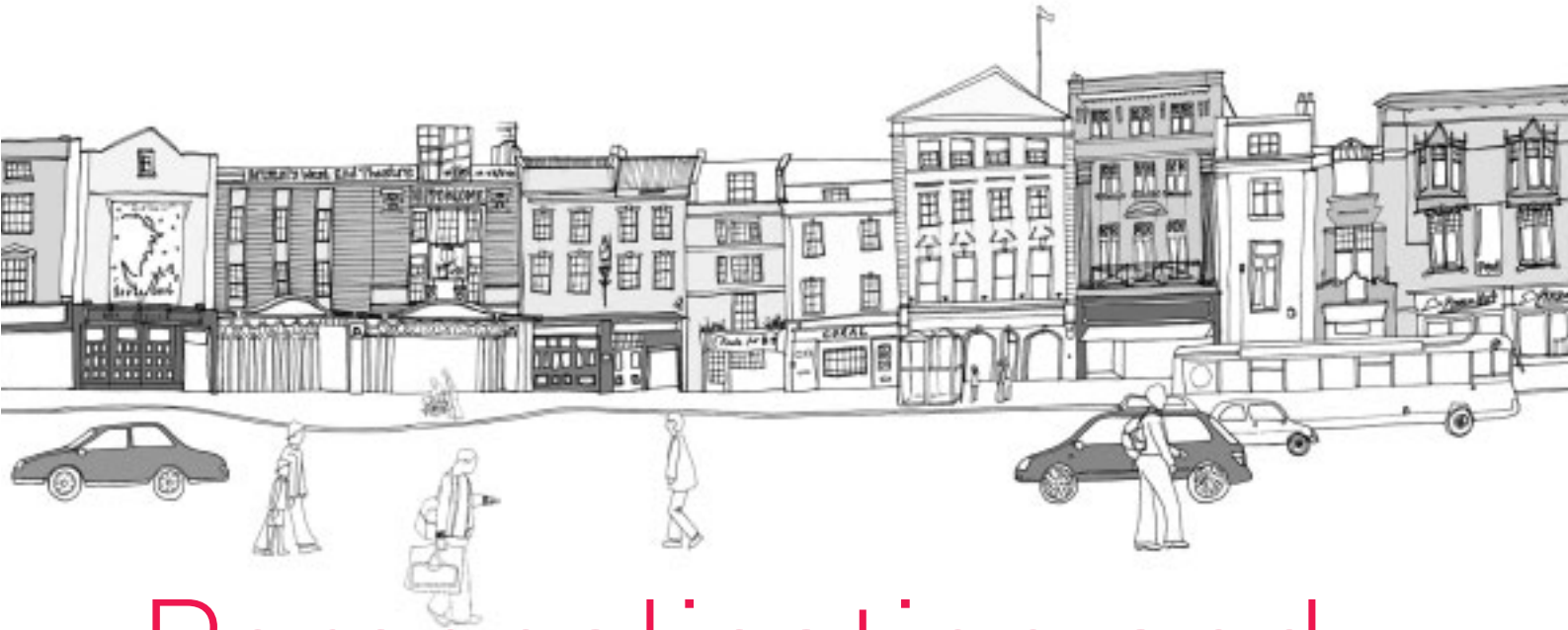

Personalisation and Digital Technologies

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futurelab

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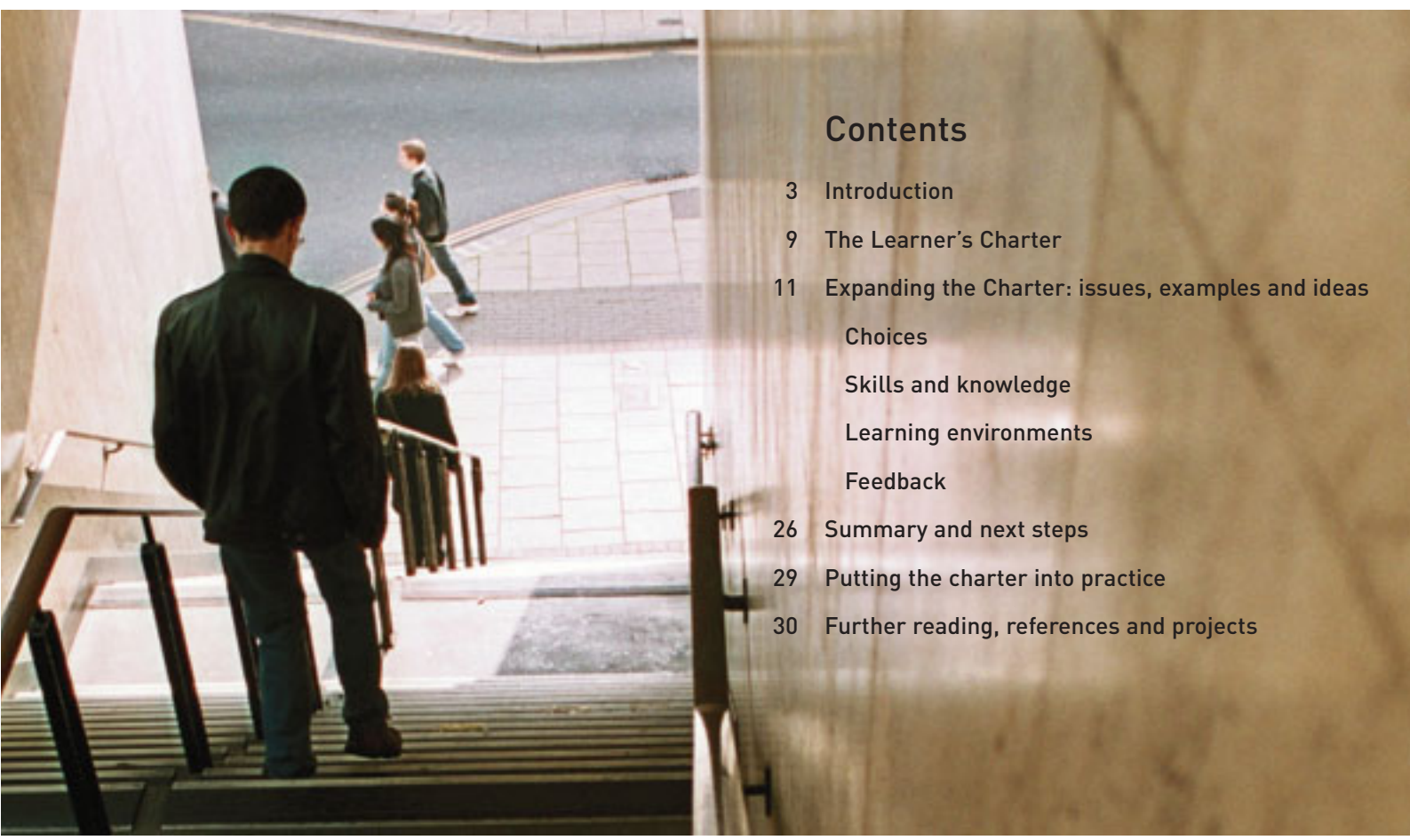


Contents

Introduction

The logic of education systems should be reversed so that it is the system that conforms to the learner, rather than the learner to the system. This is the essence of personalisation. It demands a system capable of offering bespoke support for each individual that recognises and builds upon their diverse strengths, interests, abilities and needs in order to foster engaged and independent learners able to reach their full potential.

