

CHANGING SPACES, CHANGING PLACES?

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THE KEY ISSUES

The school of the future is, according to Alvin Toffler:

'open twenty-four hours a day. Different kids arrive at different times. They don't all come at the same time, like an army. They don't just ring the bells at the same time. They're different kids. They have different potentials...I would be running a twenty-four-hour school, I would have non-teachers working with teachers in that school, I would have the kids coming and going at different times that make sense for them. We're individualizing time; we're personalizing time. We're not having everyone arrive at the same time, leave at the same time... schools have to be completely integrated into the community, to take advantage of the skills in the community'
(<http://www.edutopia.org/future-school>).

While this might seem a radical vision of the future it is premised on the logical application of technological developments already underway. The Department for Education and Skills' (DfES) strategy *Harnessing Technology*, launched in 2005, highlights for example: the use of ICT for the development of 'personalised learning' (Milliband 2004); the provision of on-line personal support for learners; and the role of technology in engaging disaffected pupils as well as 'hard-to-reach' communities. The application, and future development of Information and Communication Technologies (ICT) in these ways will have profound potential implications for: (i) the relationship between the traditional space of the school and the wider spaces of homes and communities; (ii) the future design of schools and indeed the future of schools themselves as physical entities; (iii) and the development of alternative sites of learning both on-line and off-line. This Challenge Outline paper therefore takes as its central question: ***how will developments in technologies change the way we use off-line (physical) and on-line (virtual) spaces for learning?*** The paper first outlines the key issues and obstacles to change before identifying a strategy for how the questions raised might be addressed through a programme of research/events.

Trend 1: The Changing Relationship Between the Spaces of School, Home and Community

The use of ICT to provide home-school links is trumpeted as having the potential to radically extend pupils' learning opportunities beyond the school and the school day and to support the home as a site of learning (Becta 2003). Case study research with schools at the vanguard of developing innovative practice indicate that using ICT can transform the role of home work, and create a more integrated pattern of learning between home and school, such that learning can take place at home as an extension of school (Chaboudy and Jameson 2001, Becta 2003). Such home-school links are credited with increasing the motivation of pupils to engage in ICT based tasks at home, providing greater autonomy in learning (e.g. Passey 1999) and the deeper involvement of parents in learning/homework. Home-school ICT links have particular value for pupils who are unable to attend school on a regular basis. Here, some schools have used video conferencing and other forms of on-line communication to provide teaching for children with irregular patterns of attendance at school, for example, because of illness and to re-engage disaffected learners.

The development of school websites also offers potential to change patterns of administrative work in schools with benefits to parents and pupils. The aspiration of the former DfES was that by 2010 all schools will have integrated learning and management systems and that by the end of 2008 all learners will have personalised on-line learning space with the potential to support e-portfolios. The intention is to enable parents/carers to be able to access advice and information from the school/teachers; to keep them informed

on-line about their child's attendance, what they are learning and about their educational performance (e.g. through remote access to school records, curriculum content etc.) and to enable parents to contact teachers by email. ICT also offers schools the space to display information about themselves and their pupils' work, as well as to establish community links (Somekh et. al.2003). It is anticipated that in such ways home-school ICT links will give parents a greater sense of involvement in their children's education and enable schools to more readily involve parents in matters of governance (Chaboudy and Jameson 2001).

However, there are dangers and obstacles in trying to translate school-based learning into the site of the home. Conditions for learning and learning styles are very different at home and school. Learning at home is characterised by agency and creativity, whereas learning at school is more commonly characterised by passivity and control. Indeed, it is difficult to define and identify informal learning at home because it is embedded in children's everyday lives and activities and often occurs in unintentional and unrecognised ways (Sefton Green 2004). Activities that adults might define as time wasting, such as playing computer games, can also be form of learning and might motivate children to develop ICT skills and other kinds of knowledge and learning that is not usually taught through the school curriculum (e.g. innovation, leadership, ability to problem solve): sometimes dubbed 'soft skills'. Research suggests that as such, children prefer to use ICT at home because they have more time to use the technology at their own pace, in ways that are driven by their own interests and passions and free from the pressures and constraints of school lessons and the formality of textbook learning (Furlong et al. 2001). This enables children to learn through experimentation because unlike at school, they have the time to do so and are not afraid to take risks. The danger is that the more formal implementation and monitoring of home-school links might rob children's home-based ICT activities of their association with 'fun' and 'experimentation' with the result that children re-define these activities as school-related activities and consequently as 'boring' or 'uncool' things to spend their time doing (as well as blurring the association of home with leisure time and 'private' space and the school with work time and public space). There is therefore *need to understand how a strengthening of the relationship between the spaces of home and school through ICT links may affect young people's perceptions of what learning is, their willingness to use ICT at home and their learning styles in this space?*

