but unused. David Fairbairn-Day, the Head of Education Strategy and Business Development at Promethean, says technology works best when there is a strategy to embed it. "In a number of parts of the country I see schools putting in policies for every student to have access to a tablet. Sometimes, once the tablets arrive, they are scratching their heads. Now we have them, what do we do with them? "

Central prescription

Decisions were made centrally about what schools needed and schemes devised accordingly, instead of letting schools and teachers work out what they could make the best use of, says Dominic Savage. Curriculum Online was another example. "There were lots of rules about what schools could and could not spend their money on and all too often the rush to spend their software allocations meant they bought titles that stayed unused in cupboards," he says.

David Fairbairn-Day, agrees when he looks back on his teaching days in the late 1990s: "We were given sums to spend on educational software and it had to be spent by the end of the month and if you didn't spend the money then you lost it. Teachers were going out and buying things they didn't need and wouldn't use."



Data from our reports back up their observations. In 2004, for example, we found that spending on software had increased and most schools had spent their e-learning credit allocations. However, 60 percent of primary ICT coordinators believed that the ring-fencing of the money had led to software being purchased for the sake of it and left unused. The picture was similar in secondary schools where 62 percent of heads of ICT said software was not being fully utilised.

Our 2004 survey also found that at the height of the Government's e-learning credit scheme, more than four fifths of primary and three-quarters of secondary schools would have preferred to spend their eLC allocations elsewhere, mostly on more ICT hardware.

Ironically, the introduction of eLCs had resulted in 42 percent of primary and 33 percent of secondary schools purchasing more non-eLC eligible curriculum software and content. Throughout the period, our surveys consistently showed schools ignoring Becta's lists and more likely to rely on supplier catalogues or websites and recommendations from colleagues when making software purchases. In 2005, for example, only seven percent of primary and 13 percent of secondary school ICT coordinators thought Becta's Curriculum Online website was the best place to find suitable software. More than a quarter of schools said they seldom used it. "The scheme was born of the best intentions but became problematic because of its poor implementation," says Dominic Savage.

Facts not content

The arrival of David Cameron at Number 10 Downing Street in 2010 and the appointment of traditionalist Michael Gove as Education Secretary ended Labour's computer arms race for schools. Two weeks after the election on May 6 the Coalition government announced the closure of Becta to save £80 million of public spending. Gove stripped out £1 million from the year's £2 million Harnessing Technology grant promised by Labour.

Gove halted Labour's new primary curriculum that put ICT at the centre as one of four core elements alongside literacy, numeracy and personal development. He said he wanted to see more facts, more emphasis on the content of the curriculum and less on the way it was taught.

By this stage schools had 2.5 million computers and nearly half said they anticipated that pupils would spend more than 50 percent of their time using ICT in their learning by 2011. The training need was still urgent, however. Our survey showed 54 percent of secondary and 45 percent of primary schools saying that more than half of their teachers needed training in using digital content. Further, 71 percent of primary and 68 percent of secondary schools considered more than half the staff need training in learning platforms.



In 2012 our survey showed the first slowing down in the level of computer provision in schools. "The reduction is taking place at a time when additional demands are being made on use," said the report. Based on questionnaires, we detected that teachers thought Michael Gove had no time for technology and was more interested in the chalk and talk methods of teaching with memorised facts and dates.

So it was a surprise when Gove not only agreed to open Bett in January 2012 but also used his speech to describe the potential of technology to disseminate learning much more widely. He also applauded the unprecedented opportunities technology brought for assessing the strengths, weaknesses and progress of individual pupils.

To the delight of our executive council, Michael Gove promised new investment in training teachers to be confident in using technological tools and resources and able to adapt to new ones as they emerged. "That means ensuring that teachers receive the best possible ITT and CPD in the use of educational technology," he said.

They were welcome words but two years later, in 2014, we reported the findings of our CPD Training in Schools research that there was an even greater need for training, given Gove's changes to the curriculum and assessment.

The proportion of schools rating their training need as highly important had gone up to 74 percent of primaries and 38 percent of secondary schools.

Meanwhile, ICT had been scrapped as a curriculum subject and replaced by computer science, adding to the training needs of teachers. Even teachers confident in their mastery of the use of technology said they did not necessarily know how to teach programming.

