

One tablet or two? Opportunities for change in educational provision in the next 20 years

By Sean McDougall, MD, Stakeholder Design

In the foreword to 'Millennium', his amazing history of the last thousand years, Felipe Fernández-Armesto imagines a cosmic galaxy of the distant future, in which there is a single exhibit about the planet Earth. Beneath a piece of chainmail and a Coke can is the caption: 'Earth, 1000-2000'.

It's interesting how even a thousand years of technological improvement can be reduced to two mundane pieces of metal. It raises an interesting question: was the alien curator too lazy to tell the story of Earth properly - or is it true that, seen from a distance, the whole thousand years can be summed up as ever better use of metal and the emergence of consumerism?

The dichotomy of near-far perspectives applies just as well to schools. What two objects might we put forward for the British education section of this galactic museum? Some would argue for a piece of chalk and a marker pen. Others would argue for a cane and an ASBO. Optimists might include a chart showing improved literacy rates. Pessimists might include one of those *Times* articles showing that children today can't do long division. I'm tempted to call for a couple of tablets – one made of slate, the other a battery-powered PC.

Photo 1: *British education, 1850-2000*



Visiting alien curators would doubtless ask tough questions about British schools if that was the focus of their study. While educationalists would agree that schools have always tried to incorporate the latest technology into their work, outsiders would observe that the biggest change in the classroom between 1900 and 2000 was the colour of the blackboard. When it comes to the overall system of education, very little has changed. We still assume that school means 30 children of the same age doing the same thing at the same time in the same way for the same period of time, all under the watchful gaze of an adult authority figure up front.

When I was a child, music was sold in two versions: 33rpm and 45rpm plastic records. As I entered my teens, records slowly gave way to CD. Now, CD has been overwhelmed by a new download culture that allows individuals to carry tens of thousands of songs around in a device little bigger than a cigarette packet.

Despite the many changes in format, interest in music has remained a constant (just as metalwork links chainmail and cans of Coke). Yet, when we look at schools, it seems that it is the format that remains the same despite changes in almost everything else in

society. When schools were established, we lived in an agricultural economy. We have since been in and out of an industrial age, watched the rise (and coming fall) of the service age, and are now trying to establish ways of working that will suit the knowledge economy. Fifty years ago, two languages were spoken in the school across the road from me (English and Latin); now it's over fifty; and where once we said "May God go with you", now we say "May *your* god go with you."

How strange that, in this context, we still shape our lessons as if they are Christian religious services. Our children, dressed up for the occasion, come into the room and sit silently in rows facing the front, just like the congregation. The teacher plays the role of parish priest – an authority figure who stands at the front, providing information that children are encouraged to remember and repeat. Knowledge is salvation.

Despite a wholly changed society, and the many opportunities we have to do things differently, we still allow children time off at Easter and summer to help with planting and harvesting. We move them around like cars passing down a production line. Each teacher will recognise the model: assemble the raw materials, add value, move it out.

While the rest of society has used technology to transform the way in which we do things, schools tend to accept new technology only when it reinforces the old conventions of teaching, or when its saturation of the market is so complete that it cannot be ignored.

Photo 2: *Laptops are designed to be used individually and on the move, but in schools they become compromised by the desire to teach collectively and in classroom*



Think about all the technology that has become commonplace in society over the last 25 years. They include video recorders, MP3 players, mobile phones, remote controls, laptops, webcams, GPS software, heart monitors and the internet. If we map these truly transformative devices against a school we see immediately that acceptance and rejection depends on how easily they can be integrated into long-established conventions of teaching. These include conventions about the teacher's place at the front, control and familiarity.

Interactive whiteboards are a case in point. Their appeal lies in the fact that they provide something that teachers have wanted for centuries: a writing board that draws text and images by itself and never forgets anything written on it. However, while they replace or sit alongside the blackboard, they leave the rest of the classroom almost wholly unchanged.