The UK state school system provides all children and young people with equal opportunities to access education regardless of their socio-economic or cultural backgrounds. Any shift in emphasis towards home-based ICT work however raises questions about fairness and equality given pupils come from very disparate domestic circumstances. Research suggests that the majority of children (81%) aged 5-18 now have access to a computer at home, allowing for the possibility that schemes such as the *Computers for Pupils Initiative* might create a situation of universal access by providing ICT equipment via local authorities and schools to the remaining disadvantaged homes (Becta 2008b). The gap between 'the haves' and 'have nots' in terms of access to the internet at home, at 28%, is more significant (Becta 2008b). However, given the current rapid growth in internet connections (as well as the development of mobile and hand held devices which offer internet access independent from desk-based PCs), it is possible to anticipate that within a period of ten years this gap might have closed to such an extent that any remaining divisions can also be bridged through local authority or school support. There remains however, *the question of pupils' inequality of access to ICT support at home*. Research suggests that access to ICT help networks from family and friends is a significant factor in shaping access to, and use of, domestic technologies (Selwyn 2007, Valentine et al 2007). By developing the home as a site of learning ICT potentially exaggerates, rather than compensates for, the differences in terms of economic, social and cultural capital between children from diverse socio-economic, cultural and linguistic backgrounds. Previous research has already identified that pupils without home-based access to ICT are acutely aware of the educational inequalities that flow from this, and that this in itself, can be de-motivating and lead them to dis-engage from homework (Holloway and Valentine 2003). If the home is to be developed as a site of learning through the use of home-school ICT links, this raises the tricky question of *how schools might provide disadvantaged parents with the skills to help their children use*

ICT effectively in home-based learning activities? More specifically, how will this learning be delivered, and by whom? How will the community be involved? Otherwise, the risk is that the expansion of home-based ICT use will exacerbate existing social inequalities rather than promote social mobility.

While there are good examples of individual schools making their ICT facilities available outside of school hours – and indeed this is a core element of the DfES/DCFS' *Extended Schools* policy -- the e-learning foundation suggests that only 5% of schools currently do this (www.e-learningfoundation.com). Barriers to connecting schools with their wider communities that need to be addressed include: *the problem of how to engage adults in the community who may have had a negative childhood experiences of the education system to re-enter a space which they may be fearful of or associate with failure; and how to engage those, particularly from new migrant communities, for whom English is not the first language;* as well as a reluctance amongst some schools to embrace the need to engage with diverse local communities because of the perceived demands it would place on staff whose time is already squeezed.

At the other end of the socio-economic spectrum, previous research (Lankshear and Knobel, 2003) has suggested that children and young people from privileged backgrounds are increasingly finding that the specification of the computers they use at home are significantly better than those they encounter at school – a problem dubbed the 'digital disconnect' (Levin & Arafeh 2002). This adds to the conundrum of *how the provision of school ICT resources should be developed and synchronised in order to facilitate the ability of pupils to make a smooth transition in terms of working in the classroom and at home?* One suggestion advocated is for a shift away from desk-based ICT provision towards mobile or hand-held devices. This in turn *raises questions about cost, logistics (such as ownership and insurance), as well as security.* For example, children's safety in terms of both their vulnerability to being targeted by thieves seeking hand-held and mobile ICT devices, as well as their potential vulnerability to 'stranger-dangers' when on-line, are two risks that may emerge from the further development of children's out-of school ICT activities. To-date most schools (and some families) employ filter systems on their PCs that prevent children accessing unsuitable material, and both teachers and parents commonly informally monitor children's ICT activities by being present in the same room when they are on-line (Holloway and Valentine 2003). A shift away from desk-based ICT provision, as imagined in some of the more radical thinking about integrating home-school activities, would give children more autonomy to carve out space to be on-line away from the technical or surveillant gaze of teachers/parents with all the risks this might entail. As such there is a *need to develop appropriate risk assessment and management systems* for future mobile ICT use.

The potential outcome of the technological developments outlined in this section will be to transform the relationship between the institution of the school and wider spaces such as the home, and community, and in doing so blur some of the boundaries for children between work/leisure time and public/private space. More broadly, such developments raise questions about the future of the school as a physical off-line space?

Trend 2: The Future of the School as a Physical Off-line Space

Building Schools For the Future (DfES 2003) provides a commitment to renew all secondary school buildings over the next 15 to 20 years (one which is to be extended to primary schools too). This creates potential for what schools look like to be re-imagined and thus to invest in ICT and the infrastructure in ways that might support new ways of teaching and learning.

