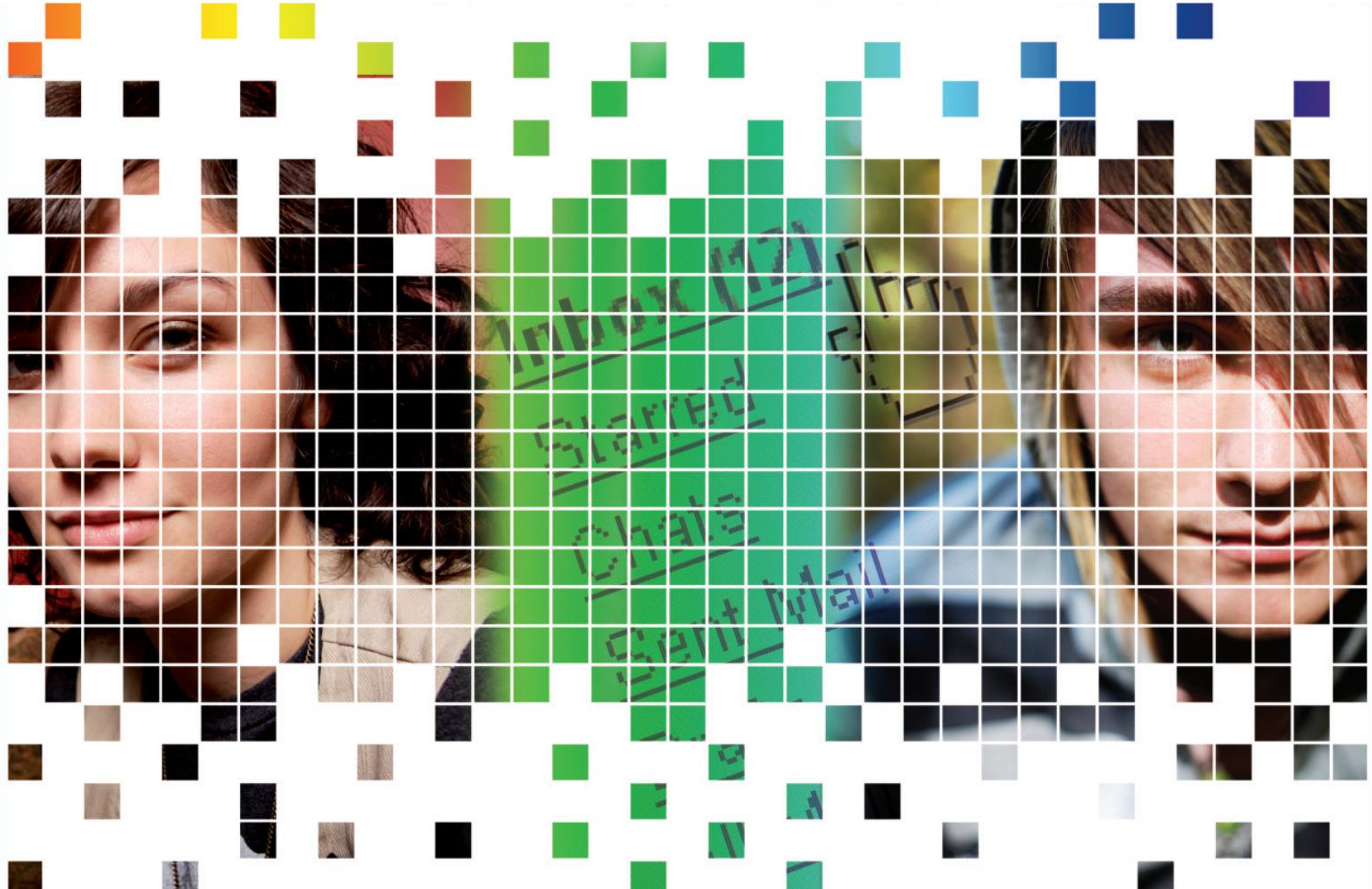


Changing spaces:

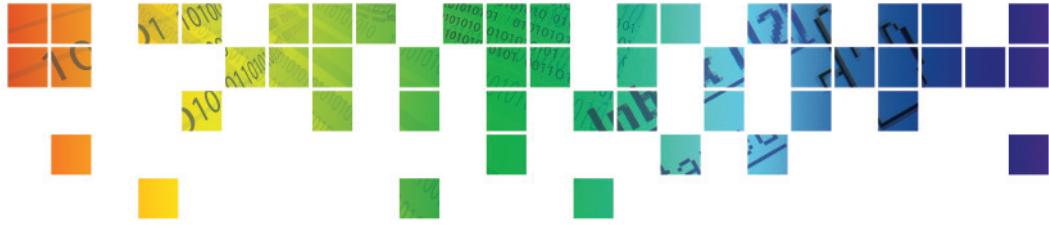
Young people, technology and learning



The second of four reports in the ESRC Seminar Series:

The educational and social impact of new technologies on young people in Britain

Report of the seminar held on Monday 7 July 2008
Department of Education, University of Oxford



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Executive summary

This is a report on the second on our series of seminars on the contexts and consequences of use of new information and communication technologies for children and young people, with a particular focus on the implications of technological change of formal and informal education. The first seminar scoped key theoretical frameworks, focusing on questions of age and development, on social approaches to technological change, and to diverse notions of learning. The report, titled ‘Theorising the benefits of new technology for youth: Controversies of learning and development’ can be freely downloaded from <http://www.education.ox.ac.uk/esrcseries/home/index.php>.

Seminar 2 concerned questions of space. As John Coleman explained in introducing the seminar, first we were interested in learning environments, seeking to understand how changing spatio-technical arrangements are affecting the learning environment in the classroom, school, home and community. The traditional notion of group learning in a classroom seems to be under question, while maximising the benefits from flexible new technologies still requires serious consideration. While educationalists are rethinking formal learning environments, young people themselves are using new technologies for informal learning in a far wider array of social settings, public and private, shared and individual.

Alan Prout gave the first paper on ‘Changing childhood in a globalizing world’. His focus was on the intricate and shifting relations between spatial and temporal constraints on learning, drawing on the ‘Beyond Current Horizons project, conducted with Nick Lee, funded by the DCSF and based at Futurelab. Taking a Deleuzian approach, he argued against a purely social

constructivist account of childhood, pointing to the materialities of both school spaces and learning technologies as potentially enabling but more often constraining educational opportunities.

These constraints include a strong time ordering such that children’s lives are divided into time for preparation and time for performance, this occupying much of the week and, particularly, structuring ‘free time’ at home.

Considerable disciplinary resources of both parents and teachers are occupied in ensuring the effectiveness of this time ordering. While new technologies might potentially disrupt this order, or introduce alternative forms of flexibility, Prout argued that more often they are pressed into service so as to continue and extend the regulated and disciplined use of time and space for pupils.

The second paper, by Gill Valentine, focused in on ‘Home-school links: the implications of ICT for sites of learning and spaces of childhood’. She critically examined the optimistic policies linking ICT and learning in educational policy for the coming decade, identifying potential difficulties: one such is the different styles of learning associated with home and school, differences that may enable children to learn well in different settings and which, arguably, are undermined by technologies that blur home-school boundaries.