This challenge has generated much debate as people explore how to respond, both intellectually and practically. For many teachers, the idea of personalisation is familiar and is one of the ideals that brought them into the profession. However, at times, the assessment, funding and institutional contexts in which they operate act not as a driving force for personalisation but as a barrier to it. Personalisation asks us how these systems can be re-shaped around the needs of the learner.

This paper aims to contribute to this debate by articulating a range of ways in which we might move forward in achieving these goals, specifically by harnessing the potential of digital technologies in four key areas central to the goals of personalisation: enabling learners to make informed educational choices; diversifying and acknowledging different forms of skills and knowledge; the creation of diverse learning environments; and the development of learner-focused forms of assessment and feedback.

This paper is not attempting to predict the future – either in terms of educational systems or the digital tools that might emerge to support them – but to outline clearly a set of challenges and opportunities that might form the basis for dialogue about a personalised learning landscape and the role of digital resources in enabling and shaping this arena. In this way it aims to contribute directly to the debates emerging from, for example, the DfES e-Strategy and Five Year Strategy for Children and Learners[1] which prioritise the development of personalised, collaborative learning spaces.

Why focus on the contribution of digital technologies to personalisation?

Our focus in this paper on the role of digital technologies is not driven by a naïve or interested desire to extend the use of technology in schools for its own sake. Instead it is driven by, on the one hand, an urgent sense that without the use of these resources, it is hard to conceive how the systemic change needed to reshape the education system around the learner can be achieved; and on the other, an awareness that many learners today are **already** creating personalised learning environments for themselves outside school using digital resources.

For most young people, technology is part of their daily lives. It has been suggested that by the age of 21 the average person will have spent 15,000 hours in formal education, 20,000 hours in front of the TV, and 50,000 hours in front of a computer screen[2]. Those young people with access to digital technologies are already using these resources to tailor their informal learning to their own interests, to access information of relevance to them, to communicate with people who can support their learning, and to share ideas and expertise within informal learning communities[3]. While the concept of the 'digital native' may be over-used and under-researched[4], it is clear that for many young people their digital learning landscape already affords them a high degree of personalisation which is currently unacknowledged by their formal school experiences.

At the same time, when we consider the systemic challenges posed by personalisation, it is clear that without digital technologies, we are unlikely to be able to meet the needs of learners. If we are interested in creating personalised learning environments in which learners can create a coherent experience of learning in diverse locations, collaborate with experts in areas of personal interest, track and review their own learning across different sites and stages of education, have access to resources in forms and media relevant to their language skills, abilities and personal preferences, it is highly unlikely that we will be able to enable all of these activities without using the communication, archiving and multimedia affordances of digital resources.

However, there are two significant caveats in our advocacy of digital technologies in support of personalisation. First, personalisation is clearly much more than investing in ICT and the two should not be seen as interchangeable – it is perfectly possible to use digital technologies to reinforce any manner of educational approaches, they do not necessarily in and of themselves effect the sorts of changes we are discussing here. It will be the context in which they are used that will determine the extent to which they achieve the goals of personalisation. Second, the introduction of digital technologies also brings with it other risks that must be recognised. There is evidence that the introduction of digital technologies in homes and schools can serve to reinforce and reproduce existing inequalities in the education system[5]. If we are to exploit these technologies to create a personalised learning landscape, then we need to ensure that access to and skills for using these resources are universal; without a commitment to this goal, the learning landscape will, as is often the case, be easily navigable only by those with the relevant economic and cultural resources.

Notwithstanding these concerns, we believe that the relationship between personalisation and digital technologies has the potential to reshape the education system around the learner and to enable the learner's voice to be heard more powerfully in shaping the curriculum, contexts and practices of their learning both in and out of schools. It was in order to explore this potential, within the wider theoretical and practical debates surrounding personalisation, that we brought together researchers, policy makers, software developers, publishers and teachers in the seminar series 'Beyond the Broadband Blackboard: Digital Technologies and Learner Voice'[6].

Rationale and purpose for the Learner's Charter

The seminar series was a small part of a much wider debate around personalisation, much of which has informed and played into our work[7]. However, to date, much of this debate has focused on the perspective of institutions in 'delivering personalisation'. The goal of the series was to rearticulate this debate in terms of the experiences, choices and rights we would expect young people to be able to exercise in a personalised context. Arguably, until those most affected by change, the learners, are empowered to demand it, the process will be slow.

To this end, this paper presents a 'Learner's Charter', setting out a range of potential entitlements for young people in a personalised learning environment, that is intended to act as a stimulus for debate and a checklist for educators intending to develop a personalised learning environment. We acknowledge that this charter has not been developed with young people themselves, and do not present it as a series of demands from students. Instead, we would argue that it can act as a basis for consultation with young people in more precisely defining their desires and goals from a personalised environment, and as a tool for examining the extent and nature of their existing educational experiences.

This charter has been designed to stimulate debate around how digital technologies and institutional change might enable personalisation in four key areas (the more familiar terms to which these areas relate are in brackets):

- choices (learner voice and choice)
- skills and knowledge (curriculum)
- learning environments (pedagogies and institutions)
- feedback (assessment and recognition).

These divisions are of necessity slightly arbitrary as they feed into and impact on each other; they are intended primarily to focus attention on key questions that might be raised.

The charter, then, is offered as a stimulus for thinking rather than a blueprint. In schools, different elements might be useful for different situations; for example, it could serve as a tool:

- for consultation with students and parents
- to help people explore the central principles of personalised learning
- to understand what their responsibilities and roles might be
- for evaluating digital technologies for purchase in schools
- for exploring curriculum innovation and change
- to shape personal development plans for individual learners
- for creating long-term plans for school development and wider community collaboration.

For those developing or commissioning digital technologies for a personalised system, it might be used:

- to generate ideas for new resources and applications
- as a prompt for consultation with children and teachers
- as a checklist for evaluating existing resources in respect of choices, skills, feedback and environment
- to identify requirements for underlying systems and infrastructure.

The remainder of this paper presents the charter, discusses the key elements of debate in each area, explores a range of practical examples in which digital technologies are already being used to support the goals of the charter, and offers imagined scenarios for future development.

The Learner's Charter for a personalised learning environment

As a learner I expect:

Choices

- To be considered as an individual with wide-reaching potential irrespective of age, gender, disability, ethnicity or socio-economic status.
- To take joint responsibility for and be seen as an active agent in determining my own learning priorities.
- To understand and critically engage with the choices open to me in the education process.
- To understand the potential implications of these choices personally, socially and economically.
- To develop the personal and social skills and attributes necessary to make these choices and to engage with the people and resources of the education process.

Skills and knowledge

- To be supported to co-design my own curriculum and learning goals.
- To draw upon and make connections between the expertise and competencies I develop across all areas of my life.
- To develop my expertise and understanding in knowledge domains that are of personal significance to me.
- To be supported to take risks and develop understanding in unfamiliar knowledge domains.
- To have access to learning which will prepare me well as a member of the adult population.

