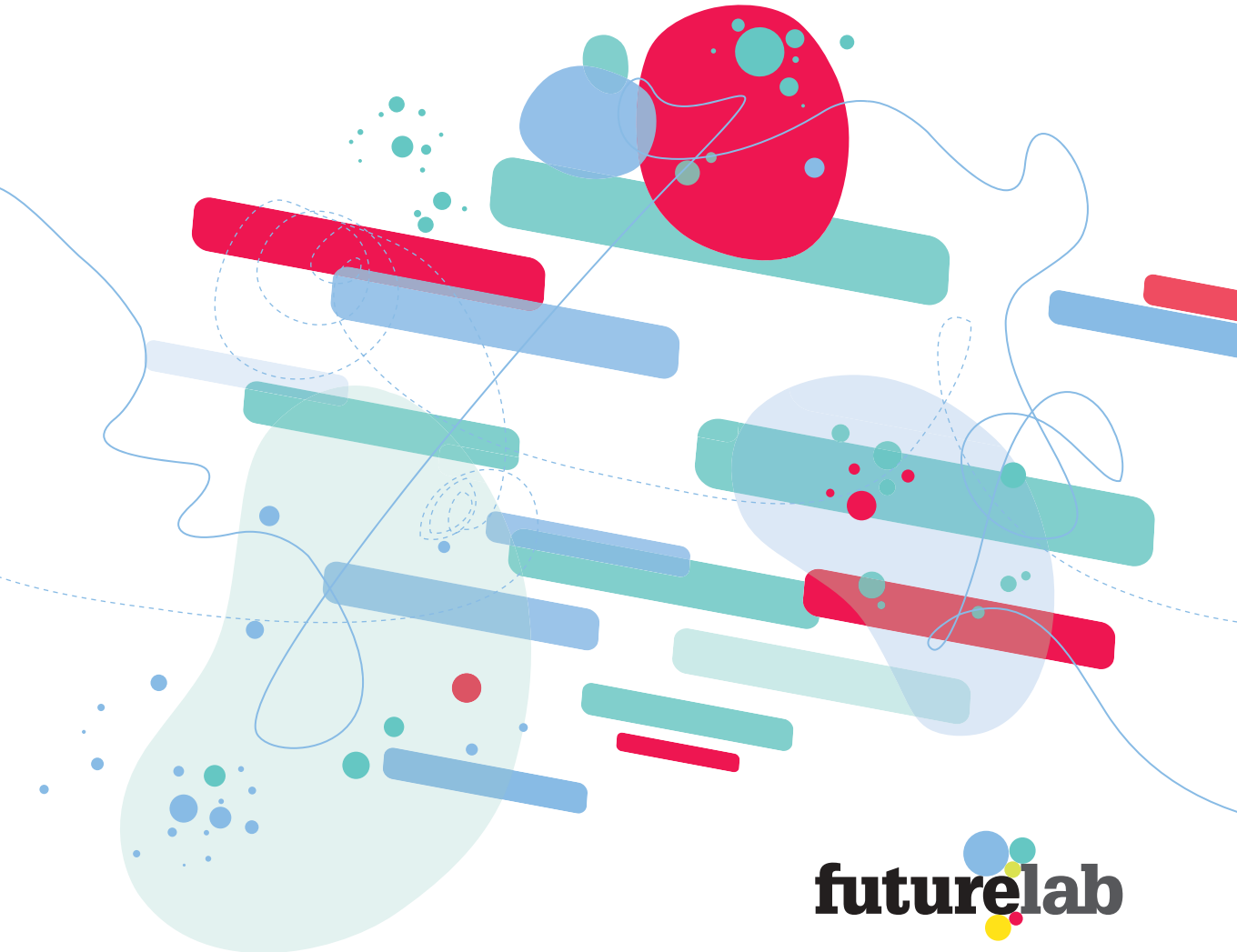
OPENING EDUCATION

Towards new learning networks



futurelab

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1 Introduction

What should the educational landscape of the future look like? What types of institutions, spaces and places for learning should we see develop? Where, and with whom, should learning happen? Our argument in this paper is that, if we are interested in achieving a fully personalised education system designed around the needs, interests and aspirations of each learner, then we need to challenge a number of fundamental assumptions which have historically underpinned the organisation of education:

- First, we need to challenge the assumption that expertise and knowledge reside only within the walls of the educational institution, and to ask instead, what might be gained from tapping into the resources that exist in the wider community and within the networks that people are already connected to?
- Second, we need to challenge the assumption that 'learning' and 'schooling' are different words for the same thing, and to ask instead what different approaches to and models of learning are also in evidence today in people's work and leisure lives?
- Third, we need to challenge the assumption that the most 'equitable' education systems are those which offer a one-size-fits-all approach, and instead examine how the recognition of learners' diverse voices and experiences can enhance inclusion, aspiration and achievement through the creation of personalised educational trajectories.
- Finally, as digital resources increasingly offer opportunities for networked, collaborative and distributed learning and interaction, we need to challenge the assumption that the easiest and most cost-effective approach to organising learning is within the walls of the school.

