

e-Portfolios – the DNA of the Personal Learning Environment?¹

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1. Introduction

e-Portfolios are hardly a new idea in the fast developing field of Technology Enhanced Learning. Indeed, some three years ago conferences and meetings of e-learning developers were dominated by work on e-Portfolios. Then, as tends to happen, the development community moved on. This year's theme is 3D and immersive environments. But, although e-Portfolios have been widely used in North American and UK universities for some time, it is only now that they are permeating into wider sectors of education and training including work based learning and the compulsory school sector. At the same time there is increased interest and take up in continental Europe.

Why is this? The different pace and forms of development may reflect different social and economic systems, differences in the history of education, different relations between labour markets and education systems and different cultural and pedagogic approaches to education and learning. Lastly, it may reflect the degree to which new technologies are being implemented within education and the degree of funding support for learning technology and innovation. But perhaps more important is that education and training systems are beginning to respond to the pressures of the deep industrial revolution being driven by the widespread penetration of digital technologies. In this regard it is interesting to note that social systems and institutions may be slow to react in times of fast technological development and change. I argue in this paper that e-Portfolios represent the beginning of a period of considerable change which will impact on the organisation of education and training systems, the forms of support for learning within society, the organisation of educational institutions and the development, organisation and delivery of curricula and programmes.

The first part of the paper looks at the different drivers for change and how e-Portfolios may be seen as a response to such pressures. In the second part of the paper I will highlight a number of issues impacting on the development and implementation of e-Portfolios. In the final section I will briefly consider the development of e-Portfolios systems and platforms and suggest where future developments may be leading.

It should be noted that there is not a single understanding or approach to the development and purpose of an e-Portfolio. This is largely due to different didactic and pedagogic approaches to e-Portfolio development and use. It is possible to distinguish between three broad approaches: the use of e-Portfolios as an assessment tool, the use of e-Portfolios as a tool for professional or career development planning (CDP), and a wider understanding of e-Portfolios as a tool for active learning. For the sake of this paper e-portfolios could be defined as “a purposeful collection of student [or teacher] work that illustrates efforts, progress, and achievement in one or more areas over time. An electronic portfolio uses digital technologies, allowing the portfolio developer to collect and organize portfolio artifacts in many media types (audio, video, graphics, text). A standards-based portfolio uses a database or hypertext links to clearly show the relationship

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between standards or goals, artifacts, and reflections. The learner's reflections are the rationale that specific artifacts are evidence of achieving the stated standards or goals. An electronic portfolio is a reflective tool that demonstrates growth over time." (Barrett, 2004).

Despite the differences in the degree of adoption of formal e-Portfolio platforms and products, it could be argued that even in those countries with little present practice in e-Portfolio development, there are common changing approaches to education. These include more student centred pedagogic approaches, more flexible programme provision, a greater emphasis on lifelong learning, and a move toward competence based assessment.

These trends will be examined in more detail in the next section of this paper, as they would appear to be the drivers of change for e-Portfolio development.

Given such trends, it may be more apposite to define e-Portfolios as a process, rather than just a product or a technological system.

2. Drivers of Change

This section of the paper will look at the different pressures and movements which underpin the development and implementation of e-Portfolios. In this regard I would argue that the uptake and use of technology within education is shaped by social, economic and pedagogic development. Thus the development of e-portfolios can be seen as response to different pressures on the education and training systems: at the same time the implementation of e-Portfolios impacts on the organisation and pedagogic approaches to teaching and learning.

2.1 Lifelong Learning

Lifelong learning is hardly a new idea. Arguably, the idea of lifelong learning was originally rooted in the workers movement. In the UK, the Mechanics Institutes, the Miners Halls and organisations like the Workers Educational Association (WEA) organised classes and courses for workers to improve their own education as well as providing access to learning resources and social activities. Whilst this provision might aim at developing technical and labour market related skills and knowledge, it was guided by a wider belief in the power of education for emancipation. The more recent focus on life long learning, in say the last thirty years, has been guided by a far narrower discourse. Driven by a shorter product life cycle, the increasing speed of adoption and implementation of new technologies in the workplace and the increasing instability of employment with the computer driven industrial revolution, it was reasoned that workers would need continuous learning throughout their work-life to update their occupational skills and knowledge or to learn new occupational competences. It was contestable as to who would be responsible for this. Whilst previously continuing vocational training had been the responsibility of employers, and the state was seen as playing a leading role in the provision of continuing education and training, it was now often argued that individuals were responsible for maintaining their own employability, albeit sometimes with the assistance of grants, vouchers and subsidised courses,

If not continuous, learning is now seen as multi episodic, with individuals spending occasional periods of formal education and training throughout their working life.

The idea of an e-Portfolio recognises that learning is continuing and seeks to provide tools to support that learning. It also recognises the role of the individual in organising their own learning. Moreover, the approach of e-Portfolios recognise that learning will take place in different contexts and situations and will not be provided by a single learning provider. E-Portfolios can provide a record of learning drawn from different contexts and allows that record to be updated over time. Linked to this is an increasing recognition of the importance of informal learning.

e-Portfolios are increasingly being seen as a powerful tool for Continuing Professional Development, especially in the medical and education professions.

