Professional educators and the evolving role of ICT in schools

Perspective report

Joe Nutt
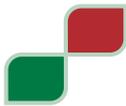
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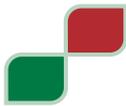
About the author

Joe Nutt's 19 years' teaching experience in the UK has ranged from boarding schools, to challenging, inner-city state schools. He left his English teaching post at the City of London School to become Director of Learning Evolution with Digitalbrain before becoming a tutor for the highly successful, innovative new teacher training programme in the UK, Teach First, in 2001. In 2004 Joe joined RM, the global education group, where he worked for five years as senior educational specialist, winning the company's first ever Entrepreneur of the Year competition in 2009. He joined CfBT in 2009 as Principal Consultant.

He has worked on a number of major educational projects including the national intranet for Scotland, Glow, which won the Global Learning Impact Award in 2009. Joe also designed the Glow training programme for over 54,000 teachers. He has been involved in many of the UK's £42 billion BSF (Building Schools for the Future) projects, working closely and creatively with design teams and architects on new school design. He has published research internationally, and delivered keynote speeches at a number of national and international conferences on issues relating to technology use in education.

Joe is also the author of *John Donne: the Poems*, and *An Introduction to Shakespeare's Late Plays*, both published by Macmillan, and his latest book, a student's guidebook to John Milton's epic poem, *Paradise Lost*, should be published in 2010.

He also writes a popular blog on educational issues, 'The Good-morrow,' and is a member of the Royal Society of Arts' Bloggers' Circle.

Executive summary

Dissatisfaction with the way many government schools perform has led to widespread efforts to change them, and underpinning many of these initiatives is the deployment of expensive and innovative new technologies. Investment in educational technology in Organisation for Economic Co-operation and Development (OECD) countries and schools in recent years has been unparalleled and developing countries are increasingly feeling the pressure to pursue the same policies and programmes.

Claims for how technology can improve educational performance in schools are widespread and influential yet the research evidence is extremely weak and the discourse is often clouded and confused by the motives and interests of some key individuals and organisations. Nonetheless, huge investments have been made and continue to be made across the developed and the developing world.

One of the major reasons this has happened is because of an alliance between influential individuals, technology companies and government agencies. A small group of enthusiastic writers and researchers – 'ICT Gurus' termed in this paper 'techno-zealots' – have allied themselves with the suppliers of ICT equipment and convinced many policy-makers of the remarkable, transforming power of technology. The reports and publications produced by the techno-zealots and their allies often fail to meet high standards of scholarship and evidence. Typically the likelihood of impact and better educational outcomes through technology is simply asserted without a remotely compelling evidence base. There are dissenting voices. There is an increasing body of evidence and research by reputable organisations and educational bodies, which raises serious questions about how ICT in schools is designed, procured and implemented.

The technology itself is also instrumental in this pressure to invest because these same organisations and individuals are skilled and adept at exploiting it for marketing purposes.

Many new technologies are so powerful and work so quickly, that they have disrupted the accepted practice of academics and scholars in peer reviewing and evaluating colleagues' work, replacing scholarship with marketing practice and tools.

One of the myths propagated by enthusiasts for technology is that the nature of learning has fundamentally changed as a result of wider technological change. They call for a new range of skills, sometimes referred to as 'digital literacy'. The rise of 'digital literacy' as a concept, loose as it is, has also exerted considerable pressure on schools and teachers to change fundamental aspects of their practice and schooling. On closer examination 'digital literacy skills' appear to be no more than the higher order enquiry and synthesis skills that teachers of traditional subjects have long taught.

Schools and teachers need to put themselves in a position to defend themselves against these complex and powerful pressures, if they are to ensure that the technology they do invest in and deploy brings meaningful educational benefits and improvements. The argument is not that technology is of little value to schools. Grandiose claims obscure the real benefits – at school and classroom level – that arise when technology is used properly and seen as one of several useful tools that can assist the work of teachers.

1. Introduction

Dissatisfaction with the performance of government schools has been a common theme permeating the political manifestoes and education sector plans of politicians worldwide for substantially longer than a decade. The result has been a plethora of educational initiatives promising everything from the ambitious 'improvement', via the non-confrontational 'change', to the evangelical 'transformation'. Many of these initiatives have been underpinned, and often inspired by, the promise of technology to bring about improved educational outcomes.

The result has been massive public spending on technology. In the UK, for example, according to research by Besa[1] the British Educational Suppliers' Association: *In 2009–10 UK state schools recorded ICT budgets (excluding curriculum software) of £576.8 million – up by £18.6 million on 2006-07 levels of £558.2 million. ICT allocations from school budgets are estimated to be around £556 million in 2010–11 – excluding curriculum software and digital content.* Spending on educational ICT in 2008–09 in the UK was £2.5bn, and it is expected to reach £2.9bn by 2011–12. Besa suggests that a typical primary school ICT budget is likely to be £13,380 in 2010–11, while secondary budgets will be £62,970. Kable, a leading provider of ICT public sector research, disagrees and estimates that the average ICT spending for each primary school for 2010–11 will be about £19,786, and £129,458 for secondary schools.[2] Kable's figures exclude the cost of in-house ICT staff but include spending on the Building Schools for the Future (BSF) programme and other costs such as curriculum software. The calculations may differ but the sources agree that the level of expenditure is considerable. A recent Times article[3] in the UK lists government ICT initiatives over the last decade ranging from the £700m promised by Tony Blair in his 2000 election manifesto to put computers into primary and secondary schools, to the proposed £55 billion programme to rebuild and refurbish 3,500 secondary schools, which included a planned cost of £1,675 on every pupil purely on ICT. The transformation promised by ICT was at the very heart of the UK's Building Schools for the Future programme and was manifested in all the documentation and processes private sector companies bidding to participate were required to undertake. In the UK, the last government started a scheme in 2010 to give 270,000 low-income families a free computer and free broadband access. The picture is similar in the US where the K-12 market increased spending on ICT from $5.1 billion in 2005 to $6.0 billion in 2009. Higher education institutions in the US increased ICT spending from $4.7 billion in 2005 to $5.9 billion in 2009.[4]

Developing nations have not been slow to follow this lead in their anxiety to keep up with the pace of change and secure investment from international donor organisations in order to fund ICT programmes in their school systems. The emergence of Nicholas Negroponte's one laptop per child initiative is just one of the many examples of a belief amongst some that social and economic disadvantages can be addressed quickly and effectively through supplying technology as part of a nation's education system. In the words of the project's website:[5] *By giving children their very own connected XO laptop, we are giving them a window to the outside world, access to vast amounts of information, a way to connect with each other, and a springboard into their future. And we're also helping these countries develop an essential resource—educated, empowered children.*

[1] http://www.besa.org.uk/besa/documents/view.jsp?item=1326 Besa, ICT in UK State Schools 2009 annual report. Accessed 1 March 2010.