While the hope is that experimental and pleasurable styles of learning will extend from home to school, the concern is that the reverse will happen, with disaffection or boredom associated with formal learning undermining prospects for informal learning. There are, to be sure, some good examples of school experimenting with new and creative ICT-mediated home-school links, but there are some significant

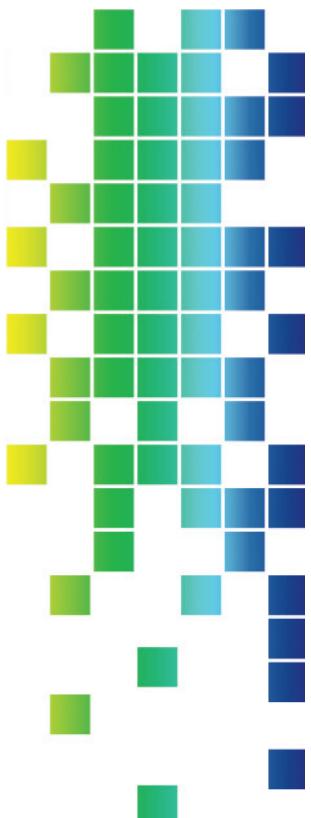
barriers impeding such policies also. Valentine particularly outlined the influence of traditional forms of socioeconomic stratification, resulting in middle class children gaining more from the introduction of ICT into learning, especially at home, than less privileged children. How then, she asked, shall we re-imagine the school of the future?

These re-imaginings were given concrete form in the third paper, by Steve Moss, in his talk 'Future spaces: future learning'. Reporting on plans for the Building Schools for the Future programme, he charted the challenges for teachers and educationalists in imagining learning spaces in a future that does not yet exist. Over and again, he argued, it is our failures of imagination that lead us to reproduce the familiar, to the detriment of more radical visions of how things could be different. This pessimistic observation is in conflict, he went on to argue, with the valid imperative to consult and engage with pupils and teachers when re-envisioning future schools.

One must engage, clearly, yet this risks repeating conservative visions. For example, Steve Moss observes that in designing new school structures in recent years, the exterior as presented to the community is often more radical than that traditional set of classrooms reproduced within the walls. Some examples, however, maximise the potential of ICTs in redesigning classrooms also – changing spatial arrangements among pupils and between pupils and teachers both by altering the formal/informal learning spaces and the virtual/physical spaces for learning.

Each paper gave rise to a lively discussion from our diverse and expert audience, and some of the discussion is captured in the body of the report. Inevitably more

questions were raised than answers provided, but the questions are important ones, and merit our serious attention if ICTs are to benefit children's learning in the years to come.





Introduction

John Coleman, University of Oxford

It is a great pleasure to be introducing this, the second in our series of seminars on the impact of new technologies on young people. The seminar today will concern the topic of space in all its different aspects, and we look forward to a productive and valuable afternoon. Before we begin it is worth stating some of the key issues that motivated us to put this series of seminars together.

Firstly we were interested in the benefits of new technologies for young people. So much of the focus in this area has to do with the negatives, the threats and risks of new technologies, that we considered it essential to be able to look at some of the positives in this field. Secondly we wanted to look at how ICTs can contribute to positive educational outcomes, an issue of major significance to policy makers but also of course to teachers and all involved in educational planning. Thirdly we were stuck by the fact that the four organisers all came from somewhat different academic backgrounds, and this led us to focus on the importance of an inter-disciplinary approach in this arena. Different disciplines have a lot to learn from each other, and we hope that these seminars will reflect a spirit of collaboration between subject areas.

In her introduction to Seminar 1 Sonia Livingstone summarised some of the central research questions posed by this seminar series, and it is important to rehearse them now as they will underpin much of the discussion today. In the first place, we were interested in the question of age. We wanted to look at this particular

developmental stage, that of adolescence, and ask whether there were particular things about this stage that were relevant in thinking about new technologies. Are there differences between children and adolescents here, and if so, what are they? Do adolescents respond in particular ways to the opportunities afforded by ICTs, and is there a sense in which the developmental tasks of adolescence – searching for autonomy, for example – mesh with the ways in which new technologies function?

A further question has to do with key ways of thinking about technology. We have considered differences between deterministic approaches and constructivist approaches, and we have had some debate about whether a soft determinism might be the most productive way to look at these phenomena. And then the third question has to do with the role of ICT's in formal and informal learning. These are obviously very large questions, but in our view it is necessary to be clear about our concerns and interests, in order to set a context for the discussions we are to have today.

Turning now to this seminar, which, as I say, is to do with space, let us consider the main themes to be addressed. Firstly we are interested in learning environments. We want to know how changing spaces have affected the learning environment in the classroom, in the school, and indeed in the home. All of these have been affected by new technologies, and we want to know how young people have responded to them. The notion of a classroom as a

'How are changing spaces affecting the learning environment in the classroom, in the school and in the home?'.



traditional classroom is under question, for do we need to learn in a group environment? Do we need a school at all? Do we need an educational institution, or can we learn on our own? How can we learn best using new technologies? And of course it is not just formal learning that is at issue here. We also have informal learning, so what are young people learning through messaging, through the use of websites, and other technologies.

All these are questions about changing spaces, which leads us on to changing spatial boundaries. The term that is sometimes used is extensibility, in the sense that technology has made it possible for spatial boundaries to be altered. So for example in a geography lesson you can have pupils in Oxford sharing their lesson with pupils in Alaska or anywhere else in the world for that matter. Thus the way in which we understand space has altered. Of course it is not just technologies that have altered the way we experience space, you could say that changes in transport have altered our notion of space, because new forms of transport make it possible to go to places that you could not go to before. Yet one of the things about technology is that you can be in two spaces at the same time, so that through technology – whether you are taking photos on your mobile phone or using the internet – you can actually experience another place while being in the first place. And that is an illustration of extensibility, which is a key element of our debate about space today.

The third topic that relates to today's theme is that of on-line and off-line space. Here you can experience alternative spaces, so that if you do not like the space you are in, you can go on-line and go to a different community where you can have a different identity, and be a different person. The topic of identity

is one which we will pick up again in Seminar 4, whilst in Seminar 3 we will be dealing with literacies. There is of course a considerable degree of overlap between these themes, but today we will focus on changing spaces, and I am delighted to introduce the first speaker.

Changing childhood in a globalizing world

Alan Prout, Director of Warwick Institute of Education, University of Warwick

I'm going to talk about not space but time, but of course they're implicated together, particularly the implications of time ordering for the identification of childhood with being a school pupil. I'm going to look at the implications of some technological changes; raising some, I admit, purely speculative questions about what the implications of those technologies for that question are, might be. And then I'm going to talk about those in relation to some economic and social and cultural trends around childhood, asking the question, how do or how might technical changes play into social, economic and cultural ones.

I should say at the outset that what I'm going to say comes out of some work that I'm doing with Keri Facer on a project called Beyond Current Horizons, which is funded by the DCSF and based at Futurelab. That work that took place a few months ago and was really two papers that were written for the Beyond Current Horizons project, which is a kind of foresight programme, a kind of future gazing programme, in which we're trying to look to 2025 and think about what the implications of developing technologies might be for schools and learning and related kind of matters.