2.2 Informal Learning

Informal learning is something of a conundrum. Fairly obviously, we learn throughout our lives, in all kinds of different setting and contexts. Most of this learning does not come from formal educational programmes. Jay Cross (2006) argues that only 10 -15 per cent of learning is formal, that 85 per cent of our learning takes place outside of formal settings. Yet there has been little attention paid to informal learning or to how it takes place.

In most European countries there has been some moves to recognise informal learning. However, most effort has been expended on trying to assess and certify informal learning, (Whether it then remains informal is a moot point, as is whether most people wish their informal learning to be certified).

There has been interest in informal learning from the corporate world, driven by the desire to capitalise on the intellectual assets of the workforce, to manage organisational knowledge and in recognition that informal learning may prove a cost effective way of developing competence.

In terms of educational technology, there has been little attention paid to informal learning. It is remarkable that formal learning technology and applications have only really been made available to those enrolled on an educational programme or to those working for larger enterprises.

e-Portfolios can extend access to educational technology to everyone who wishes to organise their own learning. In Wales the Careers Service offers a web-based e-Portfolio to all residents. Furthermore the e-Portfolio can include and bring together all learning, including informal learning, workplace learning, learning from the home, learning driven by problem solving and learning motivated by personal interest as well as learning through engagement in formal educational programmes.

e-Portfolios can also facilitate different styles of learning.

2.3 Different styles of Learning

It is argued that we all have different styles of learning and approach learning in different ways. Although this would seem self-evident, attempts to theorise and classify such learning styles are less than convincing. Personally, I do not think I have one particular learning style but use different learning styles and different ‘ intelligences’ in different contexts, different subjects and in different knowledge - domains and in response to different learning aims and goals. I might use a different style for solving a quick problem - say how to use Skype for my podcast, - than for learning German.

Notwithstanding the problems of the theoretical debate on learning styles, it would appear likely that learners will have preferences for different pedagogic approaches, in particular learning contexts.

All educational software, implicitly or otherwise, either enhances or restrains certain pedagogic approaches to learning. There is no such thing as pedagogically neutral software. However, dependent on the design and process of use, an e-Portfolio can allow learners to configure and develop a learning environment to suit and enable their own style of learning.

2.4 How we use computers for learning

There are many different movements in education which are driving the development and

implementation of e-Portfolios These include the promotion of continuing and multi episodic learning, an understanding of the importance of informal learning and the move towards competence based education.

But, the most compelling driver may be the changing ways learners (young people in particular but by no means just young people) are using computers for learning.

John Seely Brown in a speech in 1999, looked at the new dimensions of “learning, working and playing in the digital age”. One dimension he drew attention to was literacy and how it is evolving. The new literacy, the one beyond text and knowledge, he said, is one of information navigation.

Linked to this was learning and how that is shifting. He pointed to the growth of discovery or experiential learning. As kids work in the new digital media, he said, rather than abstract logic, they deploy Bricolage. Bricolage relates to the concrete and has to do with the ability to find something – an object or a tool, a piece of code, a document - and to use it in a new way and in a new context. But to be a successful bricoleur of the virtual rather than the physical you have to be able to decide whether or not to trust or believe these things. Therefore the need for making judgements is greater than ever before.

Navigation is being coupled to discovery and discovery being coupled to bricolage but you do not dare build on whatever you discover unless you can make a judgement concerning its quality or trustworthiness.

The final dimension Seely Brown addressed was that of action. He suggests new forms of learning are based on trying things and action, rather than on more abstract knowledge. “Learning becomes as much social as cognitive, as much concrete as abstract, and becomes intertwined with judgement and exploration”.

Seely Brown’s early study has been reinforced by research by Lenhart and Madden for Pew Research (2005). The study found that 56 per cent of young people in America were using computers for ‘creative activities, writing and posting of the internet, mixing and constructing multimedia and developing their own content. 12 to 17-year-olds look to web tools to share what they think and do online. One in five who use the net said they used other people's images, audio or text to help make their own creations. Commenting on the study Lee Raine (BBC, 2005), said: "These teens were born into a digital world where they expect to be able to create, consume, remix, and share material with each other and lots of strangers."

In recent years many young people have established accounts on social networking sites including Bebo, Facebook and MySpace. Services such as Facebook are targeted particularly for students. Such social networking services provide tools for content creation and sharing and for developing networks of friends.

In a recent blog post, Ewen McIntosh (2007) says the average Bebo user spends 41 minutes a day online on Bebo, “sharing photos, video, news, what they're feeling, finding out what their pals are feeling.”

He goes on to say “That's nearly a quarter of the average 200 minutes time that kids spend online each day. “

Bebo has been working with Learning and Teaching Scotland and other organisations to develop the Beboism 'Be One' attitude web site (Bebo, 2007). This comprises of four working areas:

“Be Inspired: A place to show off your creative stuff.

Be Cause: helps you to discover and connect with networks of organisations and people who wish to engage in discussions, raise awareness and campaign about a number of issues.

Be Rich: Conversations about career paths, aspirations, thinking outside the box, making connections in the world of work and play.

Be well: discover the services, support groups, information and discussions that are relevant to you and your physical, emotional, spiritual and mental well being.”

Of course, there is an issue as to how much learning takes place through participation and engagement in social networking sites. However, the failure of the education providers to engage with this activity risks schools and other educational institutions becoming irrelevant to the way in which young people interact and exchange ideas. As McIntosh says “What does education do to try to harness the skills being learned in there? Hmmm.... "Could do better". Well, we could just do it. The skills are there, the tech's there, all that's missing is the desire of those not in the know to learn.”