[2] http://www.kable.co.uk/british-educational-suppliers-association-school-spending-01oct09 Kable online news. Accessed 17 May 2010.

[3] http://www.timesonline.co.uk/tol/life_and_style/education/article7019905.ece Accessed 1 March 2010.

[4] Private correspondence with Mike Truncano, Senior ICT and Education Specialist Education Sector, Human Development Network, The World Bank.
 Source: US Department of Education, OET website, http://www2.ed.gov/about/offices/list/os/technology/index.html
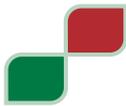
[5] http://laptop.org/en/vision/mission/index.shtml Accessed 17 May 2010.

2. Evidence myths

Governments worldwide often assume that more access to technology will improve learning outcomes. Does the evidence support this assumption? Let us look at one typical example of claims and evidence. The previous British government's website[6] which publicised the Computers for Pupils Programme, stated boldly and confidently: *'Research shows pupils could improve by two grades at GCSE with a computer at home'* and cites research by the Institute for Fiscal Studies.[7] This was a simplistic reading of the research which actually indicates that outcomes are linked to several causal factors. The government was right though that a home computer is cited by the research as a possible causal factor. A reading of that research reveals that the authors assume that computers may be significant but make no such assumption about the possible significance of books at home.

The researchers outlined very clearly their methodology when analysing the mass of data from the Longitudinal Study of Young People in England, which follows a single cohort of around 15,000 teenagers born in 1989 and 1990 from age 14 to age 17.

> *'At the heart of our analysis is a very simple model linking parents' socio-economic position to child outcomes at ages 14 and 16/17… In this model, we link a young person's family background – which covers a set of characteristics including their parents' socio-economic position, education and other family background measures – to child outcomes at 14 and 16/17 via a set of potential transmission mechanisms. Specifically, we suggest that there are five main routes through which family background might influence educational attainment and engagement in risky behaviours, other than as a result of genetics.'*
>
> Chowdry, H., Crawford, C. and Goodman, A., (2009) *Drivers and Barriers to Educational Success Evidence from the Longitudinal Study of Young People in England*, p.10., Institute for Fiscal Studies.

Besides noting that important phrase, *very simple model*, of the five *transmission mechanisms* the researchers identified, the only one which relates to technology is number (iv) *Material Resources* which is then clearly defined as:

> *'Private tuition, plus home computer and internet access.'*
>
> (ibid, p.16.)

Most people would be surprised to find that an analysis of the impact of the 'material resources' available in the home environment on a child's educational performance, was limited to these three features and made no mention of books. In fact the word *books* occurs only once in the entire paper, while *computers* figures repeatedly. It seems difficult to avoid the conclusion that the researchers simply assumed that the availability of computers and internet access in the home was likely to prove a better indicator of educational advantage than the presence of books. There appears to be no account taken at all of the wealth of research that links basic literacy based on reading books at home to educational success across differing cultures and countries. Put more bluntly, it seems that the research was, like much in the field of educational ICT, undertaken with a prior assumption of a likely connection between technology and educational success.

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[6] http://www.dcsf.gov.uk/pns/DisplayPN.cgi?pn_id=2010_0011 DCSF website. Accessed 1 March 2010.

[7] Chowdry, H., Crawford, C. and Goodman, A. (2009) *Drivers and Barriers to Educational Success Evidence from the Longitudinal Study of Young People in England*, Institute for Fiscal Studies.
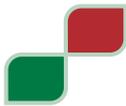
Some large-scale research studies have attempted to evaluate the relationship of ICT use to aspects of student achievement.

There are a few dissenting voices. The question of partisan research[8] has been identified by the World Bank. In the Bank's comprehensive study of ICT in education[8] the authors state:

'Bias is a very real issue in most of the monitoring and evaluation work done of ICT in education issues across the board. Such biases are often introduced at the monitoring and evaluation design stage, and include a lack of relevant and appropriate control groups, biases on the part of 'independent evaluators' (who often have a stake in seeing positive outcomes), and biases on the part of those evaluated (who may understandably seek to show that they have made good use of investments in ICTs to benefit education). The opportunity for such biases (which are usually positive biases) are especially acute where there is a great reliance on self-reported data.'

Truncano, M. (2005) *Knowledge Maps: ICT in Education*,
Washington, DC: infoDev/World Bank, p.10.

In its key findings, the same publication states unequivocally:

'The impact of ICT use on learning outcomes is unclear, and open to much debate. Widely accepted, standard methodologies and indicators to assess impact of ICTs in education do not exist… Despite a decade of large investment in ICTs to benefit education in OECD countries, and increasing use of ICTs in education in developing countries, important gaps remain in the current knowledge base. In addition, there appears to be a dearth of useful resources attempting to translate what is known to work – and not work.'

(ibid, p.1.)

Another untypically objective assessment was undertaken by the development agency of the government of New Zealand. Research carried out by NZAID[9] in September 2008, looking into the effects and educational value of the 'one laptop per child' initiative in the Pacific region, examined several major, international meta-analyses carried out in relation to computer use in instruction and concluded, *'Some large-scale research studies have attempted to evaluate the relationship of ICT use to aspects of student achievement. The relationship between increased technology usage and increased learning, as measured by standardised tests, is a popular area. However, results are inconclusive – sometimes there is a positive relationship (generally modest); and sometimes no relationship.'* The Use of Information and Communications Technologies (ICT) In Pacific Schools, with reference to the One Laptop Per Child (OLPC) Project, prepared for NZAID, September 2008, p.4.

When an objective assessment is undertaken the research finding is inconclusive. So in the face of this evidence, how have we reached a situation where money is still being poured into school technology budgets in OECD and developing countries alike, to fund an ever expanding range of educational technology promising everything from motivating disaffected boys, to transforming failing schools?

Policy-makers and international bodies understandably wish to be associated with modernity, success and change. In this context technology has a seductive quality because it appears to offer the promise of easy but transformational change. As a result unproven assumptions about the power of technology are routinely expressed as fact. The European Union's large scale study of the impact of technology in primary schools, STEPS[10] is an example of this phenomenon.

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[8] Trucano, M. (2005) *Knowledge Maps: ICT in Education* Washington, D.C.: infoDev/World Bank.

[9] *The Use of Information and Communications Technologies (ICT) In Pacific Schools, with reference to the One Laptop Per Child (OLPC) Project*, prepared for NZAID, September 2008, p. 4.