Wireless provision was a major problem in many schools and teachers believed it was having a significant impact on pupils' ability to make the best use of the available technology available. Two thirds of primary schools and more than half of secondary schools aid they were under-resourced in Wi-Fi connectivity in 2014.

Inadequate broadband provision was a problem for 42 percent of primary schools and 31 percent of secondary schools. Caroline Wright, BESA Director, highlights the concern: "British teachers are world-leaders in the use of educational technology in the classroom so it is of great concern that pupils are being denied access to innovative and effective digital learning because of poor internet connectivity in more than half of the UK's schools,' she says.



Lessons for the future

The UK is certainly considered to be among the world leaders in educational technology and equipped schools. As we said at the beginning, some things were done well and some not so well. So what are the lessons for the future?

Not letting the technology so dazzle you that you forget to ask how it will actually help teachers to improve lessons and raise standards is an important lesson for the future, says David Fairbairn-Day.

"In the beginning there was too much emphasis on putting technology into the hands of teachers and pupils because it was visible and made a good impression, he says. "I am still seeing that in some countries. The focus in the UK at the time was very much on the hardware and not on the objectives and what you were trying to achieve with it. The good intention was there but, with the benefit of hindsight, some of the decisions that were made were not necessarily the best ones and some of the spending on technology was misplaced."

The importance of high quality training for teachers before the technology is put to use in the classroom plus continual professional development to keep them up to date in a fast-moving world, is another conclusion that can be drawn from our reports over two decades, says Dominic Savage.

Thirdly, central prescription is not always the best way to move schools in the right direction. Dominic Savage recalls a conversation just before Michael Gove left the Department for Education: "I asked Michael Gove what he was most proud of achieving. He particularly mentioned devolving more powers to school level and creating a real opportunity for individual schools to have their own vision and the budgetary freedom to achieve it. Implied in his answer is the placing on schools of a responsibility to be sufficiently informed and to ensure their staff are sufficiently trained to make the right decisions. Our history of ICT does support the argument for saying to schools 'here is the money and this is what we want you to achieve and this is how we will measure it and you decide how to spend it'," he says.

Alongside changes to the way students learn there needs to be change to the forms of assessment. "As a country we need to get a consensus about what we want from the education system and how we are going to assess both the progress of the system and that of individual pupils. At the moment we have 21st century classroom practices with a 20th century examination system and we are not going to move forward unless we bring them in line," he says.

Our reports show how far the UK has come over the last three decades as education shared the investment in technical skills that continued to lead the world. Educational technology has come a long way.



Who could have foreseen even 50 years ago that by the 21st century pupils learning about tsunamis would be able to meet face to face through video conferencing with children across the world who survived one? Who could have predicted that children would be able to see the invisible through advanced data logging techniques that can monitor the growth of a flower in the classroom while they are at home in bed?

As technology develops teachers will need the time and resources to explore it, pool their expertise and decide what will best help them and their students. Pressure on public finances and the challenges we are likely to face over the next decade make it imperative that schools are supported as they adapt to the 21st century, says our Director, Caroline Wright. "In this, an election year, it is all the more important that politicians, policy makers and school leaders are willing to listen and learn from our ICT legacy and help to build a technology enhanced approach to education that will inspire and meet the learning needs of future generations," she says.

This report is being published as the DfE's Educational Technology Action Group is also making recommendations for the future. Whereas our longitudinal research is primarily reporting historical usage and the lessons to draw from three decades of experience, ETAG is searching for clarity in a crystal ball, says Dominic Savage. "Its deliberations have certainly highlighted one need that is better addressed nationally: investment in broadband provision at speeds applicable to education's growing need which is where the government can make the difference," he says.

The group has recognised the cultural change that is necessary to heighten the emphasis on training for teachers and emphasises the major change in assessment that must be at the forefront of our national next steps.

As schools move towards a one device per child policy there is even more opportunity for teachers to give instant support and feedback to the individual pupil and to differentiate tasks and targets within a whole class environment. Computer based assessment has developed to the stage at which it can give reliable information to teachers on pupil progress and save teacher time that can be devoted to teaching and learning.

From being seduced by computers at first, the education system has moved to a new, pragmatic understanding of ways in which technology serves education and not the other way round.

There will be more advances of which we, here in 2015, can only dream. But the message from our reports is that teachers and students will be ready and willing to embrace them.

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Market Research