It is interesting to note that new teachers have grown up themselves with social networking tools. However Christopher Sessums says: “Most of our conventional f2f students are young and new to teaching. A majority have MySpace and Facebook accounts so they are familiar with social media/social networking technologies, yet often keep these technologies separate from their professional practice. Many of these student teachers see no connection between their personal use of the Read/Write Web (pdf) and their professional use.”

Lest it be thought that the use of technology for social networking and informal learning is limited to the so-called ‘net generation’, a study of the use of ICT for learning in Small and Medium Enterprises (Attwell, 2007) found that whilst there was little evidence of formal e-learning computers were being widely used for informal learning through amongst other things participation in networks and distributed communities of practice. Furthermore, there was some evidence that older workers were more likely to participate in such activities (probably because of more autonomy in how they undertook their work). It was also noteworthy that in addition to being motivated by the need to solve work based problems, much of the participation was driven by personal interest.

e-Portfolios offer an opportunity for allowing learners to use computers as they do in their social life, to create, to share and to network. They potentially represent a move to overcome the somewhat alarming gap between educational software and the applications used everyday both by young people and in the workplace. Why only ‘potentially’? The ability to create, share and network depends both on the design of e-Portfolio applications and the approaches to the pedagogic use of the e-Portfolio as well as the integration of the e-Portfolio in the wider context of curriculum provision. In the following section of this paper I will examine these issues in more depth.

3. Challenges and issues in the development and implementation of e-Portfolios

3.1 New learning, new teaching and the challenge to institutional control

There are a number of specific issues pertinent to the development and implementation of e-Portfolios. But, possibly more important is the general issue of the changing role of education institutions. The development and implementation of e-Portfolios represent not just the personalisation of learning but a relaxing of the control of institutions. It can be argued that previous developments in e-learning software and applications were designed both within the existing paradigm of education (thus the terms virtual classroom and virtual university) but also

as management systems to maintain institutional control (the Learning Management System). Essentially they were attempts to maintain an institutional 'walled garden' in cyberspace, maintaining the institutions' isolation from the wider community outside.

Kathy Sierra (2006) has compared the "old learning" with the "new learning" empowered by social networking:

"Old learning" she says is

- Linear / slow
- Based on proprietary knowledge
- Views ideas as strategic advantage
- Facilitated by mentors
- Learning takes place by reverse engineering
- Progresses by "shoulders of giants"
- Based on the wisdom of experts

New learning is

- Exponential, networked, quick
- Based on shared knowledge
- Ideas are "paid forward"
- Facilitated Micromentors
- Lessons-learned benefit all
- Progress by the "mash-pit"
- Based on the wisdom of crowds

In a presentation at a UK JISC on-line conference, Tom Franklin (2007) considered the implications for teaching.

Old teaching he said was based on institutional control, was authoritative, made clear distinctions between formal and informal learning and was teacher centred. New teaching is learner controlled, exploratory with a blurring of boundaries between the formal and informal and is led by teachers, learners and experts.

The implementation of e-Portfolios can be viewed as a step towards new learning and teaching. But any movement towards learner controlled teaching with exploratory approaches to learning including a more blurred edge between the formal and informal inevitably requires fundamental change in institutional organisation and practice. I have argued before that the present organisation of our education and training systems evolved from the first industrial revolution and was largely based on a Taylorist organisational model (Attwell, 2006). In other words the education system reflected the social forms of production. With the increasing use of digital technologies new models of production are emerging and new forms of knowledge creation, development and distribution. The challenges outlined by Sierra and Franklin are but a reflection that the organisation of teaching and learning needs to change to reflect these new patterns of knowledge creation.

Furthermore, the use of social software raises further issues in the control and management of learning infrastructure and tools and in the management of learner data. Learner driven

approaches to teaching and learning may also require a re-examination of assessment processes. These issues are considered in more depth in this section.

2 Providers and ownership

There are major issues in who should provide an e-Portfolio and still more about the ownership of data. Of course, in many cases, e-portfolios will be provided by educational institutions. In this case the issue of portability of data arises when students leave or progress to another school or college. Although there have been attempts to agree standards for e-Portfolio, these have not been widely implemented and are not universally accepted within the educational technology community. Furthermore there is an issue as to what happens to the e-Portfolio after a student completes their course. One UK university has been considering offering to maintain the portfolio as a paid-for Alumni service.

In other cases e-portfolios are being provided on an inter-institutional basis by local government bodies or by organisations responsible for career planning. This may offer more continuity of data and services, but may still be problematic if a user leaves the area or wishes to export the data for use in another e-Portfolio application.

The widespread use of social networking sites poses yet more issues. Many younger learners may be committing much of their creative work to such sites motivated by the range of tools for creating and remixing and because of the social environment. In some cases it may be possible to link such data within an e-Portfolio e.g. photographs from Flickr. To a considerable extent, this depends on the openness and business model of social network service providers. Whilst Yahoo, who own Flickr, provide an open Application Protocol Interface (API), other providers such as MySpace do not make such a service available. Technology developer Marcus Povey suggests MySpace's entire business model is based around not letting third parties interface with it.