[10] STEPS accessed 3 July 2010 at:
http://eacea.ec.europa.eu/llp/studies/documents/study_impact_technology_primary_school/01_executive_summary_steps_en.pdf Executive Summary, p.3.

'Total cost of ownership' (TCO) is often underestimated, sometimes grossly, when calculating costs of ICT in education initiatives.

It concluded, *'for children, a range of knowledge, skills and competencies – both traditional and '21st century' e.g. creativity, learning to learn – are acquired through the use of ICT, including mathematics and science, language (first and second), and digital and social skills. …ICT is therefore a key enabler for initiating change in our education systems, releasing creativity and innovation and motivating lifelong learning.'*[11]

One of the key aims of this paper is to explore why this kind of optimism about the potential transformative power of technology is so common among policy-makers. A more informed view may help teachers, school principals, civil servants and politicians to make better decisions about how to use scarce financial resources. One of the common worries that major funders and donors express is that all this spending is happening without any intelligent assessment of the real cost.

> *'Total cost of ownership' (TCO) is often underestimated, sometimes grossly, when calculating costs of ICT in education initiatives.'*
>
> *Good practice in information and communication technology for education* (2009), Mandaluyong City, Philippines: Asian Development Bank, p.20.

The Asian Development Bank[12] also goes to great pains to break down the total cost of ownership and advise caution in its study of educational ICT.

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[11] STEPS, Synthesis Report, http://eacea.ec.europa.eu/llp/studies/documents/study_impact_technology_primary_school/02_synthesis_report_steps_en.pdf accessed July 3rd 2010. p. 48

[12] *Good practice in information and communication technology for education* (2009), Mandaluyong City, Philippines: Asian Development Bank.
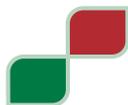
3. Techno-zealots

One of the first acts of the new UK government elected in 2010 was the abolition of the educational technology agency, Becta. Before its abolition Becta had called upon schools in the UK to become 'e-confident'. Where did this concept of the e-confident school come from? One of the least well understood mechanisms pressurising schools and teachers to embrace technology is the growth of a highly influential class of public advocates, ICT Gurus for computers in schools, that I term 'techno-zealots'. The speed at which the kinds of technology which might have a use in education has moved in recent years has been extremely rapid and only the most fleet footed enthusiast is likely to be able to keep pace. Busy teachers, who do not have any kind of ICT role or responsibility, are simply unable to keep up with the pace of technological change. They rely on advice from specialists. Unfortunately many of the specialists – the techno-zealots – have as a key characteristic an interest in 'technology for technology's sake' which usually goes hand in hand with a lack of interest in evaluating what pupils actually create or achieve using the technology. If the techno-zealots and their followers make any reference to impact it is often a reference to an inappropriate measure, such as the number of times a website is 'hit' by a user, to assess learning impact or value.

A second characteristic of the techno-zealot is their impressive ability to exploit technology to self publicise. The internet especially, has enabled many millions of people to 'publish' their thoughts and images on a wide range of websites devoted to sharing or communicating with others. Techno-zealots use modern marketing techniques very adeptly to create an online presence which furthers their cause and publicises their services. Traditional standards of academic process are rarely met. While one would normally expect an educational expert to publish in print, peer reviewed, academic research, a typical guru's website will point to online writing, video case studies or, at best, print journalism as 'evidence' to support their claims.

4. ICT suppliers

The gurus and techno-zealots have an interesting relationship with commercial suppliers of technology and technology services to schools. Suppliers use the marketing term 'key influencers' to describe anyone they believe might be in a position to push, or advance their sales into the market concerned and so they cultivate a relationship with well-known figures, which usually consists of an unspoken tit-for-tat arrangement. The gurus seek sponsorship and publicity for their own work while the supplier exploits an opportunity to influence visitors to the gurus' events. There is of course, nothing at all wrong, illicit or underhand about this, as long as you know it is happening, but the world of education is different from other markets in that teachers tend to believe they are operating outside of a commercial market since so much of the technology they are asked to purchase or use is delivered to them through nationally or locally funded programmes linked to major policy initiatives. The UK programme, Building Schools for the Future, was a perfect example. Every local authority seeking funding for a new school building had to deploy a learning platform software application as the key to delivering transformation through improved assessment, teaching and learning, and all teachers had to receive training on its use. With the government and the local authorities taking the benefits of technology for granted, teachers and headteachers can be forgiven for not challenging the basic assumptions of such programmes. In addition, many government educational agencies partner with commercial suppliers to create bodies and online communities, which are designed to encourage the use of technology in schools and assert its value. The effect is to build up a substantial weight of pressure on single schools and especially school heads, who are ill equipped to understand, let alone question it. The World Bank research acknowledges this when it states:

> 'Much of the publicly available information about the effectiveness of particular ICT tools is generated by the companies who market such products and related services.'

(ibid, p.32.)

This use of viral marketing strategies by techno-zealots and gurus is an example of the commercialisation of the entire internet so clearly articulated by Lee Siegel in his book, *Against the Machine. Being Human in the Age of the Electronic Mob.*[13] Siegel links the commercialisation of the internet with the theories of business guru, Alvin Toffler, who coined the term 'prosumer' to describe a third wave of history following the second, industrial age.

> 'We must live as though every niche of existence, no matter how insignificant seeming, can be turned into a commodity or service that someone else will want to acquire. This casts the whole question of leisure into a new light,' writes Toffler. 'Once we recognize that so much of our so called leisure time is, in fact, spent producing goods and services for our own use – prosuming – then the old distinction between work and leisure falls apart. Why buy a table and bring it home? Instead, why not buy the parts of a table and bring it home and assemble it? That way, our leisure time gets absorbed into the marketplace – we use our own labor to bring down the costs of the products we consume; in this case, exchanging our personal time and labor for some portion of the price of the table. We produce as we consume: we 'prosume.'

Siegel then goes on to explore how internet 'boosters' have adapted Toffler's theory to cover every possible aspect of internet activity so that everything from buying a book (Amazon), through routine

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[13] Siegel, L. (2008) *Against the Machine. Being Human in the Age of the Electronic Mob*, New York: Random House.
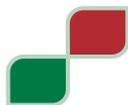
Learners of all ages need the chance to use technology well to support their learning.

communication with friends (Facebook), to finding a marriage partner (Match.com), becomes just another form of commerce. Against this all consuming cultural shift, is it really surprising that education has also succumbed? So as leading technology suppliers partner with ICT gurus to support innovative, 'best practice' or other types of events to which ICT staff in local authorities and schools are invited to become 'innovators' or 'thought leaders', the effect is for ordinary schools, teachers and eventually pupils to be on the receiving end of technology whose only recommendation is frequently the gurus' favourite plaudit, that it's 'cool'.