Appropriate learning environments

- To have access to different teaching and learning approaches and resources that meet my needs.
- To have access to people who are able to extend and develop my understanding in my chosen areas.
- To have access to learning environments and resources that enable me to develop my understanding and experience in authentic and appropriate contexts.

Feedback

- To use diverse assessment tools to enable me to reflect upon and develop my own learning at times and in sites appropriate for me and in ways which inform decisions about my future learning.
- To have access to a diverse range of assessment mechanisms and media that are appropriate to the activity I am participating in.
- To achieve recognition for learning irrespective of the context of my learning (in home, in school, in workplace, in community).
- To achieve recognition for learning that enables me to progress within the wider community.
- To participate in assessment activities that provide feedback to the education system and are used to improve the learning environments in which I learn.


the park
workplace
in the street
classroom
out & about

Expanding the Charter: issues, examples and ideas

Choices

Every student in our education system should be considered as an individual with wide-reaching potential irrespective of age, gender, disability, ethnicity or socio-economic status. Young people spend 85% of their time outside the school gates between the ages of 3 and 16. It is unquestionable that the choices they make will be influenced by a huge range of people, ideas and experiences, many of them from outside school. We know that how people learn is not only shaped by where they learn, but also their family circumstances, their health and wellbeing. Every learner needs to be understood and responded to as an individual within the wider context of his or her home, cultural background and community.

If choice is at the heart of a personalised learning system, then the core emphasis in this system must be upon providing the skills, attributes and tools necessary to help learners to learn about themselves, find out all their options and seize opportunities. The ability to make informed choices is dependent on a number of factors, from accessing the right sort of information, to the skills of each learner and the experiences they have had.

Accessing information about what courses, activities and careers are available is a good starting point. The internet enables access to a very wide range of these resources including websites of schools, college, universities and employers, and interactive wikis and discussion boards that provide a more 'user-led' view.

Learners also need to be supported to develop the necessary skills to learn about what, how and why they learn, to be able to articulate their choices to those able to meet their needs, and to take responsibility for those decisions. ICT-based questionnaires are an immediate, on-demand means of facilitating reflection on an individual's interests, confidence and abilities, while online databases, websites and search engines allow learners to identify and collate information on individuals and groups, contact these people and track their conversations and advice. Technology can potentially empower those who are currently excluded or disengaged from education or those who are least able to make informed choices as it may offer alternative routes to enable them to access information and skills relevant to their needs and interests.

For choice to be informed, however, it must not only be based on the narrow range of options that the learner brings to the table, but on experiences of diverse activities. Learners should have the opportunity to learn by doing, engage in unfamiliar areas of life, and find out what motivates them and what they are good at. Some of the tools and resources that we currently have on offer are under-used in this respect. Film and media, computer games, magazines and books all enable access to powerful alternative worlds of experience.

On the face of it, being in a position to make choices about where, how and what you learn in light of your long-term goals and ambitions is a positive and exciting entitlement. However, this is only true if the necessary support is provided as unguided choice is intimidating and could even be disempowering as the learner is faced with an apparently unending series of options and possibilities.
The current state of careers guidance suggests that the education system as it stands is not in a strong position to support learners in making informed choices. The contribution of digital technologies in this area is often limited to unhelpful psychometric tests. In reality, the potential is much greater.

To make informed choices, learners need to understand the potential consequences of these choices. If a learner was struggling to decide between two options, digital technologies could offer powerful modelling tools, potentially enabling them to 'mock-up' and try out the options in a simulated environment. Digital technology could be used to provide access to databases, of universities for example, to explore how different biographies have emerged with real people as a result of real choices. They could even offer communication devices to enable access to those who may have made similar choices in the past. Digital technologies can also enable statistical analysis of these implications, and can produce information such as the average wage of a person who gained a qualification at a particular level or in a particular subject. These resources are not currently available, but could easily be developed.

If informed and supported choice is available, the challenge is to ensure that everyone has an equal opportunity to take advantage of the offer. There is a possibility that those who are best placed to engage with the education system will benefit the most, as they may be better predisposed to mobilise the potential of any system. If personalisation is truly about 'excellence for everyone' then we need to develop tools that enable all parents and children to articulate and argue for particular choices and claim access to resources to fulfil them. This is not likely to be achieved solely through technical means, but in the increased emphasis by schools and other institutions on enabling and facilitating dialogue and providing information and resources to enable all to engage with educational systems on equal terms.

The ROADMAP example illustrates how important it is for everyone to engage in the process of reflecting upon and planning educational choices; the learner, their family and their teachers. It highlights the importance of effective communication between all partners in the learning process. To date, however, its impact is limited as it is stored in paper copy, as Pensett are struggling to capture the flexible, conceptual and individual data in any of their digital systems. If the ROADMAP could be digitally stored it could be made accessible to parents, teachers and learning mentors to help them guide conversations and better support individuals in making choices. The combination of this well thought through social and educational context with digital tools such as Individual Learning Plans[9] may provide a powerful route forward.

The 'Every Child Matters' Green Paper and the 'whole child' agenda reflect this priority and focus on creating the right relationships at local level to ensure easy and effective communication. Digital technologies offer a set of tools that can connect schools, homes, other services, institutions and organisations in the same way, and sophisticated databanks allow shared and regulated access to secure information. E-mail can facilitate this cross-sector communication and websites offer an accessible way of seeing what different organisations and services offer.

ROADMAP

ROADMAP, or Realising Opportunities, Ambitions and Dreams through My Achievement Plan, came about through a debate at Pensnett School of Technology as to whether focusing targets on attendance and punctuality was skimming over some of the more fundamental barriers to learning that many students face. Further research at the schools found a correlation between the aspirations of students and their attendance and consequently their progress and attainment. Students who had firm ideas about their future and what they wanted to do had higher attendance levels than those who had no real ideas or ambitions.

There was a concern that if teachers worked with students on their personal development then they might end up simply 'telling' students what they should do and how they should go about it; therefore removing ownership of these ambitions and any subsequent goals. To avoid this, and make the process more meaningful, parents have been commissioned with the role of coach – asking questions and helping the students to identify their own goals and formalise the initial stages of their ROADMAP. In Year 7 the questions focus around school and subject choices, whether the student is happy with them and how they could change them. Through Years 8 and 9 they open up to encourage the student to think about what they want from their life and what kind of person they want to be. By Year 11 they are encouraged to take responsibility to move forward and set their own long-term goals.

Pensnett found that encouraging students and parents to work together to understand all the choices and options open and focus on the most appropriate ones had several benefits. The parents were engaged with their child's learning in a supportive environment on a task that they felt competent to contribute to. Over a longer period of time, it is hoped that the process will help parents in developing a mechanism to monitor and support their child[8].

Skills and knowledge

Implicit in the charter is the fundamental idea that personalisation is a process of dialogue – between learners and advisors, between education institutions and communities, between different forms of knowledge. It is not just about expanding education out to more people by finding new ways to present or distribute information, but is about finding ways to understand the skills, resources and interests of children, parents, and local communities outside the school gate, and including these people as experts and participants in more expansive networks of learning. This would recognise the value that different people can add to the education system as well as recognising the importance of different types of knowledge.