In this paper, we argue that we need to move away from the institutionalised logic of the school as factory, to the network logic of the learning community. Indeed, we need to move beyond the concept of 'extended schools' - whereby schools extend the range of services they provide – towards a notion of extending learning, whereby learning institutions rethink the possibilities around what can be learnt, where learning can happen and who is involved in the learning process. What this paper implies is that it will not be possible to personalise education whilst maintaining a conception of learning as happening only in certain places, under certain assessment regimes and involving certain people. Instead, we suggest that rather than continuing to build a system based upon the 'megastructures' of schools, universities and a national curriculum, we need to move to a system organised through more porous and flexible learning networks that link homes, communities and multiple sites of learning.

2 Why learning networks?

Why learning networks? Because social, technical and leisure life is increasingly organised around networks

The metaphor (and reality) of the network has come to be seen as epitomising the social, economic and technological changes of the last 30 years. Castells[1], for example, argues that the network is now the fundamental underpinning structure of social organisation – and that it is in and through networks – both real and virtual - that life is lived in the 21st century. This perspective is also advocated by social commentators such as Demos[2], who argue that networks are the "most important organisational form of our time", and that, by harnessing what they describe as 'network logic', the ways we view the world and the tools we use for navigating and understanding it, will change significantly. The ability to understand how to join and build these networks, the tools for doing so and the purpose, intention, rules and protocols that regulate use and communications, therefore, become increasingly important skills. This concept of the 'network society' calls into question what it means to be 'educated' today – what new skills, what new ways of working and learning, what new knowledge and skills will be required to operate in and through these networks? It requires us to ask whether our current education system, premised not upon networks but upon individualised acquisition of content and skills, is likely to support the development of the competencies needed to flourish in such environments[3]?

Why learning networks? Because learning, in most sites, is already about networks, collaboration and connection

Educational and social research is increasingly making a case for a new understanding of learning processes that acknowledges their often networked, collaborative and connected properties. For example, the importance of the social and cultural 'situatedness' of learning and the power of collaboration and communication in developing meaningful experiences are recognised by many psychologists and researchers[4]. Such researchers argue that connection and collaboration play important and complex roles in learning processes and knowledge acquisition. For example, they argue that:

- higher order functions arise through social interactions
- knowledge is socially constructed between learners and experts, not simply 'acquired' or 'delivered'
- learning is understood to be more powerful when actively scaffolded by expert others
- progress is greater when learning focuses upon collaborative rather than independent problem solving[5].

Other researchers emphasise the distributed nature of knowledge and the need to acknowledge the 'webs of knowledge' created in the social process of learning[6]. Others, again, argue that learning occurs best when individuals are active participants in communities of practice[7], sharing mutual interests, collaborating and exchanging resources in order to find solutions to shared problems or areas of interest. From a very different perspective, James Surowiecki, in 'The Wisdom of Crowds'[8], contends that large groups of people can be collectively more effective at problem solving, undertaking innovation and decision making than individuals or elite groups. Learning from the distributed intelligence and knowledge of large groups, he argues, represents a more powerful way to learn than in isolation or within rigid and hierarchical relationships.

Whilst it is not the intention of this report to go into any great detail about such theories and their implications for the future of education[9], it is enough to note that there is growing consensus around the need to support the development of expert networks and communities of learning to support effective learning. As the University of the First Age[10] argues in a recent report, "deep learning flourishes where you build connecting relationships".

Why learning networks? Because social mobility and social capital are achieved through building and mobilising networks of expertise

The question 'why learning networks' is also answered by commentators arguing not only for more 'effective' or 'efficient' acquisition of knowledge and expertise, but by those who view educational practice as a process of developing identity, citizenship and society. Writers such as Freire[11], for example, contend that learning should be community-focused and have at its heart issues of collaboration and knowledge exchange in order to empower learners to become responsible and autonomous citizens. This approach suggests that education should focus on learners as subjects rather than as objects within a system. This changes the emphasis of education and requires the development of learning episodes for pupils that have dialogue and communication as core features. From this perspective there is a far greater emphasis on networked rather than linear models of learning, and on providing culturally relevant, experiential and purposeful learning episodes, rather than the consumption of abstract knowledge in environments alien to that in which the knowledge was both created and will be applied in the future.

Moll[12] contends that educators need to have a more complete understanding of learners, their skills, and the wider resources they have access to, and argues that a system that fails to account for individuals' complex social circumstances

is one that will entrench inequalities. As such, he advocates exploring and levering the skills, expertise and informal learning that occurs in learners' homes and cultural backgrounds - but which is recognised in the formal context – and to value and incorporate it as the basis for more formal learning practices. He contends that in doing this, educators increase the mechanisms for participation, account for diversity and are predisposed to produce relevant and engaging learning experiences and challenges. This approach has been shown to be effective for engaging groups who are disaffected or alienated from mainstream education. Once these local networks have been established and better utilised then there is a greater likelihood that learners can tap into other distributed social networks with which they can be connected as a result of developing assets and social capital[13].