In addition to the pressure exerted by the commercial suppliers, is that coming from apparently authoritative reports that do not adhere to accepted standards of scholarship. These reports are published chiefly online, but occasionally in print, and only very rarely through peer review or any other formal academic process. A good example is Becta's own, *Harnessing Technology, Next Generation Learning, 2008–2014.*[14] This document begins with this statement:

> *'Learners of all ages need the chance to use technology well to support their learning. In some cases this learning is an investment for the future; in others it is more informal; but importantly it can lead to greater productivity and prosperity, personal fulfillment, (sic) and a stronger community and a fairer society.'*
>
> (p.4.)

The claims could not be more grandiose, but there is only one place in the entire paper where the authors refer to research which suggests technology has had a positive educational effect.

> *'In addition, links between the use of technology and improved learning outcomes have been identified in an increasing body of evidence.'*
>
> (ibid, p.19.)

Not only is the reality that Becta cites its own previous technology review as evidence, but the research the 2007 review refers to was itself commissioned by Becta.[15]

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[14] Becta (2008) *Harnessing Technology, Next Generation Learning 2008–2014*

[15] The research paper Becta refers to is Cox, M., Abbott, C., Webb, M., Blakeley, B., Beauchamp, T. and Rhodes, V. (2004) *A review of the research literature relating to ICT and attainment.* The Literacy Trust had this to say about the research's actual findings: The authors concluded that ICT has a positive impact on pupils' learning **when the use of ICT is closely related to learning objectives and when the choice of how to use ICT is relevant to the teaching and learning purposes**.

5. ICT users

Another example of an apparently authoritative report based largely on assertion is the guidance published by the Macarthur Foundation in June 2009[16], *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century.* The paper begins:

> 'Schools and afterschool programs must devote more attention to fostering what we call the new media literacies: a set of cultural competencies and social skills that young people need in the new media landscape. Participatory culture shifts the focus of literacy from one of individual expression to community involvement. The new literacies almost all involve social skills developed through collaboration and networking.'

(p.4.)

It is not only the imperative tone which is so strikingly similar to the Becta paper, but the assumption made concerning the reasons for schools following the authors' recommendations. It appears that action is necessary not because teachers agree and acknowledge that schools could improve, but that the *new media landscape… Participatory culture …and new literacies* demand it. This is exactly the commercialisation identified by Siegel as dominating the discourse and behaviour on the internet. The paper goes on to identify no fewer than 9 'new' skills which need to be taught because of the technology imperative. These include, *play, performance, judgement, negotiation, collective intelligence* and *simulation* (ibid, p.4.). Experienced teachers might be forgiven for simply asking what is new about any of these.

The myth of multitasking

One of the unsubstantiated views surrounding young people and the media is that exposure to technology improves skills such as 'multitasking'. The amount of time young people spend engaging with computers therefore improves a key life skill. This assertion is found, for example, in the Kaiser Foundation's Study, *Generation M2. Media in the Lives of 8- to 18-Year-Olds*[17] which deals only with children in the US. The Foundation found that:

> 'on a typical day, 8- to 18-years… spend more than 7½ hours (7:38) using media – almost the equivalent of a full work day, except that they are using media seven days a week instead of five. Moreover, since young people spend so much of that time using two or more media concurrently, they are actually exposed to more than 10½ hours (10:45) of media content during that period. And this does not include time spent using the computer for school work, or time spent texting or talking on a cell phone.'

Rideout, V. J., Ulla, M.A., Foehr, G. Ph.D. and Roberts, D.F. Ph.D. (2010) *Generation M2 Media in the Lives of 8- to 18-Year-Olds,* The Kaiser Foundation, p.11.

The authors make a point of acknowledging that children are often using more than one media simultaneously. Earlier in the study they explain that:

> 'Over the past five years, there has been a huge increase in media use among young people. Five years ago, we reported that young people spent an average of nearly 6½ hours (6:21) a

[16] Macarthur Foundation (2009) *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*

[17] Rideout, V. J., Ulla, M.A., Foehr, G. Ph.D. and Roberts, D.F. Ph.D. (2010) *Generation M2 Media in the Lives of 8- to 18-Year-Olds,* The Kaiser Foundation

The ability to effectively switch attention is not fully developed in teens and in fact doesn't finish developing until early 20s.

day with media – and managed to pack more than 8½ hours (8:33) worth of media content into that time by multitasking.'

(ibid, p.2.)

The remarkable claim here is that technology enables young people to do more than one thing simultaneously, thus allowing them to get more out of life.

Substantial research carried out by one of the world's leading neuroscientists, Dr Martin Westwell,[18] which enquired into the difference between the way adults and teens cope with media distractions reached different conclusions to the Kaiser Foundation:

- *Multitasking actually requires the switching of attention from one thing to another (and back again) repeatedly. That is, we don't parallel process.*

- *The ability to effectively switch attention is not fully developed in teens and in fact doesn't finish developing until early 20s.*

- *Teens cannot multitask as effectively as adults.*

- *Results showed that at a cognitively demanding task, teens are better than adults BUT when asked to multitask (switch attention from one thing to another and back again) any advantage that the teens had over the adults disappears. The performance of the adults does not change significantly.[19]*

The children the Kaiser Foundation reports so excitedly multitasking are in fact simply switching their attention repeatedly from one task to another; what a conventional teacher might describe as being distracted or failing to concentrate. Multitasking teens are a typical unsubstantiated techno-myth.

The potential negative effects of children using technology are given little attention by the techno-zealots and their allies in the IT industry. Despite this, there are many concerns about the impact of computers when used indiscriminately:

- A report commissioned by the UK Home Office from clinical psychologist Dr Linda Papadopoulos, into violence against women, highlighted the effect media images have on girls' self-image and behaviour and it gained widespread media attention as a result.[20]

- Research indicates ICT is being used by some to displace core academic subjects and learning for utilitarian reasons connected to employability and workplace skills. The best example of this is the UK school inspection service Ofsted's own recent report on ICT. In it the authors make this observation:

    'At Key Stage 4, the past decade has seen the rise of a succession of vocational qualifications in ICT set against the relative decline of GCSE. The two most popular vocational qualifications both offer accreditation at levels 1 and 2, equivalent to GCSE grades D–G and A*–C respectively. Both qualifications offer options for students to submit work equivalent to anything between one and four GCSEs. Typically, however, where students are pursuing a qualification equivalent to four GCSEs, they do so in around half the number of timetabled lessons usually

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[18] Martin Westwell is now Director at the Flinders Centre for Science Education in the 21st Century Flinders University, Australia.