At present, however, the curriculum framework places a number of obstacles in the path of this approach. In the first instance, it makes it almost impossible to recognise and acknowledge forms of knowledge which do not fit neatly into existing curriculum boxes. As a result many young people either do not value, or are not given recognition for, the potentially wide range of skills and expertise that they develop in their out-of-school lives or in non 'mainstream' activities (see Spacemakers sidebar). Secondly, many individuals and organisations with knowledge and resources to offer to education often find no easy 'hooks' into the formal school system. A personalised education system would see the creation of more expansive and diverse sets of curricula which would allow young people to demonstrate and access wide-ranging skills and knowledge that may fall outside the current 'core' content of the curriculum and/or exist in sites outside schools.

Spacemakers

Spacemakers was a two-year project in which young people, aged between 13 and 15, designed a public space within their own community in the Hartcliffe and Withywood area of Bristol - one of the most deprived areas in the UK. The initial aim was to do something that they could not do within their schools or usual activities. The group worked with a landscape designer, presented their own plans to Bristol City Council, at public consultations and to competing architects.

During the project they gave public and media presentations, including weekly interviews with BBC Radio Bristol. The project was recorded on video and through the weekly radio interviews. 150 people attended the opening with all 10 members of the group participating. The young people gained a real knowledge of the issues involved through visits to public spaces, workshops and field research. They were the clients for the scheme and made key creative decisions throughout its progress.

There is no provision to measure the success of this project within the education system. This is addressed later in the booklet. Mark Rooney, the project manager said that the outcomes were around citizenship, encouragement and belief:

"The outcome of our project was this: our estate in South Bristol has 2% of its kids go on to higher education. Five of our 12 kids want to go on to university. The belief that this could happen is something they don't generally get."

The young people involved in this project pushed themselves beyond their comfort zone, trying out new experiences in an area that they were interested in. The range of skills and type of knowledge that they developed could not be realised within out current education system[10].

If we view a personalised learning landscape as characterised by dialogue, however, we also need to acknowledge that while this environment needs to recognise and value a wider range of skills and knowledge, so too does it need to be characterised by stimulating interest in new areas, sometimes outside children's 'comfort zone' or experiences. Without this stimulation of a spirit of excitement and engagement with new and different knowledge domains, a personalised system could simply reproduce the status quo, with children merely reproducing through their learning choices their pre-existing interests (or prejudices?). As mentioned in the previous section, access to new experiences - through rich media such as film, video games, simulations, through access to biographies and histories and personal accounts via the web – can all play a important role in engaging young people with new areas.

Notwithstanding these technical possibilities, however, this issue raises a significant challenge – how to enable learners to have a sense of ownership and control over their own learning at the same time as encouraging them to explore new and unfamiliar areas? To what degree should we move towards putting the control over the content, pace, environment and the process of learning in the hands of the learner? The Real project (see sidebar) sees the learner working with experts to design the content and delivery of their learning experience.

The success of strategies intending to support young people to co-design their curriculum will also be dependent on elements such as mutual respect, support for the student in planning and tracking their goals, an understanding of the skills and knowledge they will need for adult life, and strategies for making visible children's skills and knowledge in diverse domains. At the same time, students will need to be able to monitor and adapt their learning goals and

Real

Real has created learning centres in libraries and business centres across Glasgow prompted by the fact that too many people are not equipped for working life. However, they initially struggled to get people to use the centres as the courses they offered followed traditional teaching and learning patterns. Traditional learning is basically individual, but the rest of life is more social, team-based and chaotic. They changed their approach in response to this, choosing subjects that were of interest to people – music, film and video and new media. Importantly, they then brought together professionals working in those fields with designers and young people – the end users - to develop new content that would engage. This approach shifted young people from passive consumers to active co-creators of their experience[11].

© Real

chosen curriculum as necessary for it to be an ongoing and fluid process. Electronic Independent Learning Plans enable learners to document and track their progress, assign priorities, collate evidence and identify the resources they need to succeed. Digital planning and prioritisation tools can enable this process.

To operate in such an environment in which they share responsibility for co-designing their curriculum, there are a range of social, communication and personal management skills that young people will need. There are also less tangible skills that are just as important: to be able to make connections and links across different areas of learning; to know when, and be able to take risks, to feel comfortable and confident pursuing personal interests; and to be able to form relationships that operate in a real world context. A personalised learning environment is likely to require the development of such skills as core competencies. At the same time, these skills should also enable them to operate and seek employment in a range of jobs and experiences that have not even been conceived of yet. A range of different projects exploring new forms of competency-based curricula are now emerging which may offer greater flexibility for learners and greater involvement of learners in the design of their curriculum, for example, the RSA's Opening Minds project and ELLI[12]. None of these as yet fully exploit digital technologies to support these forms of curriculum co-design (although the ELLI project includes a helpful online lifelong learning inventory) but we are currently working on a new project to map out this area and will shortly publish a range of digital tools of relevance to these practices[13].

So far we have focused specifically upon the types of interactions likely to be encouraged between individual learners and advisors in a personalised learning environment. However, personalisation and learner voice does not necessarily need to be implemented as an individualistic approach. Indeed to date there has been significant work on collective student consultation in a range of different areas of school life, including the curriculum. For example, schools are finding a number of ways into this agenda often using school councils and questionnaires as ways to mobilise student voice. In this area digital technologies may have a significant role to play, both in increasing the number of young people able to participate and in changing these activities from occasional and sporadic consultation processes to ongoing and embedded practices. For example, the use of voting systems with whiteboards at the micro level of the individual lesson, and the use of discussion boards and 'virtual democracies' at the level of the school or the community, all offer the opportunity of rapid and collective decision making by young people about the nature and content of their educational experience. It needs to be acknowledged, however, that there is some way to go in this area as there is an important difference between engaging on someone else's terms, and being involved in setting the parameters of debate[14].