There is also a question of ownership within institutionally provided e-Portfolios. Earlier assessment oriented portfolios were essentially institutionally owned with considerable restraint on what learners could do in such an environment. Often this was limited to the posting of evidence of achievement towards course objectives and outcomes. Furthermore there were constraints on what forms of evidence and context of learning could be entered in such a portfolio. More recently, there has been a growing appreciation that to be effective, learners need ownership of the portfolio. This has included giving access controls to the learner, often at a fine-grained level (see for example the ELGG Edu Spaces application). A number of universities, including Brighton, Warwick and Leeds Metropolitan University in the UK and Linz University in Austria have offered access to social software to all students and have encouraged students to use this space for recording all of their achievements, regardless of the context of learning.

However, in reality, ownership is a complex issue. In a paper presented at the e-Portfolio conference in Cambridge in 2005 (Attwell, 2005), I attempted to distinguish between the different process in e-Portfolio development and then examined the issue of ownership for each of these processes.



Figure 1 – e-Portfolios and ownership

Whilst the processes of recognizing, reflecting and presenting learning are clearly owned by the learner, planning, validating, assessing and recording learning may better be seen as a partnership between the learner and teachers, mentors and institutions. Finally the processes of moderating, accrediting and certifying learning are owned by the education and training systems and accreditation providers. In this way e-Portfolios may be seen as a tool for mediation between learner driven learning and the external world in the form of institutions and qualification systems.

3.3 Access to e-Portfolios – who is an e-portfolio for?

Linked to the question of ownership is the issue of access. Who should be able to access an e-Portfolio? As part of a European project I visited a secondary school in England in January which is providing and supporting an e-Portfolio for a considerable number of students and are aiming to provide an e-Portfolio for every student. The e-Portfolio has a high profile in the school. Students appear to have taken ownership of the e-Portfolio, and although there are differences between individuals, are investing some time and effort in the design and maintenance of their e-Portfolio.

The school uses a proprietary system accessed through the school local area network. There is not an opportunity to share the portfolio with anyone else. I talked about this to one student who was obviously (rightly) very proud of her portfolio. She told me she updates in several times a week in the lunchtimes. She said her mum and dad had seen it and she thought some of her teachers looked at it she got little feedback apart from the teacher responsible for developing the e-Portfolio programme. She had tried showing it to her friends but this was difficult. The lack of peer group (or wider) access to the portfolios was not only resulting in the lack of feedback for the students but was conversely resulting in a lot of work for teachers in trying to make up for the lack of peer group interaction. Peer group feedback probably forms the main basis for reflection (see below). We have tended to think of reflection as an internal process but reflection may be far more powerful when considering another person's view of our work.

Schools, especially, may be concerned about user safety and the data security issues involved in open web access. But, if learners are to develop the competences for safe internet access then this could form a natural part of them deciding to whom and for what purposes they wish to share items from their e-Portfolio. A recently released e-portfolio application, Mahara, has at its centre a function called views, which allows users to create multiple views of evidence and artifacts from their portfolio, including blog posts and provides fine grained controls for who is able to access those views. Such a process not only facilitates reflection through sharing and commentary, but also encourages learners to consider the content and purpose of the portfolio process.

3Content and curriculum

Content and curriculum issues tend to be dealt with separately when discussing e-portfolios. I believe they are interlinked.

Firstly there is the issue – already discussed in this paper – of whether e-Portfolio content should be restricted to that related to formal course objectives and outcomes or whether learners should be encouraged to include wider content drawn from both formal and informal learning – or indeed the fuzzy interface between the two – and from wider contexts for learning including personal and social activities and form work. Of course, if e-Portfolio provision is extended to those not enrolled in formal education programmes or is used for Continuing Professional Development, it is likely that work and personal learning will comprise the bulk of an e-Portfolio.

The issue of selecting what to show in an e-Portfolio can be largely overcome if the system provides tools to select material for specific presentation. Not only does this facilitate different presentations for different purposes – just as when submitting a CV for a job application or for entry to a course we re-purpose or re-present the materials to suit the particular post or course we are applying for – but the process of selection itself is an act of reflection on achievements and learning.

For those developing an e-Portfolio within the context of an institution there would seem to be some major issues concerning whether the portfolio is based on the entire curriculum, is based on a subject or project – or indeed is additional to the curriculum. In the school I visited in England the portfolios had been introduced essentially for careers planning with the support of the IT department. This had two consequences. Firstly they were not linked to the ‘normal’ subject lessons. Neither were they focused on reflection on informal learning from outside the school – although hobbies were included in so far as they were relevant for the careers planning. Secondly, the e-Portfolio was largely a presentation portfolio – there was little functionality to make a selected presentation and students tended to see them as the finished goods. Given the lack of links to subject based learning, some of the students – and probably teachers – failed to see any great value, especially as the University entrance authorities do not presently accept e-Portfolios and there is as yet limited awareness amongst employers of the potential of e-Portfolios for employee recruitment.

However, there is also some evidence that more focused pedagogic development is possible through an e-Portfolio related to particular curriculum areas – such as the innovative use of blogs within English language and creative writing courses. Equally, e-Portfolios have been used as a tool for motivation with socially disadvantaged learners undertaking vocational project work (Attwell and Brandsma, 2006)

3.4 Facilitating Reflection

In projects and at conferences about e-portfolios, at some point the discussion seems always to turn to the issue of how to facilitate meaningful reflection.