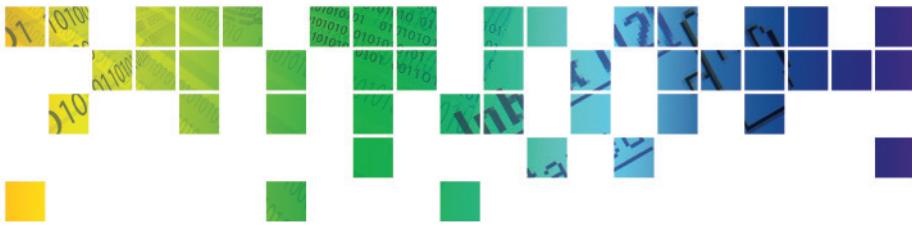
Nick Lee and I both produced a paper for that discussion and this is a combination of these two papers. Now the different contributions are these: Nick Lee wrote about new and emerging technologies, particularly mobile, portable information and communication technologies, and raises a question about whether these will create conditions of possibility that erode the identification of the child with the pupil, which he argues is the, a if not the, dominant 20th, early 21st century configuration of the child, at least in America and Europe. In my paper I talked about emerging global trends in economy and society, and how these might shape childhood constructions over the next 20 years. So, put those two things together,

and what you get is something about the way in which socio and economic and cultural issues play into technical ones and vice versa. And with what kinds of consequences for the construction of childhood. So that's what I'm going to address.

The first thing I wanted to say is the general theoretical perspective that both Nick Lee and I are coming from. We're both scholars of childhood; we both get involved in what you might call a Deleuzian turn in thinking about childhood, and that's a move away from the idea that childhood is socially constructed, that is primarily discursively or narratively constructed, to one which looks at narrative discourse and materiality. And I've been concerned with things to do with the body and things to do with technology as material elements in this construction. And more recently I've started thinking more about economy, for reasons that will become more apparent. So I take this quote from Bruno Latour, it's from a book called, *We Have Never Been Modern*, not a new book anymore, published about ten years ago now, although I think it's a really kind of seminal work and with huge implications for social theory. Latour is concerned to traverse the social, the technical, the material, the discursive, as if there were no boundaries between these segments or segmented kind of bits of reality. So it's a kind of turn to relational materialism that we're involved in here. It's very consonant with activity theory. But it comes from a different intellectual trajectory. The way I sum it up is that the intellectual heritage of activity theory is Marxist, dialectical materialism. This Deleuzian, Latoureal turn is more Nietzschean, but they're both materialist.

Now the core of the question that Nick raised is a question of how, in the latter part of the 19th century, definitely the 20th century and still in this century, the figure of the pupil, the school pupil, has been a dominant figure in thinking about





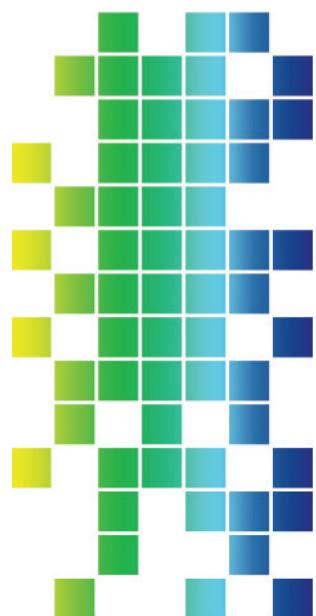
childhood. Nick Lee argues the dominant figure of the child is the school pupil. Of course there are competing versions of the child, and one might soften that to say that the figure of the pupil is a dominant figure in thinking about and constructions of childhood. The argument is that the dominance of that figure of the pupil depends upon a particular practice of time order that runs across the different scales, time scales of children's lives. And the time ordering is preparation leads to performance, preparation is followed by performance. And one can see that particularly in school settings, across the school day, across the week, across the term, across the school year, across the life course at school – preparation is followed by, leads into performance.

One of the first ethnographic studies I ever did was a study of children's sickness in a primary school, and this question of performance, preparation and performance was, turned out to be absolutely central to the way in which sickness absence was, took place in the school. When you looked at the pattern of sickness absence over a week, let's say, it followed and was shaped by the pattern of work in the school week, which typically in this particular school anyway was that a set of work was set up at the beginning of the week, and it was handed in on Friday. And it was very rare for children to be sick on a Wednesday or Thursday and return to work, to school, interesting slip, on a Friday. And when you talked to the children about this, it was all bound up with this work rhythm of the school. They knew, if they arrived on Friday, after they'd been absent in the week, they would still have to complete all this work. But if they came back the next Monday, that cycle of work disappeared, as it were, and they started afresh on that Monday.

So this kind of sequencing of preparation and performance arguably runs through school life. The other bit of the picture is the idea that, as a child pupil in school, the rule is that you're allowed to do one thing, one time, at a time. And indeed, if you think about school, quite a lot of disciplinary resources are devoted to ensuring that children are doing one time at a time. That is the classroom, indeed perhaps even the school, tries to exclude let's say friendship time from classroom time, because in classroom time you do classroom time, and you don't do any other kind of time. Now the argument is that this dominant time ordering has been held together very, very successfully by all kinds of strategies of governmentality, which focus on the idea of children as an investment in the future.

I suppose crudely one could say that this time ordering is part of the practice of investing in children, and as governments have become more and more concerned with the idea of an investment in childhood being an investment for the future, these strategies have become more and more intense. But they are also supported; I mean that kind of picture would make it sound as if this is imposed upon parents and children. In fact this strategy is highly successful because it meshes with and enrols parental aspirations and indeed it enrols children's own goals and aspirations.

Arguably we're seeing this kind of time ordering intensified in recent years through regimes of testing and the national curriculum and so on, which encode that idea of preparation and performance very strongly at all kinds of scales. That time ordering has been very resistant to change, and in part this is because it is so productive. For the critics of schooling, it's an inconvenient truth that this time order, one time at a time, preparation



'So devices, artefacts, play a tremendously important part in holding together time ordering. And some kinds of artefacts can be very disruptive of the dominant time ordering of the school'.

precedes performance, has not found a successful challenge. In his paper, Nick talks about some of the challenges to this time ordering, the de-schooling challenge, that is the invasion of, the critique of the invasion of schooling by capitalist interests, has been largely unsuccessful.

The critique that came from cultural studies, the resistance through ritual, Birmingham Centre for Contemporary Cultural Studies and their critique of that, which is really a critique that came from looking at the other timetables of children and young people, and how they as it were partially contested the time ordering of school. And indeed from the sociology of childhood, which was a direct, frontal attack on this notion of time ordering, because it simply argued that there were many other things going on in children's lives, many other time orderings that required attention.

However the central reason, perhaps, why this time ordering has proved so stable is that it doesn't have substance. Those of you who've read Bruno Latour will remember that Latour argues that what gives society substance is its technical relations, more precisely its socio-technical relations. So it is as it were, there were these alternative orderings lacked a socio-technical substance that would give them weight and gravity, allow them to persist. This isn't quite true, Uria Ingstrom has done a wonderful study of Italian devices that Italian school students use for cheating in exams, and he shows it's a very elaborate industry amongst Italian young people, in which very clever little paper devices, which are crib sheets with tiny, tiny writing and lots of, lots and lots of information, are produced around the Italian exam season. It's a fantastic study of the creativity of young people. They invest into these little devices enormous energies and creativity. But of course, the

Italian schooling system is geared up to expel and exclude this kind of device from the exam room and indeed from school.

Another example of this comes from a PhD student of mine of a few years ago, Sharon Ogilvy-White, who was looking at a secondary school in Scotland. It was a failing school, kind of a new head came in and one of the things she did was to try and disrupt the alternative timings of the kids in the school by expelling and refusing to allow into school, any devices of any kind, including all the toys and things which they tried to bring into school. And she shows how the effect of this, this removal of these artefacts from the playground in particular, as it were completely disrupted the social life, the peer relationships of the children, because lots of them were built around the mediation of these kinds of devices, toys, even simple things like footballs and so on. Although the boys in this example tried to substitute rolled-up packets of crisp papers for a football, this eventually failed. And they only got their football and the other devices back into the school when, as a football team, they went on strike and told this new head that, unless they could have these things back in the, bring these things back into school, they would refuse to play in the local school league. And this threat was enough to allow things gradually to be, come back into the schoolyard.