From a slightly different perspective, West-Burnham and Otero[14] argue that a central role of the education system is one of creating and mobilising learners' social capital. Social capital[15] is a term commonly used in the political arena in relation to developing community cohesion. It refers to the actual and potential resources that individuals can mobilise in the pursuit of a particular task, set of activities or processes. They talk of the need to shift our thinking away from notions of school improvement driven by schools acting as disconnected institutions to focus instead on developing institutions that create and sustain inter-connected educational communities:

"If academic standards are to be raised in a sustainable way, and broader educational aspirations achieved, then educationists will have to see their role in creating social capital rather than just improving classroom practice." (West-Burnham[16])

As such, the processes of working with learners to map out their funds of knowledge, and engaging them in dialogue about their learning, their social resources and their aspirations, essentially amounts to working with learners in order to help them utilise their cultural and social capitals.

From these perspectives, learning networks can be considered networks which identify learners' existing resources, tools and expertise and which are mobilised to support learners to develop active and empowered relationships to learning.

Why learning networks? Full personalisation cannot be achieved through schools disconnected from communities

Finally, the question 'why learning networks' is becoming increasingly pressing as educators attempt to reconfigure the education system to better reflect the needs and interests of learners (in other words, the attempt to 'personalise' education[17]). This shift in the philosophy and organisation of education entails developing a more dynamic system that offers learners greater choice and more diversity in learning options and approaches, rather than offering a one-size-fits-all approach. As such, it raises the question:

What are the best ways of understanding learners so that we can build upon their prior learning and interests?

To answer this question requires an examination of the mechanisms currently in place to listen the voice of the learner[18] and to explore and understand their social and cultural backgrounds when designing educational services and approaches. The personalisation agenda requires that we better understand how to engage with, build upon and mobilise learners' existing skills and dispositions.

Currently most discussions about increasing learner 'choice' and 'voice' are focused around giving learners a greater variety of routes through predetermined and predefined subjects and curriculum content. However, a truly personalised system requires that learners will not only have greater choice and influence over the pace, style and content of learning but that they are also supported to become active partners in developing their own educational pathways and experiences.

To do this to any significant degree, however, and on any economy of scale, will require a much wider diversity of learning opportunities than are currently available, and a much wider diversity of learning practices, resources and tools. It will require the education system not only to understand how best to mobilise its own resources but also to harness the diverse and multiple sites of expertise and learning that exist outside the school walls. Full personalisation will require the creation of powerful learning networks.

The Government's Extended Schools[19] initiative encourages schools to work in partnerships with local providers, other schools and agencies to extend services they provide. This theoretically offers more opportunities for ties with learner's families, their culture and communities. However, the personalisation agenda requires an extension of this concept: from 'extended schools' to 'extending learning'. In other words, extending the diversity and range of learning possibilities on the basis of utilising human, social and cultural resources within a learner's local community. It requires that we explore new ways of incorporating what learners already know, the skills they have and resources they can draw upon to co-create more relevant learning pathways. This means considering and ascribing status to the diverse range of learning that occurs outside school and developing new arrangements and relationships that might differ from those currently on offer. As Hargreaves[20] argues, embedding learner voice requires a "new cultural attitude". We therefore need to consider:

How can we develop a learning landscape that can fully respond to the needs of learners and present them with a more diverse range of educational choices?

3. Where are the building blocks for new learning networks?

If there is increasing urgency in the need for a shift towards a 'networked' learning environment, we need to ask what sites and practices can be included in these networks. We need to ask the fundamental questions: What counts as learning? What can we value as expertise?

In popular parlance 'learning' is something that happens in schools, at desks, when reading books or looking up information. We only need to watch television or read the paper on a regular basis to see how often learning is equated with the practices of schooling. What's more, in these representations there is a gradual association of learning with particular places and with particular ideas, practices and, in some cases, emotions. And yet, to associate learning only with what happens in schools is to overlook the fuller spectrum of activities and experiences that constitute learning in its broadest sense.

Learning experiences are offered in a range of places and institutions other than schools: figures suggest there may be anywhere between 50,000 to 170,000 home-educated children in the UK[21], for example. Our villages, towns and cities are dotted with libraries, museums and galleries offering opportunities to explore and access our scientific and cultural heritage. Learning occurs in colleges, the workplace, local societies, clubs and other institutions. It occurs in the home, the local community, online, within cultural groups, amongst friends and peer groups. Learning can also be intentional, unintentional, serendipitous and incidental, banal, everyday and elementary. It is also the expertise developed through the passions and specialisations of day-to-day life and personal development in all its forms - the process of change and experience.

We have only to examine our own experiences, for example, to challenge the association of learning with schooling. When did we last 'figure out how to do something'; when did we last 'solve a problem'; when did we last 'help someone to do something'; when did we last 'get to grips with an idea'? All these can be considered moments of learning. Indeed, it is in many such ways and situations that people are motivated to engage in meaningful and diverse activities that lead to powerful, authentic and memorable learning experiences.