Typical is the following blog entry by a teacher, John Pallister (2007a).

“We have begun work trying to encourage our students, 11- 18 year olds, to reflect on their learning and achievements. We are also encouraging them to record their thoughts and reflections as part of the review/reflection process. The review stage is informing the Action Planning stage, which again we are trying to get students to record.

It seems to me to be a Logical process, having done something, to review what you have done then to revise your original plan or create a new plan.

Early attempts have focussed on printed materials providing students with a number of prompts/questions which focus students on the review process. We have experimented with text based and audio/video formats for recording reviews/reflections. Early stages, not managed to find much help in terms of approaches that help/encourage/support students to reflect and record their reflections - still looking??

Although I am sure that having done something, all students will informally think or form some personal evaluation of their performance, I suspect that the review/reflection is at a very superficial level, perhaps enjoyed it, not going to do that again, did not do that very well, too difficult etc. If students walk away only having reflected at this level they will not have made the most of the learning opportunity.

The challenge is to somehow encourage students to spend more time on this reflection stage, exploring more what they have done/achieved. I suspect that this would help them to design more useful plans and, by thinking about their learning, become that elusive better learner.”

The problem may be that to move beyond the superficial requires intrinsic motivation. As such it is not possible to ‘teach’ someone how to reflect. However, it is possible provide learners with the skills required for reflection and to practice those skills and equally to provide a stimulus to encourage reflection (Buchberger, 2007)

Buchberger goes on to say: “I have my doubts about the usefulness of written reflection following certain prompts or guiding questions. We have been ‘forcing’ our teacher trainees to hand in written reflections on their performance in class each semester, which hasn't proved very successful. It's turned out to make much more sense if trainees, their mentors and the teaching practice supervisor (what a terrible word !) meet after class and in a very relaxed atmosphere analyse the lessons as "critical friends" (with a strong focus on friend !!). This is what we do regularly and trainees find it much more helpful than their written reflection papers. Perhaps - from time to time - a few notes summarizing such a talk might be a reminder and starting point for further student reflection. But again it should make sense for the student, not just to satisfy the teacher/trainer.

Stephen Warbuton (2007) attended a presentation given by a group at the University of the Pacific on ‘Dialogical Reflection in the Digital Age’. “Like many educators”, he says, “Jim Phillips and Erick Marmolejo, grappled with the nature of reflection – a term that often eludes definition. Their use of what they called ‘dialogic reflection’ was focussed around reflective activities based on a play between the academic vs. professional portfolios, the production of artefacts and samples accompanied by reflective statement with a summative assessment process slotted in right at the end. They identified general problems with the reflective process when situated within an educational context in that opinion-laden task lists do not get at the heart of the strength of reflection, feedback loops can be slow and not enough time is allocated to reflection which results in very little reflective speak (there is only play around reflective dialogue). As Kathleen Yancey points out in her book “Reflection in the writing classroom” - reflection is always a fiction where students write specifically to the needs of the tutor.

The key philosophy behind their methodology to reinvigorate the process of reflection lies in pushing tutors to unlearn traditional approaches to writing instruction paralleled with the use of reflection as a means to individualise instruction and personalise learning. “

Jenny Hughes has adopted a similar approach. In a video of a workshop she takes a group of adult learners through a process of providing constructive feedback to each other. Indeed, it is quite remarkable that adult teachers are not used to this process (Hughes, 2007). Her key point is that there are forms and structure and skills of providing feedback and in a similar way forms and structure to reflection. For learners these skills include:

- Forming an opinion
- Expressing an opinion
- Articulating an opinion
- Justifying an opinion
- Defending an opinion
- Supporting opinions of others
- Challenging others' opinions
- Questioning others
- Seeking clarification
- Representing others' opinions
- Building on others' opinions
- Sorting fact from opinion

Each of these processes can be structured and supported within the e-portfolio development process. However, they also require skills on the part of the teacher or facilitator. These might include:

- Facilitator skills
- Active listening skills
- Feedback skills
- Intervention skills
- Evaluation skills

Yet the practising of such skills or competencies or the embedding of such practice within everyday learning activities has implications for both pedagogic approaches to teaching and learning and to curriculum design and organisation. Facilitating reflection is not simple within a largely 'input based' curriculum where the main goal is to pass a series of prescribed examinations. The danger is that reflection is simply seen as irrelevant to the qualification driven motivation of many students within their school based learning (as opposed to outside school). Case studies undertaken through the MOSEP project suggest that development of reflection through e-Portfolios may work best in project-based learning and when reflection is linked to activities. It is interesting that in the Kit Car project case study (Attwell and Brandsma, 2006), the project was developed as an extra curriculum project and was not subject to the normal confines of curriculum and assessment rules.

It may also be that reflection is constrained by the dominant written form of evidencing within e-Portfolios. The widespread use of multi media is a feature of many of the social networking sites referred to earlier. Yet despite some attempts to encourage more use of multi media, most e-Portfolios remain text based, probably once more due to the demands of assessment policies. The issue of assessment will be explored further in the next section.

4Assessment: a barrier to the development of e-Portfolios?