So devices, artefacts, play a tremendously important part in holding together time ordering. And they can be very, you know, some kinds of artefacts can be very disruptive of the dominant time ordering of the school. Now the argument is that portable communication and information devices have high potential for disrupting this time ordering of, that underlies the identification of children as pupils. And they do this by, essentially by supporting temporal multiplicity. That is, just as they allow you to be in more than one place at a time, they allow you to be in



'The question is, what will be the future of these devices? How disruptive or incorporated into this time ordering will they be?'

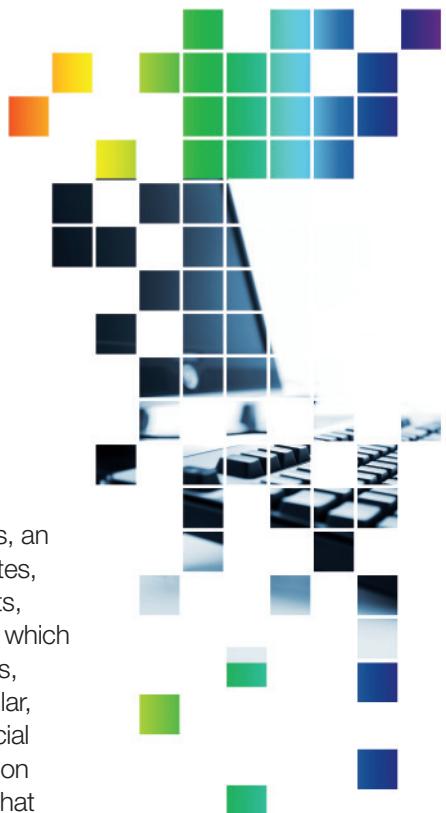
more than one time at a time. Now they do that in, and here I'm talking about mobile phones, palm devices, micro PCs, smart phones, all the things to do with wireless connectivity and looking into the future, this new generation of Internet broadcasting which is being developed for, particularly in China, actually, where instead of having small zones of wireless connectivity, there is a broadcasting of wireless connectivity. So that wireless connectivity becomes something like radio waves in the ether and, you know, it is wherever you are and you can connect into it wherever you are. This is a technology of the future, but it's seen as a much more appropriate technology for mega cities of the kind developing all round the East.

Those kinds of devices seem to have this potential for disrupting a dominant time ordering, and allowing a temporal multiplicity. They do that in various kinds of ways. To use another Deleuzian term, they de-territorialise learning. Now I would be the first to argue that this is not the first time learning has been de-territorialised. The book does essentially the same kind of thing, but wireless and mobile technology I think do step up the intensity and the scale of that de-territorialisation, extending the network, opening up new time spaces, creating very fast and fluid forms of access. They also do it through their multifunctional capacity, that is these devices tend to be able to do more than one thing at a time. I've got on my belt here a BlackBerry which does all these different kinds of functions all in one small

device. And there are other questions like the way in which they might create new kinds of roles for children, not as consumers of let's say Internet content, but also providers, creators of content.

Above all what they do is sustain time disruptions to the dominant ordering of school through the way they allow children's networks, their social networks, to cut across the ordering of school time - which is why legislators of all kinds have tried to remove these devices from the school space. The constant battle that schools have around mobile phones would be an example of this. On the other hand, as Nick points out, these devices have all kinds of learning potentials, and so another stream of response, apart from the exclusion of these devices is a more incorporationist one, how can these devices be folded into the learning processes of school, how can they be adapted to serve the function of the school. And that's a lively debate about, let's say the potential of MP3 podcast-type devices or texting as a way in which teachers and pupils can be in communication with each other, and so on.

One sees all these possibilities as well as these disruptive effects. The question is, what will be the future of these devices? How disruptive or incorporated into this time ordering will they be? It's a proposition of this Deleuzian, Latourean approach that the meaning of things is highly context-dependent, and things unfold non-teleologically. So context shapes meaning. This kind of rhizomic connectivity between different zones of



social life means that new and unexpected fruits come to bear. There's a law of unintended consequences. And so, if you ask the question, what is going to be the outcome of this encounter between children and mobile devices, you have to think about what is the context for that encounter, what parts of the networks of the social might reach into and reshape those possibilities.

I want to focus on some possible economic features of the unfolding context, and raise some questions about some features of childhood that I've written about quite a lot, that is plural socialisation, individualisation and regulation, and how these might be shaped, in part, by unfolding new economic questions. The proposition here is that there is gathering evidence that we are at some kind of key moment in a shifting of economic formations, the relationship between North America and Western Europe, and particularly those countries collective called the BRIC countries, Brazil, Russia, India, and China. I was reading the 78th annual report of the Bank of International Settlements, which is pretty dry reading. But the headline of their report was that the unsustainable has run its course. And this was their, as it were, their commentary on the last year of the global economy. And here's just a flavour of what they have to say. They say, this sudden change, that sudden change we're all familiar with, sometime to our cost, was blamed by some on shortcomings in the extension of the long-standing originator distribute model of new mortgage products in recent years.

Others, however, noted that the sudden deterioration in both financial and macroeconomic conditions looked more like a typical bust after a credit boom. Indeed, several factors seem to support this second hypothesis – the previous rapid growth of

global monetary and credit aggregates, an extended period of low real interest rates, the unusually high price of many assets, both financial and real, and the way in which spending patterns in different countries, the United States and China in particular, reflected their different stages of financial development, encouraging consumption and investment respectively. Now it's that last sentence, this comparison of the United States with China, with the figure of consumption, the figure of investment, that I think they're primarily referring to in terms of their headline, the unsustainable has run its course.

They're talking about, I think, what many other authors at the moment are pointing to, that is really pivotal shift in the nature of global economy. A couple of other people who are pointing in the same direction, Michael Klare who's Professor of Peace Studies at Hampshire Colleges in the US has written a new book called, *Rising Power, Shrinking Planet*, in which he points to a whole number of key trends around the industrialisation of India and China; energy scarcity; lagging alternative energy resources; generalised resource scarcity and competition; a huge wealth transfer from the US and Europe to these rising powers like China and India, but also the resource-based economies of the world; a possible reversal in some economic aspects of globalisation, particularly these long manufacturing chains; and the rise of consuming, new consuming classes in the BRIC countries, in, overall the shift from a unipolar to a multipolar social, political and economic order.

Similarly George Soros, the notorious George Soros who's in recent years become something of a scholar and a funder of higher education, in a book called *The New Paradigm for Financial Markets*, which is about the last year or so, talks about the arrival of a new inflationary



wave; unsustainable levels of credit and debt in the USA and Europe; instability in this unsustainable derivatives market; and so on and so forth. And he has a slogan which is, the age of consumption is coming to an end. So many different commentators are writing in much the same kind of way, both pointing to a shift in the way in which consumption has come to dominate production in the USA and in Europe, and the way conversely in which consumption, new consuming middle classes, are making a significant appearance in these new, rising economies.

I want to link that to some questions about childhood. What the table shows is the UN projections for world population between 2005 and 2050, and it shows the proportion of children 0 to 14 in different regions of the world. Now without going into detail on that, one of the, two things I think you can draw from that. The first is that, if one accepts the idea of the demographic dividend, that is the notion that greater economic growth is seen in countries with a rising share of those in the working age of population, then this predicts economic growth in Asia and Latin American countries, and retrenchment in North America and especially in Europe. The second implication is that, in these circumstances of a persistent ageing population there is possibly, arguably, a kind of double-whammy for children, in which a decline in resources becomes more intensively competed over between the generations.