These diverse sites, experiences and opportunities, we want to suggest, are the building blocks for new learning networks.

Historically, however, these experiences and opportunities – because they take place outside school - have been dismissed as 'aberrant' or 'inappropriate' learning experiences, seen as superfluous leisure activities, or simply overlooked and ignored by policy makers. And yet, if we want to understand learners, if we want to build education systems premised upon dialogue, if we want to connect with the multiple sources of expertise and knowledge that can create the diverse learning pathways necessary for personalisation, then we need to undestand how to value and build upon these different sites, experiences and forms of expertise outside the school gates. We need to ask:

How might educators' build upon these learning experiences rather than 'relegate' or 'devalue' them as trivial or insignificant?

4. The choices for the formal education system

Hughes[22] argues that schools have a number of options and act in numerous ways in response to the vast pool of learning experiences, knowledge resources and opportunities that exist outside formal learning institutions. Below, we set out four scenarios to help illustrate and characterise the range of possible responses[23] to the question we have just posed.

First, schools might continue to largely overlook learning occurring outside their walls. It might be argued that this is a model often taken by formal learning institutions, with teachers feeling there is little time or room to deviate from the curriculum or other key priority areas for which they are held accountable. The concern here would be that there are clearly missed opportunities to build links between learners, between school and community, and between different forms of knowledge, and in failing to do so formal education may appear increasingly abstract to many learners and parents.

A second response is to try to **change** the learning practices that take place outside schools, and to make them more like those which occur in school. In other words, educators may attempt to identify and potentially ally with other sites of learning (homes, community youth groups) in order to promote formal learning approaches and to transmit the ethos and values of the school. There is little doubt that such moves can be perceived to have positive effects, particularly in relation to standards and attendance. This is partly because parents learn more about what their children are doing in school and how best to support their formal education, but also because learners have more opportunities to practice and understand the subjects, skills and processes of formal learning outside of the school setting. New technology is often mobilised to support these activities, with the internet and CD-Roms used to extend formal learning further into the domestic sphere, offering a range of possibilities whereby learners and their parents can access the pupils' work or teacher-designed extension materials. However, this 'curricularisation' of the home or non-formal setting does not necessarily seek to build upon and harness wider skills that people may have or can access. The emphasis is still firmly on valuing formal learning above other forms, and such approaches might also be more argued to benefit those children and parents who are better placed to already understand and fully participate in the processes and practices of formal education.

A third response is to develop ways to bring home learning into the school. This happens to some degree in most schools and whilst such actions can clearly have a range of positive effects, the opportunities for doing so may remain relatively limited and are often largely based around clear links to formal curriculum

knowledge. Alternatively, such activities are used for gaining a better insight into pupils' lives and understanding of their backgrounds, interests and so forth. For instance, the types of home-school exchanges that occur might involve cultural celebrations in school, inviting parents into school to take part in activities, children undertaking shoebox activities[24] or using cameras, so that pupils can document and discuss aspects of their out-of-school lives. Increasingly new technologies are used by schools to present learners and their parents with opportunities for further dialogue, and in some cases, to enable them to contribute to the school's aims and agendas[25]. It is rare, however, for any of the activities outlined above to be used as a basis for more systematic mapping of the expertise and skills that different children, their parents and their communities might be able to contribute to the school, or as a basis for the development of more personalised approaches to learning for the individual child.

A fourth response is to place greater emphasis on informal and non-formal learning, to recognise and value these learning experiences and to build collaborative links with these experiences across formal and informal sites of learning. This would involve specifically celebrating diversity and giving greater status to the variety of learning that occurs beyond the school. More importantly, this response would see educators and children using this understanding to develop more tailored learning pathways together, and engaging with the resources of the wider community to achieve the goals they determine together. In taking such an approach there is greater likelihood that differences will be acknowledged and embedded within personalised learning and teaching approaches, rather than focusing upon compensating for perceived 'deficits' or 'deficiencies' that are measured by an individual's ability and/or desire to engage and perform against standardised measures.

This last scenario tends to be the exception rather than the rule. Formal education rarely reaches into the realms of informal and non-formal learning practices to use these as a fundamental basis for learning development. The true value of other forms of learning, and also that which occurs in the immediate community, is seldom harnessed. There are many different reasons why this may be the case, ranging from practical and logistical issues to those of principles and educational philosophy. However, changes in society, how we learn, what we learn, and who we can learn from and with, have changed significantly, requiring a rethink of educational priorities. And we now have the tools to allow us to learn in ways previously unimaginable, enabling us to rethink the ways we organise and connect the resources of schools and communities in learning networks.

5. Building learning networks

There are a number of resources that can be drawn upon by educators and others wishing to explore how we might create learning networks. Grenzuk[26], for example, offers a teacher-led, learner-focused practice as a means of building learning networks by tapping into learner's 'funds of knowledge'. This has five distinct activities:

- educators competent in use of ethnographic methods undertake information collection focusing upon the learner's social and cultural background
- they identify the existing transmission of non-formal and informal skills and knowledge that exist in the home and community
- they analyse the content and methods of their typical lesson
- they identify where community information can be used in the classroom
- they incorporate the contents and methods of home or community-based knowledge into instructional practices in the school setting.