The traditional model of the secondary school is of closed box-like classrooms in which the teacher is located at the front with pupils aligned in rows and where ICT equipment is often arranged at the edges, or confined to designated classrooms that are monopolised by the ICT curriculum, making other teachers reluctant to take lessons outside their subject base classroom. Indeed, in the majority of schools technology remains on the margins, reflecting

in part, concerns about the safety of expensive hardware in the hands of pupils, and concerns about children's potential misuse of ICT (e.g. accessing unsuitable material, communicating with strangers on-line, or wasting time on games). A recent report by Becta (2008a) claims that only 20% of schools are using ICT properly. In particular, ICT is still not integrated in the curriculum across disciplines.

ICT however, provides new ways of teaching and learning. The introduction of ICT in the classroom tends to be associated with a shift in teachers' roles, away from didactic whole class instruction towards both a personalised, autonomous style of learning focused on needs and choices of individual learners, and more student-centred interaction (e.g. Schofield 1995). Both of which are considered more stimulating, and to engage pupils more effectively, than traditional styles of learning (Pedretti and Mayer-Smith 1998). The emergence of on-line media accessed via mobiles or other more portable devices than the PC will undoubtedly further this trend towards personalised learning. As such, the classroom of the future will need to be designed differently to reflect new spatialities of teaching and learning and in particular to provide more flexible environments that offer more choice about where, and when people can study. This raises the challenge of *how ICT and the physical environment can be designed to contribute effectively to personalised learning?*

The logical development of the *Extended Schools* policy is to draw in wider communities to make use of school facilities and to enable employers and communities to access ICT training and support; to tailor courses to their individual needs; and to progress at their own pace. This might include for example, the development of 24 hour schools that cater for the needs of different kinds of users by enabling individuals to personalise the timing of when they learn. At the same time, there is growing recognition that learning also takes place outside school and to accept that there needs to be some merging of skills and knowledge in the school site. For example, expertise from the world of work needs to be developed in educational environments. As such, the design and layout of schools might need to incorporate extended facilities for community use and for local businesses or employers to have space on the school site. There is *a need to evaluate what these spaces might be* (e.g. an open learning centre, cyber café, crèche, workshops/offices and so on)? *How they might be integrated into school site design? And how security might be provided to reduce opportunities for theft and bullying, and to create safer and more secure environments for all school users that might promote learning, engagement and improvements in attendance and behaviour?*

The most significant obstacle to re-imagining the future of the school is not necessarily the need to redesign school infrastructure to realise the possibilities of technological developments, but rather the belief systems of teachers and parents, which change more slowly than technology. Technology will only support existing practices and cultures unless cultural as well as physical impediments to radical change are challenged. Different schools have different visions of technology, depending in part on their leadership. Some prioritise it, others are reluctant to commit significant resources to it (Valentine and Holloway 1999). Moreover, previous studies suggest that it is not just the amount of ICT resources that schools have that matters but the quality of the resource and lesson delivery (Williams et al 2000). There are variations in the knowledge and skills of staff within, and between schools. For example, research has identified clear differences between secondary schools in terms of how far ICT is used across the curriculum and variations in the subjects within which it is used. In particular, subject specific use of ICT within individual schools is affected not only by physical impediments such as the location of hardware resources, but also the level of technical support available, the skill levels and confidence of teachers, and the presence/absence of strategic leadership in relation to ICT within the school (Valentine and Holloway 1999; Dixon et al 2004). The *Evaluation of Curriculum On-line* survey of schools found that on average only 16% of secondary school teachers use digital sources in their lesson planning; and that the proportion of teachers using ICT resources in at least half of all lessons is low (14% in secondary schools) (Kitchen and Finch 2004). A third of teachers also reported in this survey that they rarely or never use computer packages or

subject specific software in their lessons. The implication of this research therefore is the need to address teachers' ICT skill levels across all subject areas and to develop models of good practice in terms of ICT use in specific subject areas, if ICT is to be used in more radical ways within the school and if schools are to use ICT to support and develop home-based and alternative sites of learning.

The demands of the national curriculum and assessments can mitigate against the impact and development of ICT. Teachers are fearful of the implications of the development of home-based and alternative sites of learning, as well as extending schools to provide learners with more choice about when they learn, for their own workloads. If the relationship between the school and wider spaces of the home and community are transformed and the school as a physical site is re-imagined in some of the more radical ways outlined above then this raises questions about: *the role and nature of teaching; the time-frame within which on-line support can be provided to distance or mobile learners; and how, and by whom, the school of the future might be staffed?*

Moreover, the radical use of ICT to facilitate personalised learning to meet individual needs ultimately raises more profound questions about *whether there is a future for the school as a physical site/entity?* Although, such visions also need to be tempered with a recognition that the development of the state school was never just about the provision of education but was also motivated, at least in part, by a desire to instil discipline into young people and to keep them off the streets by containing them within the confines of schools. The demise of the school as a physical site would raise questions about *how children would be cared for and supervised during the working week* and consequently *how workplaces and the nature of work might also need to be radically rethought and what the implications for social cohesion might be if the school ceased to be a site where children had the opportunity to encounter others different from themselves?*

Trend 3. What New Sites of Learning are Emerging?