The main argument of this paper is that the development and implementation of e-Portfolios reflects an engagement by the education and training systems and institutions with changing demands for education through society and with changing forms of learning reflected through the use of social software. At the same time the effective use of e-Portfolios implies and requires on-going change in pedagogic and institutional practice and organisation. Nowhere is this so well seen as in the area of assessment

Ben Werdmuller and Dave Tosh (2005) have said: “Already within some sectors it seems the term e-portfolio has become synonymous with another learning hurdle for students and staff to overcome. Many institutions view the e- portfolio as a replacement for traditional high stake assessment, the object of the exercise being coverage of all standards and criteria. Looking at a Penn State University study we can see forty-four percent of students say they will not use the e-portfolio once they have finished the course to which the e-portfolio related and the rest say they ‘were likely to do so’. This is a problem: if the e-portfolio is a course requirement and the motivation for use is because it is mandatory, how do you maintain learner motivation once the course has expired? “

That concern is echoed by Helen Barret and Joanne Carney (2005). “When portfolios are used for accountability purposes, to document pre-service teachers’ achievement of standards-based competencies, teacher candidates viewed their portfolios as a hoop they needed to jump through to graduate, and not the lifelong reflective tool that had been envisioned.”

They go on to ask: “In the name of assessment (i.e. accountability) are we losing a powerful tool to support deep learning? Are we losing the ‘stories’ in e-portfolios in favor of a skills checklist?”

Rick Stiggins (2004) distinguishes between the assessment of learning and assessment for learning. The assessment of learning seeks to discover how much have students learned as of a particular point in time. Assessment for learning asks how can we use assessment to help students learn more.

The Assessment Reform Group (2002) defines assessment for learning as “the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there.”

Assessment for learning is:

- “Purpose prescribed
- Artifacts mandated - scoring for external use
- Organized by teacher
- Summative (past to present)
- Institution-centered
- Requires extrinsic motivation”

In contrast assessment for learning is:

- “Purpose negotiated

- Artifacts chosen - feedback to learner
- Organized by learner
- Formative (present to future)
- Student-centered
- Intrinsically motivating”

An important development in education in the past period has been the translation of qualifications into outcomes and competences. It is beyond the scope of this paper to explore the full implications of these developments or to go into the discussion over what exactly competence is. From the point of view of the e-Portfolio, the importance lies in the separation of the outcomes which form a qualification from the learning programme which develops competence for such outcomes. This means that learners are no longer necessarily locked in to a particular course in order to gain a qualification but are able to present their learning to prove they possess such competencies or are able to achieve those outcomes. This means that learners could select evidence and artefacts from the e-Portfolio for presentation for qualification purposes.

Scott Wilson (2005) makes a useful distinction between evidencing and verifying competences. Evidencing, he says, is the process of selecting and presenting artefacts to show competence. Verifying is the process of producing external evidence to validate achievement.

Assessment and portfolios is not just an issue of the form of the assessment but also the assessment process. It has already been noted that assessment is often text based and this may be a barrier to the development of e-Portfolios. Furthermore, assessment is usually based on individual achievement. This is a substantial barrier to collaboration, reflection and feedback and to project based group work.

Yet there is no intrinsic barrier to the development of wider and more imaginative processes of assessment including self-assessment and peer group assessment. Most German university degree assessment already includes a verbal presentation; and some courses include the submission of video assignments.

To some extent, the development of wider forms of assessment in e-Portfolios has been inhibited by fears over plagiarism. Whilst not wishing to downplay the problem, this does appear to have the character of a ‘moral panic’. When I was undertaking my initial degree, in Wales in the 1970s, it was perfectly possible to buy an essay or to commission others to produce one. The internet has merely changed and globalised the means of distribution. Indeed, the use of the internet, through such services as the JISC plagiarism service, has probably led to more awareness of the issue.

The dangers of plagiarism are greatly reduced where students are set authentic work assignments evaluated through authentic assessment. Fundamental to authentic assessment in educational theory is the principle that learners should demonstrate, rather than tell about, what they know and can do (Cole, Ryan, and Kick, 1995). Documenting progress toward higher order goals such as application of skills and synthesis of experience requires evidence beyond what can be provided by standardized or norm-based tests. In authentic assessment, information or data is collected from various sources, through multiple methods, and over multiple points in time (Shaklee, Barbour, Ambrose, and Hansford, 1997). Portfolio content can include drawings, photos, video or audio tapes, writing or other work samples, computer disks, and copies of standardized or program-specific tests. Data sources can include parents, staff, and other community members who know the participants or program, as well as the self-reflections of participants themselves.

Sewell, Marczak and Horn (undated) see the following advantages of an e-Portfolio for authentic

assessment. An e-Portfolio:

- Allows the evaluators to see the student, group, or community as individual, each unique with its own characteristics, needs, and strengths.
- Serves as a cross-section lens, providing a basis for future analysis and planning. By viewing the total pattern of the community or of individual participants, one can identify areas of strengths and weaknesses, and barriers to success.
- Serves as a concrete vehicle for communication, providing ongoing communication or exchanges of information among those involved.
- Promotes a shift in ownership; communities and participants can take an active role in examining where they have been and where they want to go.
- Portfolio assessment offers the possibility of addressing shortcomings of traditional assessment. It offers the possibility of assessing the more complex and important aspects of an area or topic.
- Covers a broad scope of knowledge and information, from many different people who know the program or person in different contexts (e.g., participants, parents, teachers or staff, peers, or community leaders).

e-Portfolios can be introduced outside the traditional assessment system and many learners, especially those undertaking Continuing Professional Development, will have no requirements for assessment, at least in the traditional sense. However, if e-Portfolios are to be introduced within the educational curriculum, it makes little sense to decouple the portfolio from the assessment process. But at the same time, effective pedagogic processes for the development and support of e-Portfolios requires wider forms and processes of assessment than are presently common.