A different approach might be appropriated from community-based activism. Asset-Based Community Development (ABCD)[27] is a process whereby members of a local community focus upon identifying and mobilising their existing, collective assets (rather than focusing upon perceived deficits), map these skills (assets) against the needs of their community and mobilise and develop them in order to achieve goals which have a clear relevance and purpose to the community. Pinkett[28], for example, used the ABCD approach in a community context, but introduced a web-based, community building system to support members of a local community to define their own needs and interests and to map and match 'indigenous' assets with needs.

The ABCD Institute[29] has developed a guide to show how organisations can be enhanced by connecting to community assets. They suggest that in order to map resources, a 'community asset map' should first of all be developed with local people in relation to five different aspects of community assets that are present within any given community. These are:

- local residents - namely the skills, interests and capacities of individuals that might be useful in achieving a particular goal or project
- local associations - the full range of networks and clubs that may be helpful or supportive
- local institutions - such as local schools, libraries, museums, parks and so forth

- physical assets - land, buildings, infrastructure
- economic assets - including what people produce and consume, local businesses, informal relationships and exchanges.

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At the heart of this approach is the need to recognise, encourage and support diversity. Great attention is given to the needs, interests and skills of marginalised groups who are viewed as 'contributing citizens' in defining the shape and scope of any project.

Theoretically, there is no reason why such an approach could not be used by groups of learners or schools in order to establish a better set of multi-directional relationships between learners, teachers, the local community and other institutions. This would shift the emphasis from extended schools toward extending learning, and refocus the process of education to more learner-focused approaches. This process would place the learner at the centre of the asset-mapping process, enable them to identify and mobilise their existing funds of knowledge and social capital, and act as a basis for collaboration, information exchange and learning development. Such a

process might also, for example, serve as an interesting starting point for school leaders, children, community leaders and others wishing to map out an educational vision which fully engaged with children's and community needs, expertise and interests for the Building Schools for the Future programme.

Previously, such approaches may have appeared logistically impossible. However, new technologies not only make such practices more manageable and effective, they also offer the opportunity to begin to extend and link with other community assets and communities beyond the immediate geographical boundaries of the school, enabling even broader sets of resources to be identified, mapped and utilised. The number of connections that could be mobilised to support learning and information sharing is potentially huge, especially when considering the virtual resources and networks of practice[30] that could be tapped into. Open source[31] approaches to sharing information, the growing availability of 'free' and accessible content, and the tools to share, edit, reconfigure and publish material, means that increasingly individuals are presented with opportunities to work collaboratively, not just with people from their immediate community but also with others from a much wider geographical and demographic 'pool'. A range of social software tools also offer the potential for collaboration in buildling learning networks. Wikis[32], for example, enable the creation of collaboratively developed learning resources, making collaboration between groups with shared interest or needs relatively easy. Such tools are commonly used elsewhere and by many learners outside of school[33].

It is also possible for learners to create and publish material through a network of online radio stations and/or programmes[34]. Stockton Comm Unity[35] are part of a wider network of the local communities in Tees Valley Communities Online[36] (TVCO) region who have produced their own weblog, digital images and radio programmes[37], focusing on community-related topics and issues that are important to them. These digital villages exist as learning communities, developing their own, intergenerationally produced content. Second-tier Community Grids for Learning (CGfL) also have hosting resources providing tools to local communities to create and publish their own materials[38].

These tools and projects represent a shift in the potential ways people can connect, communicate and collaborate, which may ultimately challenge current pedagogic approaches and the organisation of learning. As Seeley Brown[39] argues, we need to rethink the education system because we are now faced with:

"...a fundamentally new possibility for 21st century learningscapes... This new learningscape would be supported by an understanding of the interplay between the social and cognitive basis of learning, and enabled by the networked age of the 21st century."

This possibility is under-explored in the use of ICT in most UK schools, with the communicative, collaborative and networking aspects of new technologies often being restricted or barred. Whilst there are obvious issues to take into consideration relating to things such as pupil safety, firewall restrictions and so forth, these technologies could potentially challenge and change the way we currently think about the ways in which we learn. It is perhaps no surprise, given the relatively controlled and insular way that schooling is currently delivered, that the tools most likely challenge the current configuration of education are treated with some caution.

Conclusion

Today, then, we can begin to see the emergence of educational policy, pedagogic tools, asset-mapping tools and digital resources that enable educators, children and communities to overcome some of the logistical challenges of building and managing learning networks. These networks would offer the possibility of recognising diversity, encouraging the mobilisation of social capital and enabling powerful collaborative and relevant learning experiences. It is only by further developing these practices that we will begin to see the development of an education system that offers a fully personalised approach to learning, which acknowledges diverse forms of social capital in a way which challenges educational inequalities, and which begins to develop the sorts of educational practice likely to meet learners' needs in the 'network society'.