The development of ICT is taking learning beyond the classroom, allowing e-learning to take place anytime, anywhere. This raises questions about what *new spaces or sites of learning are emerging?* Children are increasingly able to access educational resources from around the world (e.g. by participating in on-line field classes, making virtual visits to museums and galleries and so on); as well as being able to make on-line connections with, and access help from, professionals/employers. Indeed, children and young people are also using ICT to connect with other young people, to create and exchange information in new ways and to develop new on-line learning communities. There is some evidence that learning in an on-line community (such as the Notschool.net virtual classroom for young people aged 14-16) rather than a school might engage disaffected young people (Duckworth 2001). Such on-line sites of learning offer new forms of community engagement/involvement for young people on their own terms which enable them to create and participate in their own communities of interest, and to be active producers, rather than passive consumers of knowledge (Livingstone and Bovill 1999, Buckingham et al 1995). A recent Guardian ICM poll, for example, found that a third of young people on-line now have their own website or blog. However, recent concerns about the extent of internet plagiarism by children and young people, as well as concerns about children's lack of education in the skills necessary to critically evaluate the veracity or reliability of information on-line, raises questions about: *how new information landscapes might develop, how they might be managed, and about the skills young people will need to acquire to make appropriate judgements about the value of information they access?*

One challenge for schools is *how to recognise and value learning which takes place outside the classroom, particularly in new on-line spaces?* The danger is the demands of the national curriculum/assessment mean that schools equate the acquisition of skills with specific subjects rather than acknowledging 'soft' skills (such as creativity, innovation, problem-solving, leadership etc.) which may be developed outside classroom in informal learning (whereas individuals often value the knowledge and learning they achieve outside school more highly than that inside). As such schools need to find ways to support this

learning by providing or creating a space to reflect on it, develop it and transfer the skills into other contexts.

New off-line sites of learning do not appear to have emerged as rapidly as on-line sites of learning. Research suggests that out-of-school use of ICT for educational purposes in locations such as internet Cafes and libraries by children and young people is negligible. The children who do take up such opportunities are those with good ICT skills and who often have access to ICT at home and in other locations as well (the 'ICT rich'). Children who have no home-based access to ICT are least likely to access the technology for educational purposes in such out-of-school locations ('ICT poor'). There is also some evidence that boys may make more use of such sites than girls but for leisure rather than formal learning purposes. This poses the challenge of *how might these, or other alternative ICT-resourced locations be developed to make them attractive to young people as new sites of learning, and what are the barriers to their use, particularly for those who are 'ICT poor'?*

WHO SHOULD BE ENGAGING WITH THESE QUESTIONS?

- Developers and suppliers of networking, hardware and software including media production companies specialising in content for broadband and multiplatform media and E-learning companies.
- Local education authorities, school senior management teams, teachers (including ACITT the professional association for specialist teachers and coordinators of ICT in UK schools), governors, parents, and learners.
- DCFS, the Curriculum Development & Implementation team at QCA and the learning and skills council.
- Becta, Futurelab and education consultants.
- Architects and planners.
- Academics from the fields of Education, Information Studies and Geography.

METHODS TO GENERATE EVIDENCE AND THINKING

TASK 1: An international review and evaluation of relevant evidence in relation to issues used in the Challenge Outline paper by an academic with relevant expertise through a thorough search of the following data sources: *Electronic bibliographic databases* (e.g.: Applied Social Science Index and Abstracts; International Bibliography of Social Sciences; Sociological Abstracts, Social ScSearch, Dissertation Abstracts etc.) These searches will identify relevant books, e-journals and hard copy journals. *Reference lists:* taken from primary review articles and also collated through personal contact with known scholars/experts working in this field. *The internet:* employing on-line search engines such as Web of knowledge, Ingenta, BIDS, Google scholar. *ESDS Archives:* the single joined up services for secondary data linking Economic and Social Research Council's Qualidata archive with other UK data services. *Grey literatures:* These are non-academic publications (i.e. non peer reviewed work) including research reports or briefings by government departments and bodies, and non-governmental organisations. *Case study initiatives:* including the possible scaling-up of existing high-quality evidence from the evaluation of specific research projects.

TASK 2: In-depth interviews with relevant professionals (from the fields of education, architecture, and ICT) to explore the key questions outlined in this Challenge Outline paper.

TASK 3: An inter-professional forum to bring together experts from a range of relevant fields to debate the core question of how developments in technologies will change the way we use off-line (physical) and on-line (virtual) spaces for learning?

TASK 4: A consultation exercise carried out with children and young people (purposefully sampled by age, gender, socio-economic background and geographical location) involving

child-centred research methods. This must be designed to understand children and young people's own perceptions of ICT, and the extent to which these might run counter to professional expectations.

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