[19] Westwell, Dr M. (2004) *Disruptive communication and attentive productivity,* Oxford: The Institute for the Future of the Mind, Oxford University

[20] http://news.bbc.co.uk/1/hi/uk/8537734.stm accessed 17 May 2010.

Over the past decade, schools have moved away from GCSE ICT, which is perceived to be more difficult, to take on vocational courses.

allocated to that number of GCSEs in other subjects. Students can gain approximately double the number of GCSE points from vocational ICT qualifications than they can in the same time from studying GCSEs in other subjects.'

The importance of ICT Information and communication technology in primary and secondary schools (2009), Ofsted, p.31.

The report goes on to raise questions about the value of qualifications in vocational subjects such as ICT, compared to traditional subjects, based on concerns about coursework-based modes of assessment.

'Accreditation of the vocational qualifications is based mostly on the assessment of coursework. Students spend considerable time completing tasks to meet the assessment criteria. Consequently, they are often demonstrating what they can already do rather than being taught new and more difficult skills. Sometimes, teachers direct students' work too much. In some of the lessons observed during the survey, teachers led their students through the steps necessary to demonstrate that their work met the accreditation criteria. Students were able to meet the criteria, whether or not they had understood what they had done.'

(ibid, p.31.)

Finally, they reach this worrying conclusion:

'Over the past decade, schools have moved away from GCSE ICT, which is perceived to be more difficult, to take on vocational courses. Increasingly, the schools have turned to qualifications that are seen to be less demanding. A proper evaluation of the challenge posed by vocational qualifications is necessary if they are to retain credibility with students, parents and employers.'

(ibid, p.32.)

The ICT vocational courses have been seen by some as a solution to the problem of underachievement among boys. It is a small but very slippery step from the argument that says new technology motivates disaffected teenage boys, to one which denies those same boys a basic education in literacy and numeracy, in favour of hours of time spent sitting in front of a computer screen.

6. Digital literacy

With the exception of authors like Stanford University Professor Larry Cuban, whose book *Oversold and Underused: Computers in the Classroom* was published in 2003, the frenzied drive for more and more technology in schools has gone largely unchallenged. Many of the techno-zealots have reached radical conclusions about the future of school education. Chief amongst these is the idea that existing models of learning and schooling are all outmoded and a completely new kind of educational process is a consequence of the possibilities of new technology. This is usually referred to as '21st Century Learning', a phrase commonly deployed by the marketing departments of major technology suppliers because of its obvious consumer appeal. The *21st Century Learning Alliance*, for example, is made up of major technology companies, and government agencies in the UK, and makes this claim on its website: *'The majority of school learners of all ages want and expect the best technology solutions when they need them and where they need them. All learners should have the confidence and capability to learn all the time, wherever they are, whatever the setting.'*[21] The same imperative tone is evident that has already been noted in much of the IT literature with the implication that conventional school and its methods is now redundant because of the need for 21st Century Learning.

The Partnership for 21st Century Skills[22] in the US consists of six educational organisations, seven charities or other not for profit organisations, 11 publishers (including software) and 14 major technology suppliers, including all the leading international brands one would expect to find. The partnership has developed a comprehensive framework[23] which *'presents a holistic view of 21st century teaching and learning that combines a discrete focus on 21st century student outcomes (a blending of specific skills, content knowledge, expertise and literacies) with innovative support systems to help students master the multi-dimensional abilities required of them in the 21st century.'*[24] The most interesting and difficult word in this framework is literacies. It embodies one of the most radical and dangerous beliefs of the techno-zealots, namely that what conventional schools and teachers regard as literacy is in fact wholly outdated by new technology and the job of schools and teachers today should be to teach children a range of 'digital literacies' which they believe are more relevant to their lives. At its most naïve this translates into children being asked to present their work in whatever technological format they choose, so that a video clip or 'mash up', becomes every bit as educationally valid and open to evaluation as a traditional written essay. Discussion of whether or not the teacher is equipped to assess the work is usually avoided.

There is no accepted definition of what digital literacy is, but one of the most commonly used[25] covers three 'abilities':

• The ability to use digital technology, communication tools or networks to locate, evaluate, use and create information.

• The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers.

• A person's ability to perform tasks effectively in a digital environment… Literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments.

[21] http://www.21stcenturylearningalliance.org.uk/index.html Accessed, 17 March 2010.

[22] http://www.21stcenturyskills.org/index.php?option=com_content&task=view&id=508&Itemid=192 Accessed 17 March 2010.

[23] The complete framework can be downloaded from the Partnership's website here: http://www.21stcenturyskills.org/documents/P21_Framework.pdf

[24] http://www.21stcenturyskills.org/index.php?option=com_content&task=view&id=254&Itemid=119 Accessed 17 May 2010.

[25] From the University of Illinois Library, http://www.library.illinois.edu/diglit/definition.html Accessed 17 March 2010.
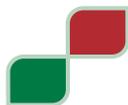
Sharing is the fundamental building block for building connections and networks…

Taking each of these in turn, and relating them to real world schooling, we can quickly see how in educational terms, the abilities and skills are neither particularly new nor necessarily located outside conventional teaching or subject-specific practice. Any school librarian 50 years ago would have argued for the need for students to 'locate, evaluate, use and create information'. These skills are not a consequence of a new digital age, the new technology simply provides new opportunities for their application.

The second definition relates only to information *presented by computers*. However *wide* the source range, or varied the *formats*, in essence it is either visual imagery, text, or audio material that is being used and understood. Accessing and using these three forms of communication is routine practice in any conventional school.

The final definition is in essence a duplication of the second with the exception of the additional use of *images* and *data*. Again, the use of both of these is routine in conventional schools.

In effect, simply remove the words *digital* and *computer* from all three of these abilities and the result is a set of unexceptional propositions about learning that do not depend on the existence of new technologies.

In asserting their belief in 'digital literacy' IT thought leaders assume that their own personal move from predominantly text-based expression, to expression dependent on newer forms of technology, is a route all teachers and schools must follow. This belief is exemplified in this contribution from one of America's leading educational technology writers, Will Richardson.

> *'So what literacies must we educators master before we can help students make the most of these powerful potentials? It starts, as author Clay Shirky (2008) suggests, with an understanding of how transparency fosters connections and with a willingness to share our work and, to some extent, our personal lives. Sharing is the fundamental building block for building connections and networks; it may take the form of ruminations on life in a blog, photos of the latest family picnic on Flickr, or discussion notes students post to a classroom wiki for others to read and contribute to.'[26]*

The remarkable suggestion here is that the technology fundamentally changes the relationship between educator and student. In many cultures, most teachers traditionally create some distance between their private self and their persona as a teacher. Apparently this is no longer acceptable because of technological change. The assumption is that every teacher must follow the author's personal path of online self-publication, whatever they may feel about retaining their privacy or developing their existing professional skills.