4. Towards the future: from e-Portfolios to Personal Learning Environments and dynamic personalisation

In this paper I have talked little about e-Portfolio platforms and applications. This is because I regard the development of e-Portfolios as primarily a pedagogic process. But, of course, all educational software has a pedagogic meaning, whether explicit or implied. All applications can either facilitate or inhibit particular approaches to learning. Thus choices in platforms and applications are dependent on the pedagogic approach to e-portfolio development.

The present discussions in the educational technology community over Personal Learning Environments (PLEs) are useful from the point of future e-Portfolio development. In a recent conversation with Serge Ravet, director of the European Institute for E-Learning (EIFEL), Serge described e-Portfolios as “the DNA of the Personal Learning Environment”. I would see e-portfolios and PLEs as being on a developmental continuum, both technically and pedagogically.

It is critical that PLEs are being seen as not just a new application of educational technology, but rather as a concept. The development of Personal Learning Environments represents a significant shift in pedagogic approaches to how we support learning processes.

This means a move from seeking to use technology manage learning to encouraging and facilitating wider social learning processes, encouraging and valuing both informal and formal learning and recognising the different contexts in which learning takes place (Attwell, forthcoming)

Central to such an understanding is placing control of learning in the hands of learners

themselves and providing learners with the skills and competences to manage their own learning.

Josie Fraser (2007), writing about the personalisation of learning talks of the move from adaptive personalisation to customisation to dynamic personalisation. Dynamic personalisation involves the institution engaging with the learner, rather than the learner engaging with institutional provision. "Production, reception and relationships are supported by the system but determined by the user – the ability to create original or derivative works, to collaborate, form networks and connections via the users choice of applications, locations, platforms." She goes on to say 'Learning Management Systems, as they currently stand, can deliver two elements of personalisation – they deal well with delivering, monitoring and recording institutional provision and procedure, although you'd have to argue out on the ground how well they cope with the customisation. Web2 apps offer a quick solution to the far more difficult issue of how institutions might engage with and support student-led participation."

The idea behind the e-Portfolio is that students should be able to use their own tools for learning. John Pallister (2007b) has written: "The e-portfolio tools that students will use will be those that are easy for them to use and that will let them use the media and communications methods that they are using in their everyday (out of school?) lives. The tool must motivate the student. The tool must have an interface and features that motivates the students, it must have something that makes them want to use the tool for their own enjoyment."

I have already written about the use of multimedia within e-Portfolios and there are a number of developments connecting to e-Portfolios through mobile devices. As Stephen Downes (2006) says "we have developed tools and systems intended to support traditional classroom learning... we could (should?) be developing tools and systems to support immersive learning" Immersive learning implies the use of multiple and more natural interfaces with the e-Portfolio than present keyboard driven inputs.

Such developments may be some time off. But already I am talking with a Swedish vocational school about the development of a CAD/CAM interface to SecondLife to allow craft apprentices to develop and view their e-Portfolio in a collaborative 3D environment.

The move to dynamic participation through engagement with learners implies significant changes in the role of educational institutions. However, it is not to say that institutions and teachers have a lesser role to play. Institutions will continue to be important in providing access to expertise and to structured bodies of knowledge as well as to qualifications. However, it is important that institutions understand they no longer have a monopoly on knowledge which is distributed through different communities of practice. Teachers will play a critical role in guiding and facilitating learning processes.

Educational technologists will have a difficult role in supporting the different (social software) applications which learners and teachers may choose to use for developing and sharing knowledge and there may have to be a rethinking of the role of institutions as technology providers. A critical issue will be responsibility for data. Ultimately, learners will have to take responsibility for their own data and will need education and help in assuming this role.

The development and implementation of e-Portfolios represents a significant move towards such a new organisation of education. Ultimately the real potential for e-Portfolios is in the widening contexts in which learning is taking place - or is recognised to be taking place - and in the ability to bring together personal learning gained in multiple contexts'.