What we may be facing is, let's say, changed fortunes for children. And perhaps also growing inequalities within different regions and countries between children – a trend that we've already seen over the last ten years, but which some economists would argue is a consequence of the global economic situation. I want to fold those questions into the technical, technological questions, and these three sets of questions

'The welfare state particularly of Europe has seen a shift away from questions to do with redistribution, towards questions to do with investment.'

that I'll do very quickly, that is the question of children, of plural socialisation, that is the way in which the multiplicity of socialisation contexts for children positions children as choice-making agents. Which is an issue which runs into the question of individualisation, this word, I've used this a lot from Beck about individualisation, the way in which young people as it were have to individualise themselves, and do so through their consumption practices, their lifestyle choices. A situation that's persisted for, arguably since the Second World War in Europe and North America, but certainly in the last ten or 20 years under the generalised slogan of, live the dream.

The question is, if there is to be a retrenchment in consumption as people like Soros and others are arguing, what is the prospect for consumption-based identities amongst young people? Possibly these are going to come under pressure, just as they may be opening up in China and India, so we may see a complex situation in which the technical and the economic play into each other, but very differently in different parts of the world. And unexpectedly so, given the past 20 or 30 years. And then finally, and also relating to this, is the question of the regulation of children.

I started out with this idea of the dominant figure of the child being the pupil, and that being connected into the investment of governments in the future through children, a model that more recently has become known as the social investment state, where the welfare state particularly of Europe has seen a shift away from questions to do with redistribution, towards questions to do with investment, in which spending on children is much more instrumentally driven and judged and evaluated, compared to the redistributionist agenda of the early welfare, post second world war welfare state. So I'm trying here I suppose to raise

some questions, some general questions, about the way in which the shifting context of socio-technological innovations could reshape and play in different ways their impact on children, learning context, schooling and so on. And I think, you know, this is going to be a fascinating case study over the next let's say ten years of these kinds of questions.



Discussion from the floor

Although this paper focused on questions of time, of course it was also about space, as you can't talk about one without the other, as David Harvey argued in his book on The Condition of Postmodernity.

Historically, there is a trend such that schools seek to enrol parents in shaping domestic space and time so that children's activities at home contribute to the school's agenda – for example, at home as well as at school, leisure time has been reconceived as preparation time, in anticipation of subsequent performance (to be assessed at school).

Home-school links: the implications of ict for sites of learning and spaces of childhood

Professor Gill Valentine, School of Geography, University of Leeds, UK

Introduction

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' (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 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 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

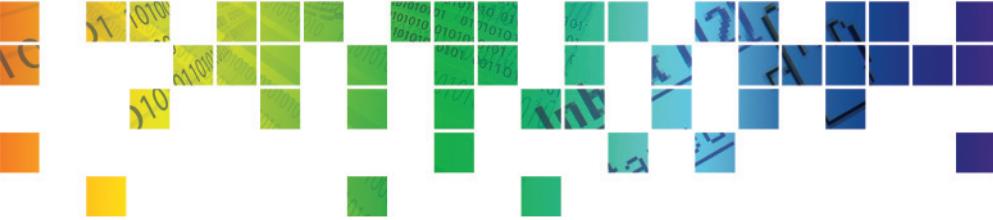


records, curriculum content etc.) and to enable parents to contact teachers by email. ICT also offers schools the space to display information about themselves and their pupils' work, as well as to establish community links (Somekh et. al.2003). It is anticipated that in such ways home-school ICT links 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 2005, Valentine and Skelton 2008, Valentine and Skelton 2008 *in press*). 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 & Arafah 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 (Valentine and Holloway 2001a), 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?

The future of the school as a physical off-line space

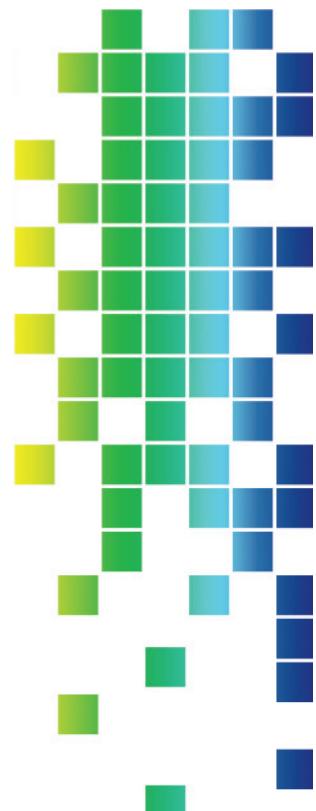
Building Schools For the Future (DfES 2003) provides a commitment to renew all secondary school buildings over the next 15 to 20 years (one which is to be extended to primary schools too). This creates potential for what schools look like to be re-imagined and thus to invest in ICT and the infrastructure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

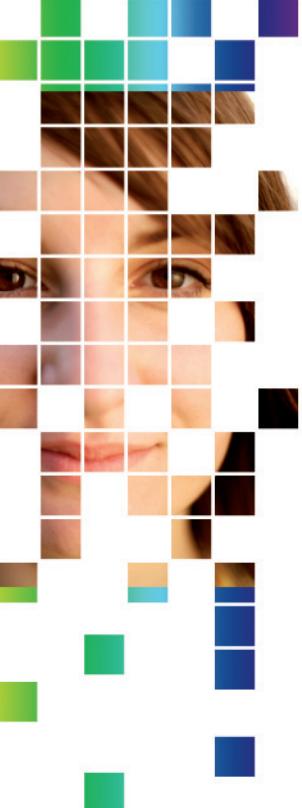
The traditional model of the secondary school is of closed box-like classrooms in which the teacher is located at the front with pupils aligned in rows and where ICT equipment is often arranged at the edges, or confined to designated classrooms that are monopolised by the ICT curriculum, making other 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





'The most significant obstacle to re-imaging 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'

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-imaging 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;

Valentine and Holloway 2002; 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?

What new sites of learning are emerging?

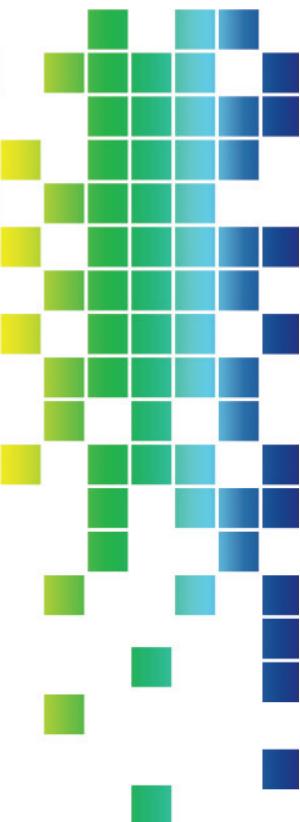
The development of ICT is taking learning beyond the classroom, allowing e-learning to take place anytime, anywhere. This raises questions about what new spaces or sites of learning are emerging? Children are increasingly able to access educational resources from around the world (e.g. by participating 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 (Valentine and Holloway 2001b, 2002).

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 (Valentine et al 2005), 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') (Valentine et al 2005). 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'?