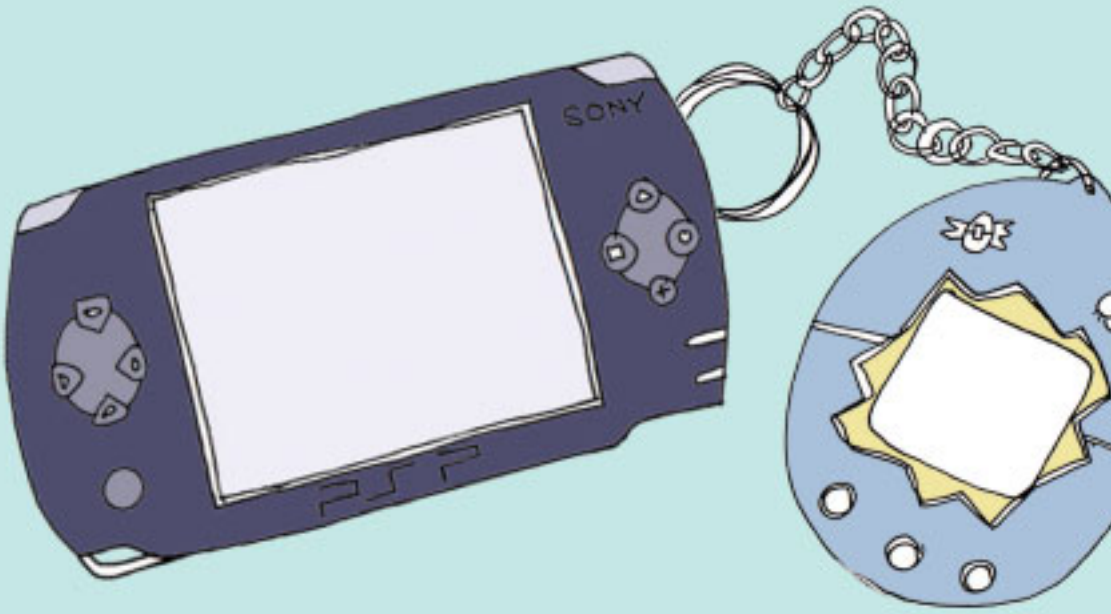
Learning environments

A personalised learning system is likely to lead to a reconsideration of how schools are designed. Multi-service sites with flexible hours and childcare provision are just some of the changes that are already beginning to happen on the back of the extended schools agenda. At the same time, schools are involved in massive rebuilding projects as part of the Building Schools for the Future programme[15]. However, while thinking about the built environment and the services on offer in schools are important elements of change, these do not embrace the broader definition of a fully personalised learning environment.

At the heart of personalisation is the understanding that learning environments comprise the totality of factors with which the learners interact, including people, spaces and resources. It is an ecology of learning in which both the learner and their environment respond flexibly to constant change in interaction with each other.

As outlined in the previous section, if we are attempting to enable diverse curricula, and if we are attempting to create flexible and responsive environments, however, we cannot expect that existing institutions will have the necessary skills, time and resources to meet the needs of all children. We need instead to think differently and to explore how we can make the most of the abilities and skills of existing local (or virtual) networks and communities rather than focusing on the school as a single site of provision.

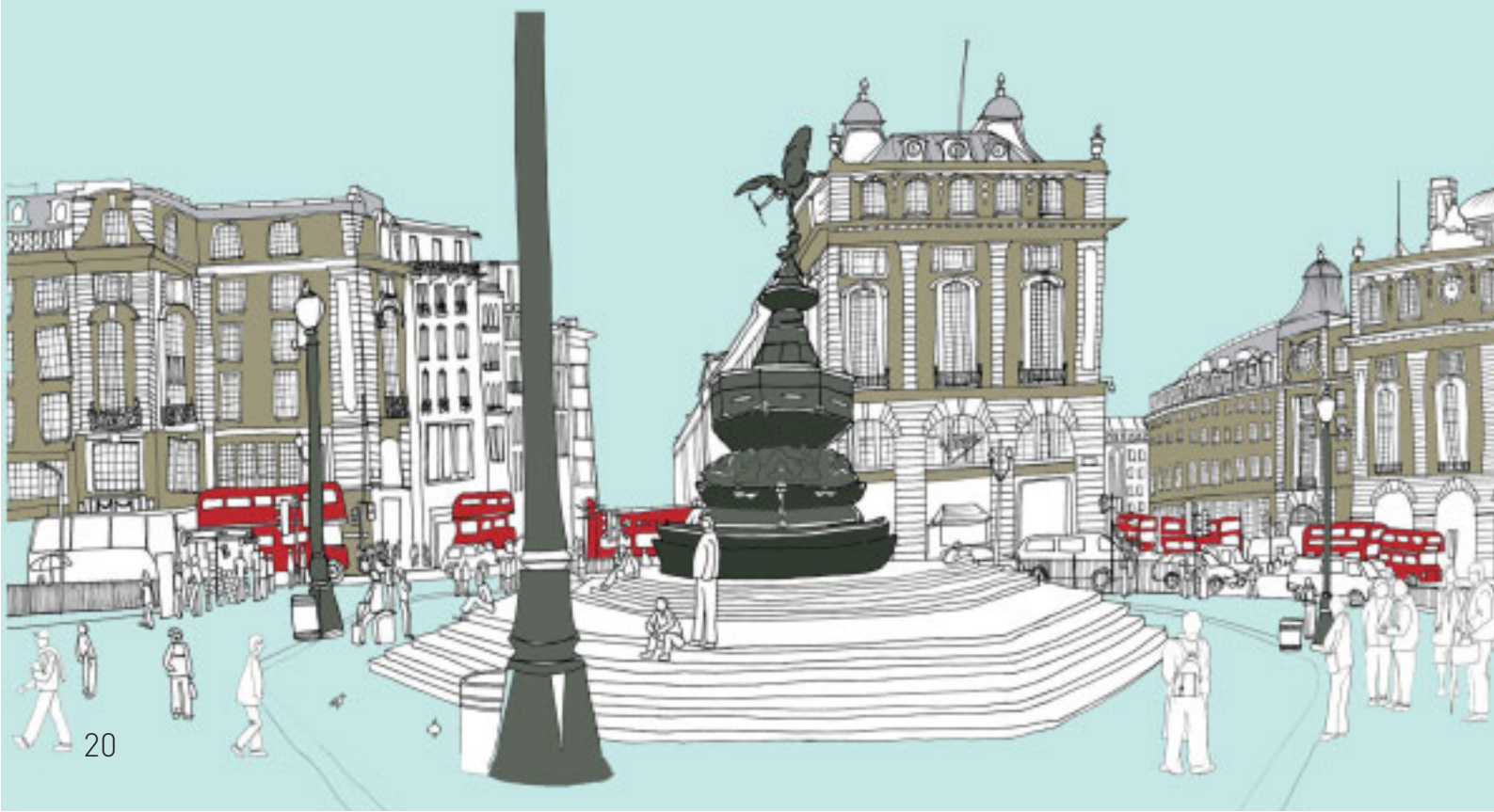
On a practical level, personalised learning environments should be sufficiently flexible to enable learners to interact with resources when it is most appropriate for them. At school, college, work or home the learner should be able to connect to resources, peers and people at the institution and beyond, using equipment and connectivity that is centrally provided. Live lessons can be accessed over the internet from home, or archived lessons can be accessed at a time which is convenient to the learner. Learners can post questions at times when they are working, for others (peers, teachers, other experts or collaborators) to engage with synchronously or asynchronously. Digital technologies can make flexibility commonplace.



While universities, in particular the Open University, have been leading in this field for some time, schools, colleges and LEAs are now going some way to providing flexible access to information and resources, and anytime, anywhere opportunities for collaborative learning (see Virtual-Workspace sidebar).

A personalised learning environment is also about each learner having access to people who are relevant to their interests. This sort of specialisation could not and should not be expected to be delivered by a single institution. In fact, to rely wholly on teachers as educators ignores the benefits and resources that individuals in a range of different settings can bring to learning. Access to other adults could be introduced through experts coming into schools to run workshops or courses. If face-to-face contact is not possible or necessary, digital technologies offer the opportunity for collaboration and teaching and learning at a distance through video-conferencing, e-mail and online communities.