References

- Assessment Reform Group (2002) The Assessment for Learning framework, <http://www.qca.org.uk/14-19/11-16-schools/downloads/AltProvisionAtKS4-Appendix-H.pdf>, assessed 14 May 2007
- Attwell, G. (2005): Recognising Learning: Educational and pedagogic issues in e-Portfolios. http://www.knownet.com/writing/weblogs/Graham_Attwell/entries/5565143946/7575578504/attach/graham_cambridge.pdf, assessed 14 May 2007
- Attwell G., (2006) E-Learning und die sociale Gestaltung mder Technik, in Bittingmayer U & Bauer U (eds), Die Wissensgesellschaft, Mythos, Ideologie oder Realitat, VS Verlag fur Sozialwissenschaften, Wiesbaden
- Attwell G.and Brandsma J.(forthcoming), the Kit car project – South Cheshire College, Crewe, case study produced for the MOSEP project, <http://www.mosep.org>
- Attwell G.(ed) 2007, Searching, Lurking and the Zone of Proximal Development, e-learning in Small and Medium enterprises in Europe, Vienna, Navreme
- Attwell G.(forthcoming), Personal Learning Environments for creating, consuming, remixing and sharing in Proceedings of the TENCompetence Open Workshop in Manchester, January 2007
- Barrett, H. (2004), Portfolio Development Competencies, <http://electronicportfolios.com/teachers/competencies.html>, accessed January 30, 2007
- Barret, H., Carney, J. (2005) Conflicting Paradigms and Competing Purposes in Electronic Portfolio Development, <http://electronicportfolios.org/portfolios/LEAJournal-BarrettCarney.pdf>, assessed 14 May 2007
- BBC (2005) US youths use internet to create, <http://news.bbc.co.uk/2/hi/technology/4403574.stm>, 4 November 2005, accessed 20 April 2007
- Bebo (2007) <http://www.bebo.com/Profile.jsp?MID=367137231&MemberId=3400373057>, assessed 14 May 2007
- Buchberger G (2007) Comment on Pallister J. (2007a) Reflection and recording reflection, <http://mosep.elggspaces.com/jpallister/weblog/10.html>, assessed 14 May 2007
- Cole, D. J., Ryan, C. W., & Kick, F. (1995). Portfolios across the curriculum and beyond. Thousand Oaks, CA: Corwin Press.
- Cross J, (2006) What is informal learning?, <http://informl.com/?p=551>, accessed January 22, 2007
- Downes S. (2006) Understanding Learning Networks, <http://www.slideshare.net/Downes/understanding-learning-networks>, assessed 14 May 2007
- Franklin T (2007) Web 2.0 in learning and teaching, <http://www.slideshare.net/markvanharmelen/web-2o-and-learning-and-teaching/download>, accessed 13 May 2007
- Fraser J (2007) Open Complimenting Closed?, <http://eduspaces.net/josiefraser/weblog/169960.html>, assessed 14 May 2007
- Hughes J. (200&), Giving Feedback, <http://video.google.com/videoplay?docid=-3043027997243055368>, accessed 14 May 2007
- Lenhart A and Madden M, (2005) Teen Content Creators and Consumers, Pew Internet, http://www.pewinternet.org/pdfs/PIP_Teens_Content_Creation.pdf, accessed 21 April 2007

- McIntosh, 2007 41 minutes per day,
http://edu.blogs.com/edublogs/2007/05/41_minutes_per_.html accessed 13 May 2007
- Pallister J. (2007a) Reflection and recording reflection,
<http://mosep.elggspaces.com/jpallister/weblog/10.html>, assessed 14 May 2007
- Pallister J. (2007b) MOSEP visit, <http://mosep.elggspaces.com/jpallister/weblog/8.html>, BBC (2005) US youths use internet to create,
<http://news.bbc.co.uk/2/hi/technology/4403574.stm>, 4 November 2005, accessed 20 April 2007
- Seely Brown J. (1999) Learning, Working & Playing in the Digital Age: Creating Learning Ecologies, Transcription of a talk by Brown at the 1999 Conference on Higher Education of the American Association for Higher Education. http://serendip.brynmawr.edu/sci_edu/seelybrown/, accessed 25 July, 2004
- Meg Sewell, Mary Marczak, & Melanie Horn (undated), The use of portfolio in assessment in evaluation, <http://ag.arizona.edu/fcs/cyfernet/cyfar/Portfo~3.htm>, BBC (2005) US youths use internet to create, <http://news.bbc.co.uk/2/hi/technology/4403574.stm>, 4 November 2005, accessed 20 April 2007
- Sessums C (2007) Learning Technologies, Teacher Education, and Social Media,
<http://eduspaces.net/cssessums/weblog/169433.html>, BBC (2005) US youths use internet to create, <http://news.bbc.co.uk/2/hi/technology/4403574.stm>, 4 November 2005, accessed 20 April 2007
- Shaklee, B. D., Barbour, N. E., Ambrose, R., & Hansford, S. J. (1997). Designing and using portfolios. Boston: Allyn and Bacon.
- Sierra K, (2006), mosh Pit as Innovation Model,
http://headrush.typepad.com/creating_passionate_users/2006/06/mosh_pit_as_inn.html, BBC (2005) US youths use internet to create,
<http://news.bbc.co.uk/2/hi/technology/4403574.stm>, 4 November 2005, accessed 20 April 2007
- Stiggins R, (2004) Student-Involved Assessment For Learning, Prentice Hall
- Tosh and wermullet **Creation of a learning landscape: weblogging and social networking in the context of e-portfolios** http://eduspaces.net/dtosh/files/7371/16865/Learning_landscape.pdf, BBC (2005) US youths use internet to create,
<http://news.bbc.co.uk/2/hi/technology/4403574.stm>, 4 November 2005, accessed 20 April 2007
- Sierra K (2006) Mosh Pit as Innovation Model,
 2007http://headrush.typepad.com/creating_passionate_users/2006/06/mosh_pit_as_inn.html, accessed 13 May 2007
- Warburton S (2007) Dialogical reflection in the digital age,
<http://www.warburton.typepad.com/disruptive/eli2007/>, BBC (2005) US youths use internet to create, <http://news.bbc.co.uk/2/hi/technology/4403574.stm>, 4 November 2005, accessed 20 April 2007
- Wilson, S. (2005), e-Portfolios, <http://www.flickr.com/photos/vanishing/sets/370240/>, accessed 20 September, 2005