Remote controls allow individuals to control what they watch from the comfort of their chair. In schools, they have become voting devices. Although they are seen as a means

of getting every child to engage with every question, and offer insights into each child's understanding of a given subject, they also reinforce established teaching conventions about question and answer, control and familiarity.

Mobile phones threaten loss of control. Nowadays, the average age of a first-time owner is eight, yet despite their enormous potential as a means of learning and for the exchange of information, mobile phones are banned in most schools. The most popular mass communications device in schools remains the assembly hall – a place where children sit in silence, listening while adults shape their learning experience. This fear of losing control explains why MP3 players, represented by the white knight of the iPod, are under-utilised in schools. They are distrusted even when the *only* content on them is lectures (the children might turn the volume down).

Imagine how much better things would be if we embraced all the technology that children use and re-organised our learning system to take account of them. The advent of podcasting (a popular adult pastime) has challenged the view that iPods are an anti-learning device. Children who have been ill can listen to a lecture; smarter kids can listen ahead to next week's lesson; language students can practice conversation using hundreds of pre-recorded and randomised questions. Of course, this requires a change in timetable and an acceptance that the classroom could become much more noisy than before.

A similar shift in adult understanding of what a mobile phone can do could allow them to become the basis of a collaborative learning culture – phone a friend, text Lord Nelson, Bluetooth your project to the rest of your team. When one considers that the average mobile phone contains more processing power than existed in an entire computer suite 20 years ago, we really ought to shift our understanding of what technology is and what it looks like.

Photo 3: *Savannah, by Futurelab, shows what can happen when children are given GPS devices and an opportunity to break free of the classroom*



Schools are essentially a collection of buildings and activities organised around the rituals and conventions of those who run them. Assembly halls, classrooms, timetables in which the children move from room to room, 'chalk and talk' teaching, plastic chairs bought because they are cheap and can be lifted easily by the cleaner – all are expected to govern the school's relationship with technology. These scenarios could be completely transformed using technology that is already widely in use across society. But to truly understand the potential of technology to support learning we have to look at how and where people of all ages choose to do their learning.

Let's think about place, process and people. Yes, children learn in schools, but they also learn in bedrooms, on the bus, in museums and libraries and while walking down the high street. Independent tests have proved that they are entirely capable of listening to music, video-conferencing, texting and watching a documentary simultaneously, with almost no loss of information intake. Given access to the internet, most children will engage in school work in the mid to late part of the evening.

Young adults learn in the workplace, in specialist training rooms, in the car and at seminars and lectures. If they are a salesman, they may begin by shadowing someone more experienced. They will listen to sales talks in the car and attend evening classes to gain a qualification. Occasionally they will attend conferences or training seminars for members of their profession. As their day is characterised by multi-tasking, their training is likely to be one of several things they have to achieve in the day.

Retirement brings with it the opportunity to pursue hobbies and interests, or simply improve skills. For some, it is a chance to learn to read English so that they can read bedtime stories to their grandchildren. For others, the intention is to set up an e-mail account and video-conference with their son in Australia. Pottery, art, yoga and book clubs are popular daytime activities. Each requires a mix of space, ease of access, comfort and calm to reflect their position.

If, for a minute, we set aside the idea that school is a place for 5-18 year olds and that the operating manual should trace a line back to the Victorians, we can see enormous potential for education to help with lifelong learning. Imagine a space that was configured not as a classroom, but as a meeting room. This space could be used by children or adults for general learning purposes. All that is required is some short-throw rear projectors or plasma screens and a decent ICT infrastructure and the room can be reconfigured in an instant. Lesson one could be French. As the *teacher* approaches the room, a Bluetooth detector switches on screens that show important words in English and French, the learning outcomes for the lesson, and a looping photo-show of pictures of Paris taken by the group. A voice asks the children to arrange the furniture for dialogue and to choose a topic that they have not yet covered from the playlist on their iPod. During the lesson, each child records their own conversation. The teacher moves around the room, randomly joining in with conversations and facilitating the students' learning. At the end of the term, their overall improvement will influence their grade.