At the same time, learners should have the opportunity to learn beyond the school gates working for businesses, primary schools, charities or other local organisations. Datasets of individuals and organisations able to offer support and teaching opportunities could be developed to facilitate the process. Learning in appropriate contexts not only allows the student to have access to experts in their chosen area, it also recognises the value and power of learning through doing and that different people learn better in different settings[18]. One of the drawbacks of the current education system is that students have to learn in isolation from reality and often in removed and inappropriate environments. Moreover, the increasingly wide availability of personalised mobile digital technologies offers the opportunity to enhance the learning in these out-of-school settings and to create links between these and school-based experiences[19]. This may go some way to overcoming some of the challenges faced by the need to ensure universal access to digital resources outside school, although some existing projects demonstrate ways of achieving this through the provision of low-cost home computers and technical support for families[20].
Learning in authentic environments does not have to be limited by the options



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Motivate

Motivate is a real-time video-conferencing project for schools. It enables school students of all ages, particularly those from disadvantaged areas, to take part in live video-conferences with world-class university mathematicians and other speakers from a mathematical background. Students find out what professional mathematicians and scientists do, and how their work is used in the real world. Younger children take part in interactive mathematical video-conferences, with activities based around the curriculum. Schools work together, across the UK and abroad, through conferences set up around mathematical topics such as '101 uses of a quadratic equation' or 'What have mathematicians ever done for us'. Some projects start with a video-conference, then give the students about a month to work on their projects, with a second video-conference at the end of this period. Others take place on a single day, in the style of a master class, with input from the speaker and the students alternating through the day. We use this model for students in the 16-18 age group, who do not have time for longer project work[17].

Virtual-Workspace

The Virtual-Workspace, developed for Worcestershire and Wolverhampton LEAs, is a new, dynamic web portal designed to engage learners aged 14 to 19 (Years 10 to 13), in and out of school/college. It is being used by over 21,000 learners and 3,600 educators from over 60 schools/colleges. The design was based solely on the needs and interests of its priority users. In the Virtual-Workspace, learners and teachers each get their own private web space which no one else can access. These enable learners to manage their classwork, coursework, homework, daily diaries, interests and even their future plans. Teachers can access tools for managing and developing appropriate learning materials. A Digital Repository of learning materials lies at the heart of the Virtual-Workspace. High quality learning content is provided from a number of sources to facilitate and enhance the learning experience of the users of the V-W. Students and teachers can browse or search this collection for materials that support both academic and non-academic subjects. All of the materials are indexed and tagged in accordance with the V-W taxonomy which is a combination of the Curriculum Online (COL) and National Learning Network (NLN) metatagging frameworks. Being entirely online means users can access their workspaces at any time, from any internet-enabled computer – creating a virtual learning community. Learners and educators can create teams and collaborate on any area of interest with any members of the 21,000 community – with the potential for each learner to find others to share their interests and help their development, and to create dynamic and evolving learning communities across the LEAs[16].

Savannah

Imagine if you could learn about the food chain by being an eagle or a mouse, or understand migration patterns by flying with a flock of geese. That kind of learning is exactly what the Savannah project[21] aims to replicate as students get to play the role of, and hence learn about, lions. The Savannah pilot project allows students to learn about a topic in an appropriate environment as each student plays the role of a lion roaming in a wild area 100m by 50m. Each student carries a PDA that allows them into the game world of the animals displaying useful information appropriate to their location and the rest of the game. Each PDA is tracked using GPS allowing students to 'see' 'hear' and 'smell' the savannah they are exploring. It also displays instructions and information such as 'You're hungry' 'You're too hot' and 'Run to the den'. The students can retreat to the den area which provides space and time for reflection after being out on the field.

that are available locally. Digital technologies can enable students to learn in a whole range of different environments.

For some individuals, learning through a Virtual Learning Environment (VLE) is ideal. Notschool is just that, an online learning community with little face-to-face interaction. Notschool works primarily with young people for whom traditional education has not worked. This might include those who are sick, pregnant, disaffected, excluded, travellers' children and young offenders. Notschool is an environment that makes learning possible for them. A truly personalised system would enable all learners to have access to different learning environments that suited their needs[22].

VLEs, the internet, e-mail and video-conferencing allow learners to communicate with each other far beyond the boundaries of a classroom. We have seen above that Notschool acts as a hub for a discrete group of learners, but digital technologies also enable national and international communication allowing learners to build relationships with a variety of people across the globe.

Environments are socially as well as physically constructed. Spatiality demands that we stop thinking about space in purely physical terms and instead understand the interaction between space and people in that space. Given this understanding the policy of developing 'extended schools' can be considered in a different light. The value of 'extended schools' is often seen in terms of bringing services and resources into school; however it is also about taking the school out into the community. If schools are able to develop and sustain porous and flexible boundaries (which would depend on a shift in current funding restrictions) young people could experience learning in real environments, could benefit from a significant diversification in their learning experiences and form relationships that operate in a real-world context.

San Siôr School, Llandudno

Pupils from San Siôr School in Llandudno use technology to communicate and collaborate with other pupils from other schools from all around the globe. The content of the school website is managed by the pupils and outlines how the pupils spend their time. There are links to every aspect of the school life; exams, exotic pets, sports and examples of their work. The most interesting innovation is the global projects and in particular 'Around the World in 80 Days.' It tells the story of an explorer who travels to different countries. The pupils suggest their ideas about a given place and Explorer Fred records these ideas in his diary. Pupils from schools in other countries then address the preconceptions of the pupils from San Sior and vice versa[23].

Feedback

The assessment system required by this personalised learning charter looks very different to the one currently in place.

We would like to think that the most powerful forces in education are teaching and learning, but in reality the driving force is examinations, specifications and tests. We must question what, when, how and why we are assessing; we need to think beyond formal assessment and grades, enabling students to integrate learning from a wide range of experiences including extra-curricular activities. Learners should be assessed at times appropriate to their own development and in different ways depending on the activity in question. Most importantly, assessment should be a positive and constructive experience, engaging the learner and the system in a process of constant monitoring, updating and dialogue. Not only would this stimulate student engagement by encouraging the learner to take ownership of the learning, it would also allow better allocation of resources within and between schools and other organisations in response to the students' feedback. It is highly unlikely that we will be able to achieve this shift without wider use of digital technologies[24].

The move from an assessment-driven, to a learner-driven system would require a shift in focus from certification by others on the learner, to assessment for learning and self improvement. Being a good learner takes curiosity, perseverance, self knowledge and collaboration. These attributes are necessary for individuals to transfer skills, learn new ones and adapt to new environments, and should be assessed before a learner completes their formal education. Programmes are already available that measure whether the student is a good learner, rather than what they have actually learned (see for example, ELLI and Building Learning Power, see sidebar).

A system based on assessment for learning would encourage students to focus on their own development rather than comparing themselves to others. Formative rather than summative assessment feeds into this process as students negotiate relatively short term focused goals that reflect the cumulative nature of learning. As the Thomas Hardy (see sidebar over page) example demonstrates, feedback can be a powerful learning tool if it is given in the right context.