To do this we need to develop a better understanding and knowledge of every child's needs and experiences, and by implication, their broader social and cultural backgrounds. Only by embedding the voice of learners at the heart of learning processes, by recognising their needs and giving them greater choices over the form, content and organisation of learning, will a truly personalised system be delivered. Only by first asking the question 'what does the learner bring to the school?' can the learning networks of individuals, groups and organisations be developed to enable that child to build a truly personalised learning pathway. And it is only by mapping the assets and resources of learners and communities within and outside the school, that these pathways can be created within the economies of scale required to meet the needs of all learners in the UK.

The digital and pedagogic tools are being developed, the political agenda for personalisation is in place and the research evidence to support a transformation in learning practice is widely available. Any failure to harness the power of learning networks over the next few years can, then, only be attributable to the lack of desire or vision to fully transform education to meet the needs of all learners in the 21st century.

Other useful resources

Asset-Based Community Development Institute
Offers additional free information and resources on the asset-based approach.
www.northwestern.edu/ipr/abcd.html

Learner Voice Handbook
This Futurelab handbook draws on examples, case studies and research to provide learners and educators with information and ideas for promoting the voices of learners.
www.futurelab.org.uk/research/handbooks.htm

Enquiring Minds
A three-year research and development programme, which aims to create opportunities for learners to be independent, take responsibility for their own learning, create their own knowledge and conduct their own research in the context of a rich digital information landscape.
www.enquiringminds.org.uk

The Digital Divide Network
The internet's largest community for educators, activists, policy makers and concerned citizens working to bridge the digital divide. Tools for building your own online community, publishing a blog and sharing information.
www.digitaldivide.net

The Benton Foundation's Digital Divide Network
Has focused on developing 21st century skills to improve the lives of underserved young adults, enhancing their employability and strengthening civic engagement through the use of new media.
www.benton.org/initiatives/projects.html

The Campaign for Learning
Works to provide support and resources for learning in families, communities, workplaces and schools, championing the cause of lifelong learning.
www.campaign-for-learning.org.uk

Communities Online
Seeks to improve the opportunities for ICT uptake and usage in low income neighbourhoods in a number of ways, including researching and reporting on good practice in developing community ICTs and supporting the development of community networking initiatives and partnerships.
www.communities.org.uk/displayResource.cfm?ResourceID=433

Becta
Provides advice and guidance for school leaders about extending learning to the home environment and the local community, and working partnerships with other schools and businesses.
schools.becta.org.uk/index.php?section=oe

The BCS Working Party on 'Home ICT and School'
Has a range of materials that might be useful as information or guidance for those seeking to develop or support home-school links within their school community.
www.riefnacken.de/bcs

Opening Education: Social Software and Learning
A Futurelab publication looking at the potential of social software for learning, providing an easy-to-use guide with common terms.
www.futurelab.org.uk/research/opening_education.htm

Personalisation and Digital Technologies
Futurelab's personalisation report.
www.futurelab.org.uk/research/personalisation.htm

Notes

1 Castells, M (2004). Why networks matter: afterword. In Demos (2004). Network Logic: Who Governs in an Interconnected World. Edited by McCarthy, H, Miller, P and Skidmore, P. Demos. London.

2 Demos (2004). ibid. This is a collection of essays looking at the notion of and issues relating to networks in modern society.

3 See for example: 'The New Work Order', Gee, Hull and Lankshear, for a discussion of work in 'the network society'. An analysis that not only identifies the economic and technical factors shaping such change, but also identifies the potential such changes have for reproducing social inequalities.

4 See for example:

Wertsch, JV (1998). Mind as Action. New York: Oxford University Press

Tharp, RG and Gallimore, R (1988). Rousing Minds to Life: Teaching, Learning, and Schooling in Social Context. Cambridge, England: Cambridge University Press

Scardamalia, M and Bereiter, C (1994). Computer support for knowledge-building communities. The Journal of the Learning Sciences, 3 (3) 1994, 265-283

Scardamalia, M (2002). Collective cognitive responsibility for the advancement of knowledge. In B Smith (ed) Liberal Education in a Knowledge Society (pp67-98). Chicago: Open Court

John-Steiner, V (1997). Notebooks of the Mind: Explorations of Thinking. Oxford University Press

5 Vygotsky used the term 'Zone of Proximal Development' (ZPD) to describe the distance between learners' actual developmental levels through independent problem solving and the potential level of development that could occur through collaborative problem solving. See: Vygotsky, LS (1978). Mind and Society: The Development of Higher Mental Processes. Cambridge, MA: Harvard University Press

6 Salomon, S (1993). Distributed Cognitions, Psychological and Educational Considerations. Cambridge University Press

7 See: Wenger, E (1998). Communities of Practice. Cambridge: Cambridge University Press

8 Surowiecki, J (2004). The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations

9 For a more detailed discussion, see Futurelab's Opening Education: Social Software and Learning. www.futurelab.org.uk/research/opening_education.htm

