

Distributed e-learning tools, Final Report

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| Name of lead institution/organisation Oxford Brookes University |
| Original project name (include the names of all projects collaborating on the proposed work) myWORLD and Petal2 |
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| Web addresses of all project website(s) http://www.brookes.ac.uk/research/odl/petal/petal_home.html http://petal.k-int.com http://my-world.typepad.com/my_weblog/ |
| Partnerships and domains of application In this family of projects we set out to adapt, implement and trial the Open Source Portfolio (OSP) in a range of post compulsory educational contexts: <ul style="list-style-type: none"> • Higher Education, Oxford Brookes University, Health and Social Care: “Fit for Practice” – E-portfolios as tools in competency assessment for future social workers, University of Brighton, Arts and Music Degree • Further Education: Abingdon and Witney College, tutorial process on an Access to HE course; Plumpton College, Wine Studies, Mature students HND – BA/Sc level; Sussex Downs College, HND applied multimedia • Adult Community Education: Community University Partnership Project (CUPP), Refugees – Variety of literacy levels plus ESOL; CUPP, Community Arts – Entry level literacy; Oxon CLSU – CV creator for employability • Professional Institutes: CILIP, e-portfolios for practical use by a professional body; CMI, e-portfolio for Chartered Professionals; CIPD: e-Portfolio alternative to CV; ALT: Learning Technology Professionals accreditation programme. |
| Aims <ul style="list-style-type: none"> • to develop a stable installation configuration of the OSP e-Portfolio tool and pilot this installation on at least four servers • to enable localisation of the user interface and underlying data hierarchy • to conduct 10 case studies across Southern Britain working with up to 100 end users and to evaluate these use cases and their impact on learners and institutions • to enrich the e-portfolio building experience for the learner by integrating a Web Services interface into the Open Source Portfolio (OSP)-based Petal service |
| Findings We found PETAL/OSP has great potential as an institutional e-portfolio but must, critically, be more adaptable to the user’s skill, confidence and reading level/ability, among other things. OSP1.5 was not good enough. Therefore, we recommend waiting for 2.1 on Sakai. However, that is best suited for institutions with high IT readiness factors. We advise developing “simple” appropriate technology solutions in parallel for smaller institutions, e.g. php “CV Builder” as a Moodle activity to be run in a Moodle module. |



DRAFT Final Report

Wider Opportunities for Reflection, Learning and Development (myWORLD)

Personal e-Portfolios for Teaching and Learning 2 (Petal 2)

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Acknowledgements

The project is funded by the JISC Distributed e-Learning Tools Programme. I would like to thank the Programme Managers, Sarah Davies and Maia Dimitrova for their patience, support and understanding, the Programme Director, Paul Bailey, and Bill Olivier, JISC Programme Director (Systems and Technology). There are many other people and organisations who contributed to this project directly and indirectly. I would particularly draw attention to the support that all the CETIS special interest groups provide to development projects and to the domain-specific expertise provided by the e-Portfolio SIG and the Centre for Recording Achievement. The Association for Learning Technology, as well as being a project partner must be acknowledged for being both an inspiration for the original Petal Project as well as for running the ALT-C conference through which so much of the JISC's work is shared.



Authorship

This report has been compiled from project papers and reports produced over the past year. As well as my work it incorporates significant pieces supplied by:

- Stan Stanier
- Neil Smith
- Peter Rainger
- Alistair McNaught
- Ellen Lessner

Without their generous and expert contributions this report would not have been possible. The final responsibility must lie with me for errors, omissions and mis-interpretations. Thank you all.

George Roberts
Project Manager

Executive Summary

my WORLD and Petal 2 emerged from the JISC Distributed e-Learning Tools (DeL Tools) project known as Petal. In this family of projects we set out to adapt, implement and trial the Open Source Portfolio (OSP) in a range of post compulsory educational contexts:

- Higher Education, Oxford Brookes University, Health and Social Care: “Fit for Practice” – E-portfolios as tools in competency assessment for future social workers, University of Brighton, Arts and Music Degree
- Further Education: Abingdon and Witney College, tutorial process on an Access to HE course; Plumpton College, Wine Studies, Mature students HND – BA/Sc level; Sussex Downs College, HND applied multimedia
- Adult Community Education: Community University Partnership Project (CUPP), Refugees – Variety of literacy levels plus ESOL; CUPP, Community Arts – Entry level literacy; Oxon CLSU – CV creator for employability
- Professional Institutes: CILIP, e-portfolios for practical use by a professional body; CMI, e-portfolio for Chartered Professionals; CIPD: e-Portfolio alternative to CV; ALT: Learning Technology Professionals accreditation programme.

We aimed:

- to develop a stable installation configuration of the OSP e-Portfolio tool and pilot this installation on at least four servers
- to enable localisation of the user interface and underlying data hierarchy
- to conduct 10 case studies across Southern Britain working with up to 100 end users and to evaluate these use cases and their impact on learners and institutions
- to enrich the e-portfolio building experience for the learner by integrating a Web Services interface into the Open Source Portfolio (OSP)-based Petal service.