In future, we might conceive of these sorts of systems being developed to enable peer-to-peer and self-assessment processes being introduced to create powerful learning communities in which all participants have a sense of

Building Learning Power

Building Learning Power[25] tracks four key skills - reciprocity, reflectiveness, resourcefulness and resilience - using a series of online quizzes for students and their teachers. Students can access immediate feedback that is directly focused to them. The speed of the feedback empowers the learner and also actively engages them by asking whether they agree with the comments. The program also gives homogenised feedback to the teacher, providing an overall picture of what is going on in their classes.

Thomas Hardy School

Thomas Hardy School is at the forefront of data use. They have been using data across a cluster of schools – the Dorchester Area Schools Partnership (DASP) - to improve teaching and learning strategies, academic targeting, and as a tool to move assessment from teacher to student focused activity. Subject teachers give every student a predicted and potential grade at regular intervals throughout the year. The data is presented in a student friendly format and discussed in an academic tutorial with their form tutor. The purpose of this formative assessment is to discuss and decide what the student needs to do to shorten the gap between the two marks and what help they think they need in getting there. This system operates within the existing assessment framework, but allows students to reflect on their own learning, think about how they could be more effective, and then take decisive action in a supportive environment to improve it.

interdependence in the achievement of the goals of all community members. Technology also brings with it the possibility of more informal and self-assessment and a greater potential for internal and teacher-led assessment. Self-assessment is a powerful tool for learners as they can choose when they are assessed, why, how and what they do with that assessment, as the example below illustrates.

The positive benefits of diversifying assessment in these ways are clear; however there are also some inherent challenges that have to be recognised. A shift to less formal assessment would raise questions around both accountability and the 'currency' of assessment for progression to work or further education.

The focus and purpose of the assessment system need to change while increasing the diversity of assessors. In order to move to a truly personalised system, the number of ways in which learners can record their achievements must increase. There is currently a clear and dominant focus on text-based assessment; it is necessary to think about what other approaches there are to ensure that people are not left behind. Assessment outputs are slowly diversifying as schools and colleges are taking advantage of the benefits that digital technologies can offer, as the examples of Oliviet (see sidebar) and others illustrate. However, the latent potential of these efforts are limited by the wider objectives of the education system that they are operating in.

This method of assessment could be taken further. As portable hard-drive devices such as iPods become widespread and as it becomes easier to store personal resources and records online, people have taken to archiving their lives

Farnborough Sixth Form College

Farnborough 6th form college is developing an interesting e-assessment programme. All of the students are able to submit written material to an online programme that feeds back support and ways to improve the work. It can also be used from home to access portfolio space. The IT resources also allow a huge battery of papers and resources to be stored and easily accessed. Consequently assessment has become part of learning, not a dreaded summative point. If students feel they are assessing themselves it makes for a very different emotional experience.

Oliviet College

Oliviet College, USA have sought to build portfolios around individual learners using the 'Oliviet Plan'. It was designed to assist students in taking responsibility for their education through a process of self-assessment, educational planning and goal-setting, and development of individual portfolios demonstrating learning, competency and achievement. Students are allowed to submit papers, writing samples, projects, created objects or recorded performances as part of their portfolio. The professors who have commented on this program feel that this kind of assessment system is extremely valuable as it:

"Provides a mechanism for students to document their skills in the five key groups of education outcomes: communicating, reasoning, working together, individual responsibility and social responsibility."

Finally, it was felt that the continual involvement with a mentor and a cohort group allows students to establish the relationships that will benefit them in the future. California State University runs a similar portfolio assessment system where work is reviewed by tutors, peers and businesspeople brought in specifically to help enhance student reflections.

online in digital form either as personal diaries, or for sharing with others. The phenomenon is driven by camera phones, online photo sites such as flickr.com and increasingly generous storage allowances of e-mail providers. As the technologies become more ubiquitous the potential for this will grow[26]. These 'bottom-up' communities also offer interesting models for peer assessment of the value and contribution of young people's work that bears some similarities to new approaches to learning that view children as knowledge creators and innovators[27].

E-portfolios could allow young people to keep a full and accurate record of their progression, building up a rich CV that brings in all aspects of their life[28]. This could be viewed anytime, anywhere and given feedback in real time. E-portfolios have great potential to allow students to showcase, store and access their work. They could be used at a job interview to allow a potential employer to survey a student's work and record of achievement.

In terms of assessment, e-portfolios would allow an accessible record of the different stages of the project to be kept, demonstrating how far the project had moved forward and developed, rather than being assessed purely on the static standard of the final result. At the same time, these portfolios can be used to stimulate further thinking and generate a dialogue between the learner and their work. The QCA-funded E-Scape project is making some significant steps in this area[29]. The development of central records of achievement could also help to fuse disciplines together and discourage the teaching of disconnected academic subjects.

The real value in creating a system of assessment for learning would be if it was flexible enough to respond to feedback from learners. At the same time as monitoring and updating the progress of learners, assessment tools should monitor the progress of the system, creating a dialogue between learners and their learning environments. Currently, we have an assessment system that assumes standardisation and does not respond to changing needs of individuals. The examples here illustrate a person-centred approach to assessment that attaches value to a wider body of knowledge and recognises it in different ways. A one-size-fits-all system does not recognise that most learning is done outside of school. The result is an artificial separation of school from society and learning from life.

Summary and next steps

The goal of personalised education is the creation of a system that meets the needs, interests and potential of all children, regardless of their backgrounds; which enables learners to take joint responsibility for defining their goals and their learning strategies; which enables the education community to draw on the strengths and expertise of diverse organisations and individuals to achieve these goals; which sees assessment as a tool for supporting learning and providing feedback for the constant improvement of the learning experiences of all children. This goal will require the careful balancing of learners' interests and social needs, the development of new forms of school and social organisation, and, perhaps more than anything, the instigation of a wider public debate about the nature and purpose of education and the roles of all those involved with it – from teachers, parents and children to community leaders, local businesses and assessment bodies.

This report outlines the ways in which, across the UK and internationally, schools, LEAs and industry are already beginning to make progress towards this goal. As yet, these steps are evolutionary rather than revolutionary, and it is likely that progress in future will come through a combination of these different approaches; from the gradual development of an understanding of 'what works' and, just as important, what doesn't. What is clear, however, is that 'what works' is likely to be characterised by the combination of a clear educational philosophy that places the needs and aspirations of learners at its heart with the exploitation of the increasingly sophisticated digital tools that are now available.

So where next? There is clearly an urgent need to bring together those working towards these goals, to capture and share information about the different approaches being developed. There is also a need for wider debate on the sorts of institutions that might be needed in a personalised learning landscape. To this end, we hope that you will use the Learner's Charter to identify the ways you are already working in this area and to map out your goals and aspirations in collaboration with learners and the wider community. The current e-Strategy, the Building Schools for the Future programme, ongoing reviews of our assessment system and a raft of other initiatives mean that it is possible now for the education and technology communities to come together to really create an education system shaped around the needs of the learner.

Please let us know what you are doing already, where you want to go and the tools and resources you will need to achieve these goals. In the coming years, we hope to work with you, through events, projects and research, to create a real picture of how this system might work and, most importantly, to understand the impact this will have on the lives, aspirations and achievements of young people.