10 University of the First Age: Celebrating Learning. Birmingham. www.ufa.org.uk

11 See for instance: Freire, P (1972). Pedagogy of the Oppressed. Harmondsworth

12 Moll, LC (1992). Funds of knowledge for teaching and learning: using a qualitative approach to connect homes and classrooms. Theory into Practice. 31(2), 132-41

13 Bourdieu has referred to this as the 'multiplier effect'. Unlike other forms of capital that become depleted when shared, the notion of social capital means that individuals may develop broader networks and resources as a result of their initial connections and harnessing of social capital. See: Bourdieu, P (1986). The forms of capital. In Richardson, John G (ed) Handbook of Theory and Research for the Sociology of Education. New York, London: Greenwood Press

14 West-Burnham, J and Otero, G. Leading Together to Build Social Capital: Community Leadership in Networks. NCSL, Nottingham. www.ncsl.org.uk

15 For more detailed discussions surrounding the varied interpretations of the concept of social capital, see:

Bourdieu, op cit

Coleman, JS (1988). Social capital in the creation of human capital. The American Journal of Sociology 94: S95

Putnam RD (2000). Bowling Alone. New York: Simon & Schuster

16 Cited in: University of the First Age: Celebrating Learning, p5. www.ufa.org.uk

17 The following give good but varied perspectives on personalised learning:

DfES Personalised Learning pages: www.standards.dfes.gov.uk/personalisedlearning

Leadbeater, C (2005). Personalisation Through Participation: A New Script for Public Services. London: Demos

Green, H, Facer, K and Rudd, T (2005). Personalisation and Digital Technologies. Bristol: Futurelab. www.futurelab.org.uk/research/personalisation.htm

18 For a more detailed discussion of some of the issues and practicalities around this, see Futurelab's Learner Voice Handbook. www.futurelab.org.uk/research/handbooks.htm

19 www.teachernet.gov.uk/wholeschool/extendedschools

20 Hargreaves, D (2004). Personalising Learning 2: Student Voice and Assessment for Learning. London: Specialist Schools Trust. Secondary Heads Association

21 Estimating the extent of home-based learning is difficult. These figures are based on those presented in the following book: Fortune-Wood, M (2005). The Face of Home-Based Education 1: Who, Why and How. Nottingham: Educational Heretics Press

22 Hughes, M (2006). The home as a powerful learning environment. Presentation at Futurelab's Rethinking Learning Networks seminar series

23 Other researchers have defined the types of school responses. Ball for instance identifies seven different types of home–school–community links and the reasons underpinning their development. These are: decision making and management of the school; communication between home and school; school support for families; family and community help for schools; school support for learning at home; collaborations with community agencies; and community education.
See: Ball, M (1998). School Inclusion: The School, the Family and the Community. London: Joseph Rowntree Foundation

24 This is an activity whereby children are given empty shoeboxes to take home and fill with artefacts that represent significant aspects of their home lives. See: Hughes et al (2004). Exchanging Knowledge between Home and School to Enhance Children's Learning in Literacy and Numeracy. www.leeds.ac.uk/educol/documents/00003367.htm

25 The following research reports set out a range of approaches to home-school links and the use of ICT to support them:

Becta (2001). ICT and Home-School Links.
partners.becta.org.uk/page_documents/research/hsl_evidencereport.pdf

Somekh, B, Mavers, D and Lewin, C (2001). Using ICT to Enhance Home-School Links. London. Crown

26 Grenzuk, N (1999). Tapping into funds of knowledge. In, Effective Strategies for English Language Acquisition, pp9-21. Arco Foundation. Los Angeles

27 See: Kretzmann, JP and McKnight, JL (1993). Building Communities from the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets. Chicago, IL: ACTA Publications

28 See the following:

Pinkett, R (2002). The Creating Community Connections (C3) System: Community Created, Community Focused, Community Content in a Low- to Moderate-Income Community. Paper submitted to Computer Support for Collaborative Learning (CSCL) January 7-11, 2002, Boulder, Colorado

Pinkett, R and O'Bryant, R (2000). Building Community, Empowerment and Self-Sufficiency: Early Results from the Camfield Estates-MIT Creating Community Connections Project

For further related papers visit: xenia.media.mit.edu/~rpinkett/papers

29 The ABCD Institute (2005). Discovering Community Power: A Guide to Mobilizing Local Assets and Your Organization's Capacity. Written in cooperation with the WK Kellogg Foundation. www.northwestern.edu/ipr/abcd/kelloggabcd.pdf

30 See: Seely Brown, J and Duguid, P (2000). The Social Life of Information. Harvard Business School Press

31 See: www.elgg.org

32 See for example:
www.wikiville.org.uk
en.wikipedia.org

33 See Futurelab's Social Software and Learning report for a longer discussion of these different resources.
www.futurelab.org.uk/research/opening_education/social_software_01.htm

34 See for example Radiowaves: www.radiowaves.co.uk

35 See: neukol.org.uk/sites/scu

36 See: neukol.org.uk/tvco/index.php?cat=17
The Tees Valley Community Media (TVCM) site gives a more representative overview of all the activities occurring in this area. See: www.tvcm.co.uk

37 See:
neukol.org.uk/blogradio/index.php/worldwideword
neukol.org.uk/blogradio

38 myEdinburgh receives content supplied by people throughout the city, which is then organised into channels that can then be chosen for viewing: www.myedinburgh.org. See also Lambeth Learning: www.lambethlearning.com

39 See: Seeley Brown, J. New Learning Environments for the 21st Century.

About Futurelab

Futurelab is passionate about transforming the way people learn. Tapping into the huge potential offered by digital and other technologies, we are developing innovative learning resources and practices that support new approaches to education for the 21st century.