Conclusion

In this paper I have reviewed emerging and planned developments in ICT, specifically in relation to the development of Home-School links. In doing so, I have identified a range of and questions about and potential implications of future ICT developments for sites of learning and the spaces of childhood. On the one hand, ICT optimists suggest that the ultimate radical implication of the further development of home-school links is the disappearance of the school as a physical site in its present time-space structured format with mobile devices offering the ultimate in personalised learning to meet the individual needs of both children and adult learners. On the other hand, some ICT pessimists argue that technology will continue to support existing practices and cultures unless structural impediments (such as the limitations of the curriculum, teacher workloads and so on) are challenged. I therefore want to conclude this ESRC seminar presentation by inviting the participants to take up this debate from the floor.

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'One challenge for schools is how to recognise and value learning which takes place outside the classroom, particularly in new on-line spaces?'



Discussion from the floor

A profound transformation regarding ICT in schools is not to do with teaching or learning but concerns the information available to teachers about children's performance, school performance, local authority performance. This is revolutionising schools, absorbing considerable energies in supporting ICT systems for schools and it is unrelated to teaching and learning.

Energy is also going into communication – when children get several hundred messages on their mobile each day, even in the classroom, that's a huge investment of their energy also. What are the implications?

Is the effect of technology liberating? Or does it enable further regulation and control? Is it benefiting learning or driving the monitoring of performance? Would it even be preferable to stop using technology to link home and school and, instead, maintain a separation of home life and school life? That might be more positive and healthy for children.

Some children will sit down at the computer and use it to learn something really worthwhile from an educational perspective, while others will sit down and play partypoker.com. We need to understand why technologies are used to advance personalised self-directed learning agendas by some and not others. It's a question of motivation, and we don't understand enough about this. Partly, it's a matter of self-belief, partly of socioeconomic opportunity and encouragement.

The discussion has taken a curious turn, because one justification for making learning spaces more flexible was to bring children's spontaneous motivation to learn into an educational framework, encouraging them to learn when and where they wished. But now we seem to be saying that even when you take education out of the classroom, differences in children's motivation – deriving from inequalities in home life, for example – will still differentiate those who benefit from those who don't.

Future spaces: future learning

Steve Moss, Strategic Director – ICT, Partnerships for Schools

New space, new learning?

'We spend a lot of time trying to change people. The thing to do is to change the environment and people will change themselves.'

Les Watson, Pro Vice-Chancellor,
Glasgow Caledonian University

The government has promised funding to rebuild every secondary school in England by 2020 through its Building Schools for the Future scheme. The recently announced Primary Capital Programme should lead to a programme of rebuilding and remodelling primary schools. These capital programmes combined with the publication at the beginning of January 2007 of 2020 Vision, the report the Teaching and learning in 2020 Review group, seem to signal this as an appropriate time to consider the learning spaces which might be created and the ways in which teachers and learners could appropriate and exploit the potential of these spaces.

The declared aim of the Building Schools for the Future programme is to transform secondary education to make it fit for purpose in the 21st century. That the main lever for this transformation is a capital fund of £45,000,000,000 for new buildings and ICT systems poses a particular problem.

'Our future depends on building vibrant learning communities. We need to design buildings and systems that encourage active learning. The design dialogue needs to be ongoing; it needs to be happening at all levels, all the time.'

Stephen Heppell (2005)

Schools are being asked to reinvent themselves for a future that doesn't yet exist. This is a complex, multi-dimensional task that needs to look beyond the immediate physical environment to consider how the school will operate as an

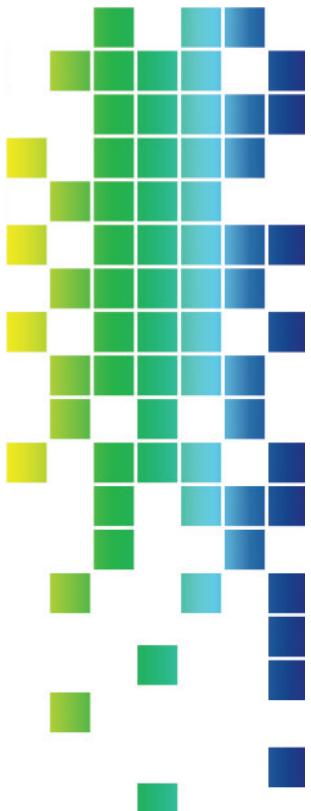
integrated system. Key to this will be that each school's users understand and own the process so that it meets their unique vision and needs.

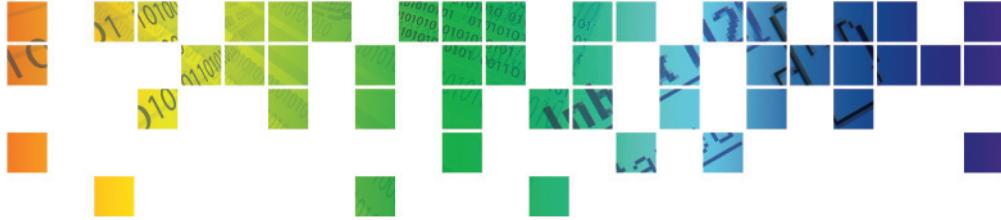
If it is true, as often stated, that form follows function then it becomes vital that senior managers, teachers and learners in schools are engaged as early as possible in discussion about the characteristics of internal school organisation, learning and teaching and their vision for the ways in which learning will be mediated in their new schools.

Much has been written and said recently about personalisation as a new goal for education. However,

'..for most practitioners, the concept of personalisation isn't new: many teachers talk of how the education system stands in the way of their desire to build relationships with their students and ensure that they have a meaningful learning experience..... What is new is the commitment to create an education system that is driven by personalisation, where the efforts of teachers are supported rather than thwarted by the framework within which they operate. In moving the learner from the periphery (in comparison with schools, curriculum and organisation) to the centre, this is not simply about making schools more responsive to their learners. It is potentially a new way of doing things, that focuses on how to bring to life the resources that have previously been hidden, rather than on how to get the most out of what's already there.'

'In order to make BSF the catalyst for educational transformation that it could be, it is vital to start at the right place: a focus on the future of learning, and a deep understanding of the relationship between space, time, power relationships and people.'





Strong foundations – why schools have to be built on learning, DfES 2006

Monaghan (2002) argues convincingly that '[classroom] spaces embody the pedagogical philosophies of their designers'. By extrapolation, one could argue that all physical and virtual spaces for learning reflect the pedagogical philosophies of their designers. If this is so then it is incumbent upon school leaders and teachers to play an active role in briefing those who will be designing future learning spaces. The thinking needs to start with a critical review of current practices to identify those which are successful and which the school would wish to retain and those which could be improved or even abandoned altogether in favour of a different approach.

A useful tool to inform this process is Futurelab's challenging paper – 'What If? – Re-imagining Learning Spaces' (2006) which sets out

'.... not to suggest that there is only one sort of learning space which will meet the needs of the next century, nor to imply that there is only one way of exploiting technology for learning in the future. Instead, our aim is to argue that this opportunity to rethink educational spaces (and hence educational practices, relationships, methods and tools) should not be squandered.'

For this opportunity to be fully exploited, we need to open up the scale and ambition of educational debate; to play, explore and experiment with the tools that a new century has offered us; and to engage learners, communities and educators in the imaginative, optimistic and challenging process of re-imagining learning communities for the next 100 years.

We need to start by asking 'what if things could be very, very different...?'

Designing schools from the inside out

It is a fact that, whilst many new schools and academies built over the past two years present a highly designed external facade to the world, the interior of many of these schools suffers from too little thought having been given to the design of spaces for learning. CEB (2006) is highly critical of the quality of many new schools.