One of the most influential examples of thinking about the new digital literacy comes in the form of the *Shift Happens* video, created originally by Karl Flisch[27] in 2006. This is possibly the most widely viewed and circulated statement of the requirements of the techno-zealot agenda. It has been translated into many different languages, redesigned by commercial companies and shown all over the world at educational events with any kind of technology focus and often without. The version available on YouTube lists over 5 million views at the time of writing. In his own words, Flisch's original aim was to create something which would provoke discussion amongst teachers who were not technologists. *'I was hoping by telling some of these 'stories' to our faculty, I could*

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[26] Richardson, W. *Education Leadership*, November 2008, Volume 66, Number 3, *Giving Students Ownership of Learning, Footprints in the Digital Age*.
[27] Karl Flisch is a Director of Technology at a Colorado High School.

The abundant flow of information had very little or nothing to do with those to whom it was addressed; that is with any social or intellectual context in which their lives were embedded.

get them thinking about – and discussing with each other – the world our students are entering. To get them to really think about what our students are going to need to be successful in the 21st century, and then how that might impact what they do in their classrooms.'[28] Flisch collated a list of headline grabbing statistics from a wide range of sources, all from vociferous technology advocates, into a PowerPoint presentation which very quickly was disseminated around the web by other gurus, technology educators and technology companies, some of whom even produced their own modified version as marketing tools. Such was its appeal that, for a time, it was ubiquitous in presentations by speakers in the UK and US, all eager to treat it as *evidence* of the need for technology in schools.

The presentation adopts an unapologetically utilitarian stance, and hysterical tone, using statistics about the size of China and India, and numerous predictions about the expansion of computing power, involving unsupported figures, to frighten its audience into thinking that technology is changing the world inestimably and that as teachers, they must embrace technology to equip children for this challenging new future. Revealingly, it uses the word *information* repeatedly, though never *knowledge*, although ironically the presentation's refrain is 'Did you know…?.' and its final, didactic assertion is 'Now you know…'. It is an object lesson in poor academic practice and what happens when information is confused with knowledge, what Neil Postman predicted so accurately in his book *Amusing Ourselves to Death*, where he noted the impact that telegraphy had on American culture through the rapid dissemination of news. *'The abundant flow of information had very little or nothing to do with those to whom it was addressed; that is with any social or intellectual context in which their lives were embedded. Coleridge's famous line about water everywhere without a drop to drink may serve as a metaphor of a decontextualised information environment: In a sea of information, there was very little of it to use.'[29]*

Of the various claims in *Shift Happens*, most of the sources were web-based blogs, or other presentations, and are wholly unverifiable. In the source document which now accompanies the presentation on Karl Flisch's own website[30] the phrases *don't know*, *can't verify*, *couldn't verify* and *presumably*, occur repeatedly. The few references that refer to books make no reference to page numbers but send the user to Amazon's main publicity page for the book concerned. Of the 22 URL citations to what Flisch refers to as *My Source*, 11 no longer function and 10 of these are to the same presentation by one individual. Of the 13 URL citations Flisch refers to as *Original Source*, three no longer function, two send the user to Amazon's main publicity page for the book concerned, three are to online magazine articles and the rest to presentations or blogs.

Flisch's slides say far more in reality about Microsoft's PowerPoint software application than they do about the state of education worldwide. For the original presentation he used powerful and evocative music from the soundtrack to the *Last of the Mohicans*, no longer available from Flisch's website (presumably because of copyright infringement) and a steady, rhythmical cutting from slide to slide, that Eisenstein would have been proud to own as a fine example of the potency of rhythmical montage. Presumably 'digital literacy' should involve some element of scepticism about unfounded claims and some understanding of a scientific approach to hypothesis testing. Ironically, the very figures who are most keen to see digital literacy skills replace conventional literacy teaching in schools, showed no sign of possessing those skills themselves, when viewing Flisch's presentation.

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[28] http://thefischbowl.blogspot.com/2006/08/did-you-know.html Accessed 22 March 2010.

[29] Postman, N. (2006) *Amusing Ourselves to Death*, Penguin, (p.67).

[30] http://thefischbowl.blogspot.com/2006/08/did-you-know.html Accessed 18 March 2010.

It is as though a small group of disaffected and poorly performing soccer players from minor leagues had collaborated with the games' suppliers and a number of national footballing bodies, to decide that fantasy football was the only way forward and that in future all football should be played in this way, while premier league players and the majority of the profession continued to play the physical game, unaware of the fantasy footballers' agenda.

So given the paradoxical situation where international research can find no educational benefit as a result of the vast sums of money spent on educational ICT, yet simultaneously local authorities, heads and ordinary teachers are under considerable pressure to adopt and use new technologies, how can schools navigate this minefield successfully for teachers and pupils? Can we outline a blueprint for integrating ICT into policy and practice for schools which is educationally meaningful and economically sustainable? That is what the remainder of this report aims to do.

7. The key assumption

Given the weight of evidence, the starting point for any new blueprint approach to ICT in schools, has to be an assumption that the purchase, installation or training on any ICT solution or service, is highly unlikely to have a direct mechanistic impact on improved educational outcomes across key subjects measured by any standardised means, such as valid and reliable tests. This statement alone will allow heads and teachers the freedom to exercise their own judgement about the potential benefits of any given technology being offered to them through national or locally funded programmes. If there is no simplistic connection made or implied between the technology and the school's, teacher's or child's performance then the technology can be deployed by teachers just like any other tool they might choose, in a precisely applied manner. The key point is that the teacher is the professional in control and the technology is merely one tool they may decide to use, for reasons they should be able to readily justify to fellow professionals. The simplest formulation of this principle would be that teacher skills will always out-trump technology skills. What you know as a teacher is much more important and valuable than what you know about any technology, whether it's a pencil or a multi-user virtual environment.

The above critique is not meant to imply that ICT has no place in schools. The scope for technology, properly used by skilled teachers, to make a difference is considerable. Ironically the really powerful possibilities are often hidden from most teachers. Take for example the area of special needs. Possibly the single most powerful technology created for special needs schools is the MUVE, or multi-user virtual environment, the most well-known example being Second Life. Yet few special needs teachers even know of their existence, let alone how they could dramatically enrich the lives of children restricted by speech or physical difficulties that disappear in a virtual world.