Working in partnership with industry, policy and practice, Futurelab:

- incubates new ideas, taking them from the lab to the classroom
- offers hard evidence and practical advice to support the design and use of innovative learning tools
- communicates the latest thinking and practice in educational ICT
- provides the space for experimentation and the exchange of ideas between the creative, technology and education sectors.

A not-for-profit organisation, Futurelab is committed to sharing the lessons learnt from our research and development in order to inform positive change to educational policy and practice.

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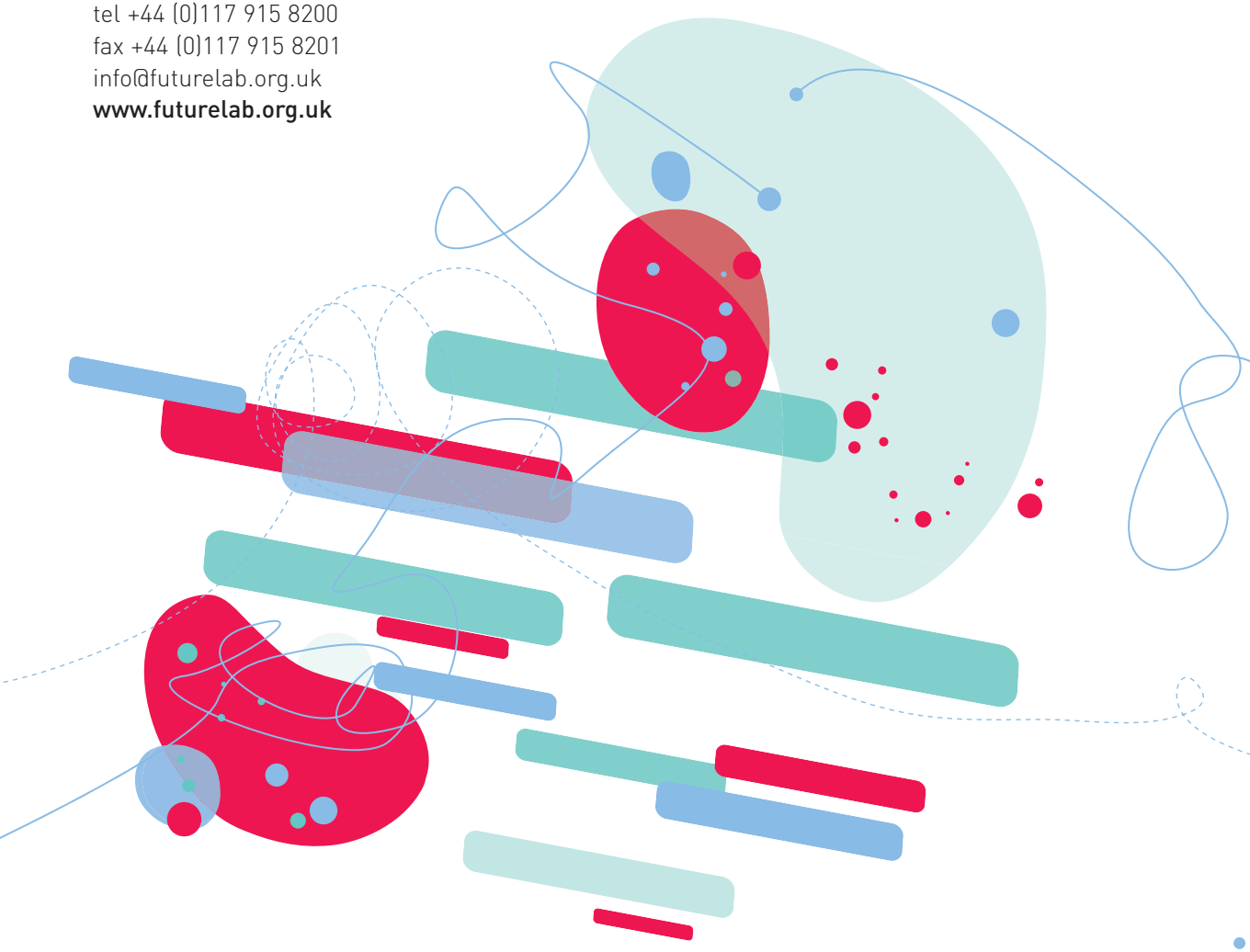

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