'Another lost opportunity is that design teams do not have the time to consider and expand through dialogue transformational learning environments with regard to pedagogy and technology. The traditional design of a school is slowly transforming from the current specialised teaching spaces and classrooms with a set school day and curriculum towards multi-purpose spaces with flexible timetables and individual learning plans – potentially at multiple locations across a neighbourhood. Until consultation on these issues is properly addressed, we will only receive rhetoric on issues of flexibility, future proofing, sustainability etc rather than exciting, integrated and innovative design solutions.'

An innovative example

A revolutionary classroom design is being piloted at St Margaret's CE High School, a boys school in Liverpool. This new space, a 360° classroom, is designed for maximum flexibility. There is no back of the room for reluctant students to hide in. It is equipped with prototype 'Qpods' – rotating stools with tables that double as back rests. There are removable whiteboards on every wall and a multimedia hub at the centre. The classroom even has window blinds that double as whiteboard space. The removable whiteboards double as tables for group work. In total the room has 34 times as much wall space for writing as the typical classroom. Storage has also been streamlined, with

'Given the chance, learners choose the locations where they feel most empowered – and most comfortable – to complete the work at hand'

spaces for temporary and permanent items built into the walls.

'The forms and functions of learning spaces are changing rapidly as architects discover new ways to take advantage of computer and communication technologies.'

'New types of learning spaces not only incorporate new hardware and systems; they also create new patterns of social and intellectual interaction, alter the demand for space, and suggest new strategies for overall ... design.'

William J Mitchell (2004)

Students can move their 'Qpods' during the lesson depending on the learning style needed. Teachers, who have no desk of their own, have access to all areas thanks to a 'racetrack' round the room's perimeter. Being able to move freely creates a new dynamic, and teachers who have used the room report that they are able to structure more varied lesson plans. Boys, in particular, respond well to varied activities and a change of gear. The 360° classroom seeks to address that. It is still in its testing phase so feedback is limited, but already it appears that the classroom supports much higher levels of interaction. What is also clear is that the boys enjoy being there. For many, it is the first time they have been in a workspace that is geared to their needs. Even if this turns out to be its only advantage, that must have positive consequences for learning and performance.

Formal and informal learning spaces

The most obvious examples of formal learning spaces are the classrooms in our schools. However, thought needs to be given to the creation of informal spaces too.

Given the chance, learners choose the locations where they feel most

empowered—and most comfortable—to complete the work at hand. In places where they see the best support for their way of working, they feel safe and so return frequently, knowing they can move through material and concepts on their terms. In places where they feel discomfort, a lack of connection to space and infrastructure, they leave or disengage.

'Informal learning spaces are those in which students live and learn at their discretion. They choose the time and the place to address the work that flows from formal learning spaces and into their lives as homework, projects, ideas to mull over, and conversations to have.'

Alan Cattier, 2006

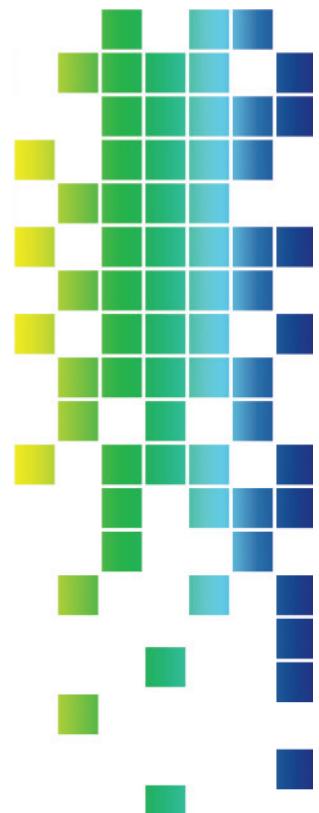
Libraries or learning resource centres are underutilised spaces in many schools, yet they are potentially ideal places for learners to continue and extend the learning which may have begun in a more formal setting. The Schools Library Group have recently released 'Designed for Learning: School Libraries', a DVD of stimulating examples of well designed libraries and learning resource centres in schools. Similarly the JISC publication – 'Designing Spaces for Effective Learning' (2006) - although mainly drawing on examples from higher and further education – provides valuable thinking to inform schools' own decisions.

Virtual spaces for learning

A Virtual Learning Space

Should enable learners and teachers to find, organise and create content and learning resources in ways which are flexible and not necessarily based on taxonomies or atomised classifications. It has to be more than a content delivery system.

Learners must feel that the experience is a personal one.





'The best virtual spaces use the strengths of electronic communication systems to create environments which recognise the student as a creator of content rather than just a consumer'

The space should also recognise and facilitate the social dimensions of learning – encouraging collaborative work and discussion.

Developments in information and communications technologies now mean that schools need to give attention to the design and operation of virtual spaces for learning in the same way that they need to think about the factors which should shape the design and operation of the physical spaces for learning within the school building. Many schools in the UK and around the world already provide a virtual learning environment (VLE) for their students, often based on free, open source products such as Moodle (www.moodle.org). However, these are often little more than repositories for scanned versions of printed worksheets and other, similar resources. Even where the VLE is used by staff to set and manage homework, the new medium often has little effect on the task; simply replicating the paper-based process with an identical electronic one.

The best virtual spaces use the strengths of electronic communication systems to create environments which recognise the student as a creator of content rather than just a consumer. They also encourage the social dimensions of learning and the value of peer-peer interactions as well as mentor-facilitated discussion groups. At the time of writing, such learning spaces are few in number but there are encouraging signs that local authorities and schools are alert to the possibilities in their specifications for online learning environments as part of the Building Schools for the Future programme.

An innovative example – the virtual workspace

The Virtual Workspace is a collaborative venture between Wolverhampton and Worcestershire local authorities and Nord Anglia. It is a managed online environment

designed to meet the needs of 14-19 year old students and has been running since 2004. (You can visit the public part of the space at www.virtual-workspace.com). A notable feature of this virtual space is the extent to which users have appropriated and exploited it to meet their needs. There are 'communities' for all subjects of the curriculum, many of them set up by teachers and students to meet the needs of specific groups.

One of the most interesting features of the communities is the peer-peer communication which they encourage and support. For example, in a discussion that took place on drugs and drug addiction in the forum of the Pastoral Community, the students make comparisons between drug and alcohol abuse, and use their own research to provide statistical evidence to back-up their arguments: The discussion that took place was long, thoughtful and constructive, and attracted a significant number of students.

Conclusion

Whether or not one agrees with Les Watson's assertion at the beginning of this article, there is no doubt that the design and layout of physical and virtual spaces for learning can have a profound effect upon the users of those spaces. The anticipated, unprecedented expenditure on new buildings and ICT systems for secondary schools over the next decade presents school communities with very real opportunities to re-shape the processes of learning and teaching and to engage with design professionals in a dialogue which will in turn shape the spaces in which those processes take place.

However, even within existing school buildings, there is clearly enormous potential for improving learning through a clearer understanding of how the layout of learning spaces affects the interactions between teachers and students.