Contact us at research@futurelab.org.uk

Putting the charter into practice

The following are a number of key challenges and questions that you might want to explore in your schools and organisations based on the issues raised by the charter.

Choices

- How can regular contact between home and school shape a child's learning and how can this be facilitated?
- How can you use the charter with individual young people to set personal action points?
- What resources can be developed that encourage reflection upon educational choices, trajectories and opportunities?

Skills and knowledge

- How can we create ways of storing data that transfers the responsibility for learning to the students?
- How can we encourage young people to design their own learning journeys?
- What tools could be developed to widen and improve the quality of student consultation on school curricula offerings?

Learning environments

- Which local organisations could your school build relationships with to ensure that your students are able to experience learning in real life contexts?
- What technical systems do we need to develop/put in place to ensure that different organisations and sites can easily communicate and transfer information with each other?
- What resources could be used to enable young people to participate in supportive peer learning communities both in and out of school?

Feedback

- How can we ensure that young people leave school prepared for life in the adult world?
- What systems for young people's feedback on their learning experiences are in place at school, community and national levels?

Your comments

If you use the charter or these questions to prompt discussions or have comments to make on any of the issues raised in this document, we would be very interested to hear from you at research@futurelab.org.uk

Further reading, references and projects

Papers and publications

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Relevant policy documents

Becta (2005). Personalising Learning with ICT. www.becta.org.uk/corporate/publications/documents/personalised_learning.pdf
See also: www.becta.org.uk/research

NCSL and DfES (2004). Personalised Learning: Tailoring Learning Solutions for Every Pupil. www.standards.dfes.gov.uk/innovation-unit/pdf/iuncslpersonalisedlearning.pdf?version=1
See also: www.standards.dfes.gov.uk/personalisedlearning
www.standards.dfes.gov.uk/innovation-unit/personalisation/personalisedlearning/?version=1

DfES Five Year Strategy: www.dfes.gov.uk/publications/5yearstrategy

DfES e-Strategy: www.dfes.gov.uk/publications/e-strategy

Related projects and organisations

The Children's Research Centre, at the Open University, aims to empower children and young people as active researchers, viewing children as experts on their own lives, and promoting child voice by supporting children to carry out research on topics that are important to them. childrens-research-centre.open.ac.uk

The E-Scape Project is a research and development project for the DfES and the QCA exploring innovative forms of assessment for creativity and invention in design and technology with particular relevance to the use of PDAs. www.qca.org.uk/14828.html

The Effective Lifelong Learning Inventory from the University of Bristol and the Lifelong Learning Foundation is a self-report questionnaire designed to find out how learners perceive themselves in relation to the key dimensions of learning power. www.ellionline.co.uk

The English Secondary Students' Association (ESSA) aims to provide training, guidance and advice to empower students and equip them with the vital skills needed to become actively involved in the decision-making processes in their own school communities; and it aims to work in partnership with other organisations to bring the views of secondary school students to the attention of local and national policy makers, as well as the media, in relation to educational issues. www.studentvoice.co.uk

Motivate is a video-conferencing project linking world-class mathematicians with primary and secondary students. motivate.maths.org/index.php

Notschool.net is an online research project looking at ways of re-engaging young people of school age back into learning. These young people have been out of the more traditional educational systems for a variety of personal and logistical reasons. www.notschool.net/ns/template.php

Pensnett School of Technology, Internal Strategy Document, 2004. For more information please contact Sue Baines at enqs@pensnett.dudley.gov.uk or on 01384 816435.

Personalised Education Now seeks to develop a rich, diverse, funded Personalised Educational Landscape to meet the learning needs, lifestyles and life choices made by individuals, families and communities. It promotes education based on learner-managed learning, using a flexible catalogue curriculum, located in a variety of settings, and operating within a framework of democratic values and practices. c.person.ed.gn.apc.org

Personalisation and Digital Technologies Seminar Series (2004-5). Provocation papers and seminar reports can be found at: www.futurelab.org.uk/research/sem_reports.htm

Real is a lifelong learning project bringing together free and online learning focused around subjects seen by learners as useful. www.intoreal.com

The RSA's Opening Minds Project is a philosophy, a project and a report. It sprang from a conviction that the way young people are being educated was becoming increasingly distanced from their, and the country's, real needs and has developed an approach to the organisation and practice of education that focuses on the development of 21st century competencies. www.thersa.org/newcurriculum

The Virtual-Workspace is a joint initiative by Worcestershire and Wolverhampton LEAs developed by NordAnglia. It brings together 21,000 children through an e-learning portal which enables them to create their own learning communities, access diverse resources and develop their own individual learning plans. www.virtual-workspace.com

Footnotes

1 DFES 5 year strategy: http://www.dfes.gov.uk/publications/5yearstrategy/; DFES E-strategy: http://www.dfes.gov.uk/publications/e-strategy/
2 Futures of Learning Seminars, Future Learning Practice; seminar report June 2005
3 Gee (2003); Williamson & Facer (2003)
4 Owen (2004)
5 Rudd (2001) Facer et al (2003)
6 This report draws upon, but should not be taken to represent the views of the participants at a seminar series run by BECTA, Demos, Futurelab and Toshiba in Autumn/Winter 2004/05. Provocation papers and seminar proceedings from the series are available at www.futurelab.org.uk/events/past/demos_intro.htm.
7 For further reading please see references.
8 Pensnett School of Technology, Internal Strategy Document, 2004.
9 See Wolverhampton and Worcestershire Virtual Workspace and Individual Learning Plans.
10 Spacemakers: www.publicartonline.org.uk/case/spacemakers.
11 Real: www.intoreal.com.
12 ELLI: www.ellionline.co.uk; Opening Minds: www.thersa.org/newcurriculum.
13 Enquiring Minds: www.futurelab.org.uk/research/enquiring_minds.htm.
14 See, for example, Fielding (2001); the work of ESSA (www.studentvoice.co.uk); and the Children's Research Centre at the Open University (http://childrens-research-centre.open.ac.uk)
15 Building Schools for the Future programme: www.bsf.gov.uk.
16 Virtual-Workspace www.virtual-workspace.com
17 Motivate: www. motivate.maths.org/index.php
18 See http:// c.person.ed.gn.apc.org
19 Naismith (2004).
20 See for example, the work of the e-Learning Foundation (www.e-learningfoundation.com) and Canon's Connect at Canon High School in Harrow which aims to ensure that all pupils in Years 6-9 have access to a computer and printer at home.
21 Futurelab (2004).
22 See the work of Personalised Education Now which supports and charts the successes of those learning beyond the current landscape in learner-focused settings: http:// c.person.ed.gn.apc.org
23 San Siôr School website: www.santsior.conwy.sch.uk.
24 Ridgway (2004).
25 www.buildinglearningpower.co.uk.
26 See, for example, Harkin (2005).
27 See, for example, Scardamalia and Bereiter (2001).
28 See, for example, the Individual Learning Plans developed by Wolverhampton LEA.
29 E-Scape Project: www.qca.org.uk/14828.html.

This report, with the charter, is available to download free from the Futurelab website – www.futurelab.org.uk/research/personalisation.htm

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DEMOS

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