ICT is a utility

An essential step is to examine the existing ICT provision in the school – not as a grand *vision* leading to revolutionary change, but as though it were a simple utility service. A very good example of this kind of thinking is the use of smartcards or biometrics for cashless catering in schools. The need to move large numbers of children, quickly and efficiently through a dining hall has nothing to do with educational outcomes whatsoever, but can contribute hugely to the effective running of the school.

Once seen as a utility – a means to an end – teachers can also begin to make good use of technology in the classroom. There is no doubt that the digitisation of information worldwide will continue to develop at a rapid pace and if children are to participate fully in society they will need a firm and practical foundation in technology use that embraces standard equipment and online services. Information required for leisure, work, finance, communication and citizenship is increasingly electronically mediated and therefore children should reasonably expect their school to empower them in this respect. The effective use and dissemination of knowledge through technology in all kinds of professions and vocations, has become vital for anyone seeking professional recognition or success.

However, children not only need to learn to use specific ICT devices and applications traditionally associated with an ICT curriculum, they also need guidance relating to risk, while teachers need to be equally aware of the increasing body of neuro-scientific research that identifies risk associated with new technology. There is a sense in which the entire e-safety business has only just started to scratch the surface in terms of children's development and well-being.

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It is only reasonable therefore, that teachers expect their employer to provide an ICT service that enables them to do all this as easily as possible. Practically what this amounts to is that the basic information exchange and communication functions any modern business relies on (efficient internet connectivity, telecommunications, email, printing and copying, and sufficient access to machines for those who need them for reporting and other routine functions) is supplied and maintained at a reliable level. Unless that service is delivered and maintained at a reliable level, teachers will not be able to develop their understanding or use of the wide range of technology tools that will continue to be sold to them. Even under the strains of empty state coffers, the enormous pressure on teachers and schools to use technology is not going to vanish overnight. If the ICT service is treated very much like any other long-term, necessary utility, it will allow for a much more secure and sustainable costing and budgeting exercise.

What does a school really need in terms of ICT?

To try and help schools design and manage an ICT service which reflects the current research knowledge base, yet equally supports the goal of educating children to live and work successfully in a technology-rich culture, the following is offered as a simple blueprint and to inform discussion. It is neither prescriptive nor exclusive, serving only to outline the core utility service that any school should expect if it is to provide an education to match the demands of the technology-rich, outside world. It is divided into two broad categories: campus-wide provision and classroom provision.

Campus-wide provision

To provide pupils and teachers with rapid, on demand access to the vast library of educational material hosted online, a school-wide, broadband internet connection (ADSL or cable internet) is vital. Without it teachers will have to rely on personal connectivity, while pupils will see a frustrating gap between what they can access online inside and outside the school gates. The speed and reliability of this connection is also of importance because if busy teachers experience delay or failure in those few gaps in between lessons which they often rely on for planning and preparation, they often stop using the service. This means that any desire to foster a culture of innovation and experimentation amongst staff is likely to fail. The internet is increasingly a channel for video and live TV material and so a school should do the best it can to deliver this, within any constraints of bandwidth and cost.

Each school should review its approach to email. Compared to similarly sized businesses, schools are historically not especially effective in terms of day-to-day communication. It is common for teachers and parents to complain about how difficult it is to contact someone or even leave a message for them. Email represents both a real opportunity to improve communications practice, but this is not without risks and challenges. Most effective businesses today rely heavily on an effective email service for all their employees. Schools are only different in a few key ways. The use of email between pupils and teachers is not something to be assumed without negotiation and a high degree of understanding of the risks and benefits by senior managers and heads. Similarly, whether or not parents are permitted to communicate with teachers via email is something to be carefully considered against the local geographical circumstances and culture of the individual school.

All members of a school community – pupils, teachers and administrative staff – can gain from access to those standard office software applications which enable database creation, print and online publishing and presentations to be easily and creatively constructed. One of the most obvious benefits a decent ICT service brings to any school is the ability to market itself effectively.

Pupils, equally, expect to be able to access the ICT service not just inside the boundaries of an ICT lesson, department or classroom, but when they have time to work and to be creative.

Good schools always have a strong sense of their individuality and the technology can help them convey this to the wider community and to parents. Even more valuable however, is the way that, through sensible choices about ICT, pupils' work can reach a much wider, genuine audience than the classroom teacher. The practice of setting pupils written tasks in both the primary and secondary sectors, which imitate real world models, is common, but rarely applied effectively. Children are always likely to perform better at a real world challenge, and technology can link them directly to real audiences who are interested in the work they produce.

The proper management of ICT can lead the school to make substantial cost savings in some areas. One example, that is so mundane that it attracts of course no attention from the thought leaders, is the relationship between printing and ICT costs. The costs of printing can be high and many schools have little or no control, or even understanding of what they are. Printers are often purchased and installed without a careful analysis of the need and likely use. One of the most useful exercises a school can carry out in its desire to run a sustainable ICT service is to thoroughly audit all its printing activity. Knowing where printers are, who uses them and why, and how much they cost to run, is something every school should be able to understand and budget effectively for. There are lessons that schools can learn from other small and medium sized businesses in ICT management and cost control. The case with many schools to date has been a burgeoning of ICT equipment and applications that quickly gets out of control, often way beyond what is either effective or efficient in cost or educational terms. Licensing is an area where this is often the case, and it is not unusual to find a school running 300–500 software applications where a similar sized business would run between 20–50.

Underpinning the delivery of the internet, email and basic office applications to a school is the need for a school-wide LAN (local area network) combining wired and wireless elements, that is also protected by anti-virus security applications. There are no fixed rules about how many machines are needed in terms of staff numbers or pupil to PC ratios. There is however, if resources permit, a strong argument for providing all full time teachers with their own laptop for example, based on what would be expected by and of most managerial level workers in other sectors. It is certainly true that teachers will expect to be able to access their ICT service whenever their timetables permit them, and will be frustrated if they cannot, while administrative staff require constant and individual access. Pupils, equally, expect to be able to access the ICT service not just inside the boundaries of an ICT lesson, department or classroom, but when they have time to work and to be creative.

Where a school manages its own library, it is important that technology does not only help run the basic library functions effectively, but that it is integrated into the physical space too. This is one of the most difficult areas for any school to get right and there are examples of schools that have abandoned books in favour of computers or have found that the thoughtless provision of computers in a library space has undermined the educational benefits of the library as study space. This is especially true of new school buildings. One of the key reasons is that the models used by architects were largely taken from the higher education sector without appreciating that the prime design imperative for many new libraries in that sector, was the absence of a book collection. Technology was used specifically to replace the cost of buying and storing books.