Photo 4: *When children are able to learn from each other, the teacher becomes a facilitator of their learning (thanks to St Margaret's High School in Liverpool)*



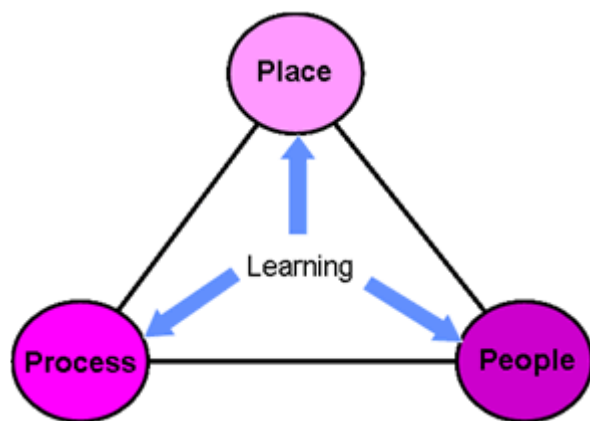
Two hours later, the same room is being used for a drama lesson. However, it is members of a local insurance reseller who are using it as a team-building exercise. They need to learn how to work effectively with someone whose house is burning down, or who has come home to find it burgled, so they are role-playing. They are being assisted by children from the school, who have helped prepare the multimedia material, are filming the event and even acting in it (they are also learning huge amounts about business).

Three hours later, the room is hosting a yoga class for pensioners. To soothing music, and with video demonstrations of the poses on all four walls, the adults work with the instructor to improve their posture and maintain their flexibility.

In each of these scenarios, technology is enabling the school to remodel itself around the needs of the learner. MP3 players are establishing the individual strengths and weaknesses of students without interfering with their freedom of choice. Children studying performing arts are learning about tricky social situations and business. Adults are improving themselves in a building that belongs to all.

Of course, the same technology could also be used to disperse learning across a wide space. In some schools in Copenhagen, children choose where they want to learn. Some sit quietly in the library, others walk round the school together chatting, others use laptops to ask their penpals for information or make a PowerPoint presentation. They work in ways that enhance their employability – sharing knowledge, persuading, pursuing – and it matters not a jot that the teacher was not standing in front of them at the time. Technology (combined with a proper human relationship with the children) allows for full assessment of their learning. In Danish there is no role exactly equivalent to 'Teacher'; the nearest you can get is 'Learner' or 'person who enables learning'.

Photo 5: *Reorganising a school's infrastructure around the theme of learning (as opposed to teaching) can transform its use of technology*



In schools that are next to shopping centres, business parks or airports there are enormous opportunities to use technology to improve learning, even if all it does is guarantee the safety of the children as they move around. A number of experiments, including the University of the Highlands and Notschool, have also shown that learning can be delivered to individuals across an entirely virtual infrastructure. Notschool, set up solely for children who have been excluded from school, has a GCSE pass rate that is above the national average and at least ten times the pass rate for other excluded children.

Working with technology to shape an experience around the needs of the learner has one other benefit. It delivers engaged, inquisitive children in place of the passive,

disinterested children of years past. In one school in Lancashire, where this approach is beginning to take root, the first children to benefit from this approach are now entering the local workforce. The Headteacher recently took a call from a local employer: "These children you're sending me," he said. "It's all 'Why do you do things like this? Couldn't you do it this way instead?' Now I've had stroppy kids in the past. But these ones have come up with *great* ideas."

160 years ago, and even in the 1990s, children would have turned up expecting to be told where to stand and what to do next. Their counterparts today and tomorrow will be much more challenging and inquisitive – if we let them. In a galactic museum of the future, they will contrast marvellously with their silent predecessors.

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