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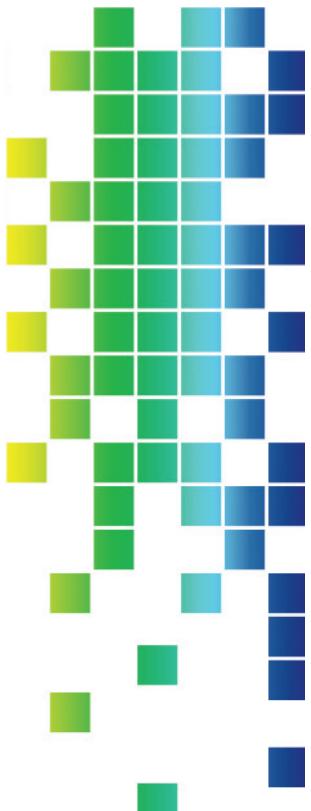
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Discussion from the floor

There are billions of options now and we want to get it right. For that, we need to distinguish space and place, and virtual and real spaces. We can think of both virtual places (eg Facebook) and the classroom in terms of their affordances, as affording certain kinds of activities. One problem is that the designs we see for each of these are often unpopulated – how, in practice, are people actually going to behave in these designed spaces for learning?

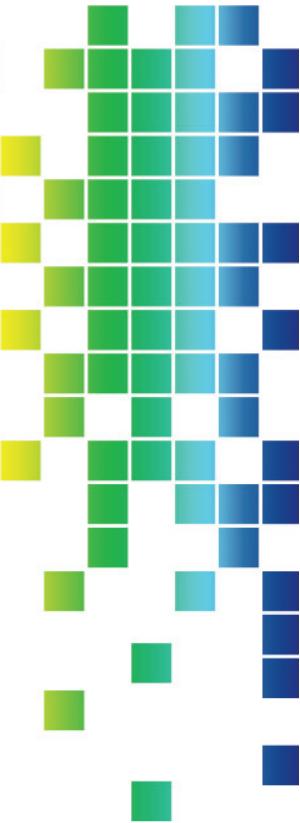
Another problem is that schools request environments which are not very different from those they are familiar with – there's a resistance to genuine change. So the biggest challenge is not in the spaces for learning but in the thinking of the staff and the school community. Because the school is the client, this is both a strength and a weakness. There are also questions of pedagogy to consider, and when education is directed towards evaluation and targets, that tends to clamp down on other possibilities.

What are the alternative models of pedagogy that researchers can offer? If we think schools are getting it wrong, we shouldn't ask them to design the alternatives. Nor should we invite them to extend their educational model into

children's leisure time and home life. Maybe children do need some spaces, and times, when they can be released from 'learning'.

There are some further issues we haven't had time to address here, such as the involvement of the private sector in redesigning schools through new public private partnerships, commercial technologies, etc – perhaps ironic when in other domains, the commercialisation of childhood has become a concern. Also, there are still questions about whether the school should be redesigned for learning within the boundaries of the school site, or whether learning should extend to the shopping mall, the bus and the bedroom.

To end on a positive note, research tells us that children mostly like going to school, recognising that they will need qualifications in the future and because they meet their friends there. So, we could decide to continue the spaces of education much as before and instead work on improving the quality of learning that goes on within those spaces. Recall Harvey's argument that place is an inhabited space, inhabited by real people with histories, futures, imaginations. What matters is how learning spaces become inhabited.

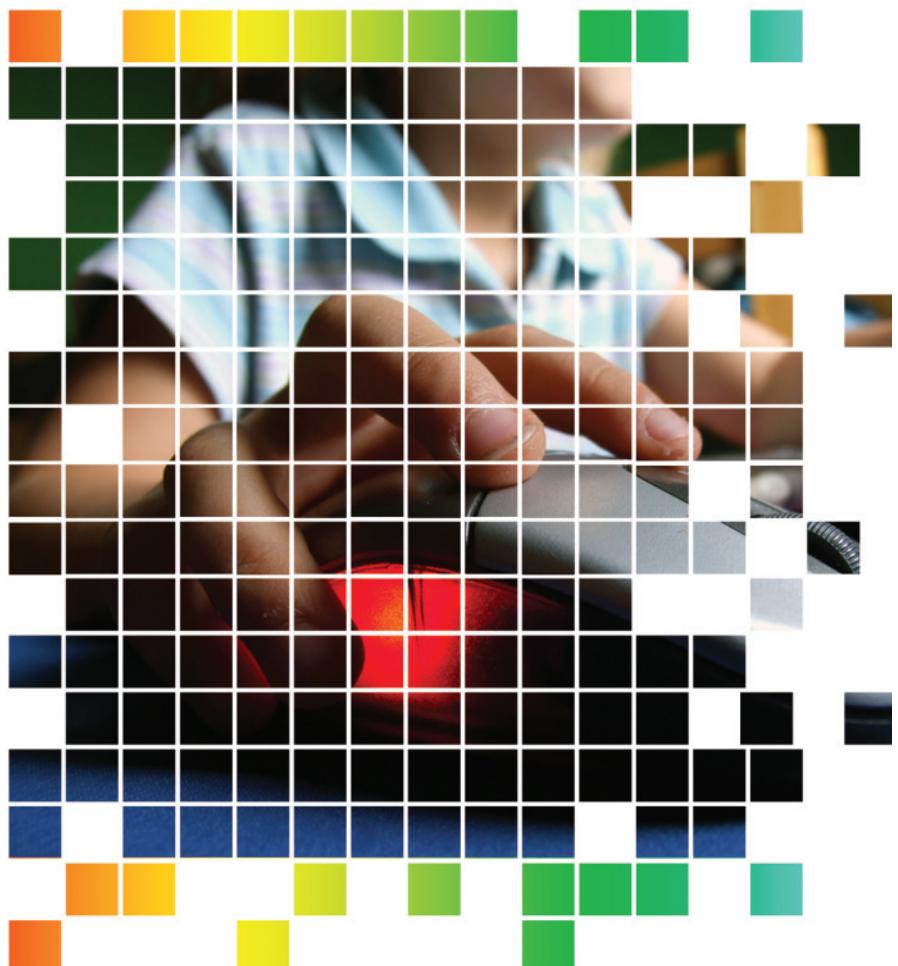


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Alan Prout is Director of the Institute of Education at Warwick University, which he joined as Professor of Sociology and Childhood Studies in 2005. He has researched and taught at a number of UK universities, including Cambridge, Keele and Stirling. He was also Visiting Professor at Roskilde University in Denmark. As Director of the Economic and Social Research Council's Research Programme "Children 5-16", he led a large research initiative looking at contemporary childhood in Britain. He was editor of the FalmerRoutledge book series "The Future of Childhood", as well as author of a (2005) book of the same name. Other publications include "Constructing and Reconstructing Childhood" (1990), "Theorizing Childhood" (1998) and "Hearing the Voices of Children" (2003).

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Gill Valentine is a Professor of Geography and Director of the Leeds Social Science Institute at the University of Leeds. Her research interests include: families, children and well-being and social identities, citizenship and belonging. She has conducted research about young people and minority groups' attitudes towards and use of information and communication technologies funded by the ESRC, AHRC and the former Department for Education and Skills. She has published 14 (co)authored or edited books and over 100 articles and reports.

Steve Moss

Steve Moss joined Partnerships for Schools as Strategic Director (ICT) in April 2005. He has specialist responsibility for ICT in the UK government's "Building Schools for the Future" (BSF) programme, working with national agencies, local authorities and the ICT industry to ensure that the ICT solutions procured as part of BSF can have a transformational effect on the processes of learning, teaching and administration in schools. He also leads on design issues for the Education and Planning team in Partnerships for Schools.

Prior to taking up his current role, Steve was Assistant Chief Education Officer with Manchester City Council from 2003-2005. In a thirty five year career in education, he has been a teacher, headteacher, teacher educator, adviser, inspector, local authority officer and a lifelong learner. He has also worked with schools and educators in Australia, Russia, Jordan, Hong Kong, Sweden, UAE and Alaska.