All schools have to manage the registration, movement and feeding of children each day, sometimes in very large numbers, and the ICT service can provide some very efficient ways of doing this. Smartcards or biometric identification for cashless catering, access and registration, can save substantial amounts of time and frustration for everyone involved.

Classroom level provision

The second broad category is the service that can be delivered at classroom level. This is a much more contentious aspect to consider since the range and variety of technology designed and marketed for classroom use is considerable. It is often forgotten that this technology is either adapted from other uses and given a makeover, or it has been designed after little or no consultation with professionals.

Classroom projectors that are connected to the internet, and have the capacity to deliver audio and video are obviously valuable tools for any versatile teacher. The vast range of material they allow you to bring into the room is potentially educationally priceless. Whether teachers also need an interactive whiteboard (IWB) with an associated plethora of software applications is far less clear-cut. Many teachers make creative and regular use of IWBs; others who have received comprehensive and often expensive training in their use never use them again. Voting technologies are also very popular but there are many much more 'low tech' and inexpensive ways of capturing children's ideas and checking their understanding which skilled and experienced teachers use.

Visualisers, or document cameras, are also popular with teachers because they are so practical inside any classroom, but the range and additional functionality they can deliver is likely to be daunting to many ordinary classroom teachers. What both projectors and visualisers can deliver, is an easy and powerful way to gain children's attention in what is essentially a visual, rather than a literate culture.

A fixed, networked PC in a classroom means that anyone can access and record data or learning content, as long as it is stored on the LAN or online, although one of the most difficult problems is positioning them efficiently. Even in brand new, purpose-built schools it is surprisingly difficult to put a teacher's computer in a classroom, in a position that means they can teach effectively whilst using it. It is far more common to see one crammed onto the edge of a desk or in the corner of a room, or linked umbilically to the IWB in the room. The issue about where to position PCs is equally common in the ICT *suite* or department. It is rare to see even a newly built school that has understood the difficulties a teacher faces when teaching to a classroom full of children sitting in front of keyboard and screens.

There is also an additional consideration which needs to be made about computers used by teachers in classrooms, that concerns the specialised software applications that might be required for certain subjects or activities. Schools tend to own and support many more software applications than similar sized businesses and making sure they are available for the right staff and pupils is often quite a challenge. Some software applications can add considerable educational value, such as much of the SEN software aimed at 1:1 or solo tuition. Others are far less easy to evaluate. The entire e-learning world for example, replete with managed learning environments, virtual learning environments, learning platforms and portals is extremely difficult to navigate for schools. These products are notoriously difficult to implement successfully and expensive to support and subscribe to.

Careful management is required at the subject and specialist teaching level of ICT resourcing. Managers must learn to arbitrate between the competing and potentially limitless demands of different subject areas. Each subject will make legitimate claims for the use of new technology to ensure up-to-date teaching and learning. It is difficult to run a strong science department today without using a range of peripheral technologies for measuring and recording, and equally any art, music or media studies department is likely to have some expensive items on its wish list. The expansion of art to embrace photography has meant that art departments absolutely

The reality of innovation in schools is that energetic and enthusiastic teachers will always seek out new ideas and tools to improve their performance…

require expensive cameras and image manipulation applications, if they are to be seen to be current. Music too has expanded into music production because so much of the equipment and recording software is very accessible and attractive to teenagers. At the top end of this expensive scale is the design technology department itself, which in any secondary school is capable of using up most of the entire ICT budget. Managers therefore need to learn to challenge subject leaders to make a strong case for any given subject-related investment. The way to manage this is to establish a hard and fast baseline which ties ICT to the curriculum need. Only if a subject or other department can demonstrate that they cannot deliver a part of the curriculum without the equipment or software, should it be given priority as part of the overall spend.

Plan to evolve

In addition to campus level and classroom level decisions, schools need to create a culture of supportive experimentation for their teachers and pupils when it comes to technology. The best way to ensure that money spent on ICT benefits teachers and pupils is to encourage and support their attempts to learn about and experiment with it, as long as this is within an agreed framework of finance and supported by good evaluation. The reality of innovation in schools is that energetic and enthusiastic teachers will always seek out new ideas and tools to improve their performance, and ICT is no different. In some schools it may well be possible to do this without any formal, agreed process through which potential ICT projects are judged against one another, but simply by making an informed decision on the basis of approaches by individual teachers. In others, especially larger institutions, a formal competition process might work more effectively and instill a sense of fairness.

If you can create this climate of supportive experimentation, you will be in a much better position to adopt and fund new technologies which benefit teachers and pupils, in a sustainable way by planning to evolve. Planning to evolve sustainably means removing redundant or under-utilised software or equipment, just as much as it means adopting new.

8. Conclusion

This has led to the unthinking adoption and routine use by teachers and children of complex, often inappropriate technologies…

It seems an extraordinary position to be in, but the reality for very many schools and teachers today worldwide, is that they are largely the unknowing victims of a concerted and determined coalition of forces made up of policy-makers, government agencies, commercial suppliers, techno-zealots, all seeking to impose a new vision of school education that centres on technology and digital literacy. This has led to the unthinking adoption and routine use by teachers and children of complex, often inappropriate technologies, coerced into use for education from other industries, without sufficient serious, professional or objective evaluation of the benefits or advantages to either the children or the teachers. At the same time the real benefits of technology, properly used, are often ignored. The aim of this report has been to challenge this dangerous orthodoxy and give teachers a clear alternative strategy.
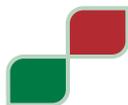
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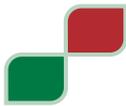
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This report investigates the factors that lie behind the formation of educational policy. Based on interviews with current & former policy makers such as David Blunkett and Estelle Morris, the authors find evidence of a gap between evidence and policy making, which seems to get wider as governments stay in power. Administrations enter power with a commitment to 'what works' that seems to fade.

Funding the Pupil Premium: Fairness for young people and parentss

This report is primarily about raising funding for a pre-16 Pupil Premium rather than distributing funding through a pre-16 Pupil Premium. Discussion of the distribution of funding concentrates on the argument that at 14 the Pupil Premium should be paid to disadvantaged young people attending FE colleges as well as schools.

Is initial teacher training failing to meet the needs of all our young people?

This report argues that increasing numbers of young people are acting out 'attachment difficulties' which neither their families nor schools know how to address and which teachers are inadequately trained and resourced to attend to. The author explores whether teachers are disadvantaged by inadequate and reductionist routes to Qualified Teacher Status (QTS) which provide them with neither the appropriate skills and understandings, nor the theoretical framework and practical experience, to secure successful educational and personal outcomes for disaffected and disengaged young people.