We hit a messy world where theories have not yet emerged, tightly coded, where conflicts of interest abound and where there is always more that could be done. e-Portfolios are being introduced into a climate of rapid innovation. The introduction of many new technologies leaves any one of them competing for limited learner and teacher time and tolerance.

Project issues

This was a complex project. the “vision” was fragmented across sites. None the less, learners in community, further and higher education, and professional institute contexts were introduced to and in some cases used e-portfolio and personal development planning systems based on and derived from OSP to prepare CVs an e-portfolio collections.

We learned that pilot projects are hard and people are the key. It is an important point of principle that portfolio outcomes belong first to the people who compile them. Although not always obvious, the compiling, keeping and using a portfolio is a community activity. It follows that it is necessary for project teams to participate in the life of the community within which portfolios are being used in order that there be meaningful learner progression.

OSP issues

Although the software is open source, the configuration, systems admin and web deployment skills needed to build out the components were not as widely available as we had hoped. There were parts of the OSPv1.5 application that did not work well, particularly the “publish hierarchy” function. And, OSPv1.5’s pedagogical assumptions served to narrow the field of applicability considerably. The interface, without intending to, alienated many users outside the higher education sector, and outside the more discursive fields. Interface design has too long been left too late in the development cycle.

We found PETAL/OSP has great potential as an institutional e-portfolio but must, critically, be more adaptable to the user’s skill, confidence and (digital/academic) literacy level/ability, among other things. OSPv1.5 waqs not good enough. We recommend waiting for 2.2.1 on Sakai. However, that may be best suited to larger institutions with high IT readiness factors. We are investigating ASP, facilitated models of use for smaller institutions. We also advise developing “simple” appropriate

technology solutions in parallel, e.g. php “CV Builder” as a Moodle activity; experiment with many social softwares, repositories, collaboration tools, webtops, environments.

DRAFT Final Report

Wider Opportunities for Reflection, Learning and Development (myWORLD)

Personal e-Portfolios for Teaching and Learning 2 (Petal 2)

Background

myWORLD emerged from the JISC Distributed e-Learning (DeL) Tools Project, Personal ePortfolios for Teaching and Learning (Petal) project. The Petal Project took the Open Source Portfolio Initiative (OSPI) application OSPI 1.5 and adapted this application for use in UK post-compulsory education.

Key features of the first Petal project were:

- to support learner-centred, reflective and dialogic learning practice
- the project was based on existing partnerships for lifelong learning and widening participation.
- the project was situated within the ePortfolio node of the JISC e-Learning Framework (ELF)
- the project extended and built on learning domain services and common services tools and systems for personal development planning (PDP).

The family of projects, Petal, myWORLD and Petal 2 set out to adapt, implement and trial the Open Source Portfolio (OSP) in a range of post compulsory educational contexts: HE, FE, adult community education and professional institutes.

Pedagogically e-portfolios are being introduced into a climate of rapid innovation. The introduction of many new technologies leaves any one of them competing for limited learner and teacher time and tolerance. In some communities (art and design) the keeping of portfolios is widespread, but the practice of reflective learning is novel. In other communities (nursing and social care) the practice of reflective learning is familiar, as is the keeping of paper diaries, but the use of ICT in teaching and learning may be novel. For adults returning to learn the keeping of portfolios, reflection and the use of ICT in education may all be novel. In continuing professional development contexts, while the use of desktop productivity tools (word processing, spreadsheets, planners and e-mail) is common, the linking of these to learning and reflection is novel. In the event we were able to implement the software in fewer sites than originally hoped.

Aims and Objectives

Through myWORLD, we aimed

- to develop a stable installation configuration of the OSP ePortfolio tool and pilot this installation on at least four servers
- to enable localisation of the user interface and underlying data hierarchy
- to conduct 10 case studies across Southern Britain working with up to 100 end users and to evaluate these use cases and their impact on learners and institutions
- to enrich the eportfolio building experience for the learner by integrating a Web Services for Reflective Learning (WS4RL) interface into the Open Source Portfolio (OSP)-based Petal.

Methodology

There were two aspects to the project:

- software development
- user trials.

The project was based on the assumption that the Open Source Portfolio (OSP) would be “useable out of the box”.

The premise offered by OSPv1.5 is that the underlying database hierarchy of categories and elements into which a person can enter data for their portfolio is easy to edit. While there is some literal truth to

this premise, in practice, because of the necessary link between data input and output, and the difficulty of editing output templates based on the hierarchy, while theoretically easy to change the data structure it was not easy to do anything with the changed structure (see below ...).

The basic pattern repeated twice so far (with at least one further iteration to go) was:

1. take the current OSP tools, make a local instance
2. trial with users/requirements gathering
3. based on initial user experience, update and refine
4. install updated software
5. re-trial and re-gather new requirements

Petal 1 went through three iterations of the cycle with OSPv1.5, adapting the tool to serve the need of ALT's Certified Member of ALT scheme (CMALT):

1. Initial installation
2. Evaluation and modelling by Richard Francis and Fawei Geng of Brookes Media Workshop; initial requirements document
3. Adaptation of OSPv1.5 database structure and preparation of a CMALT hierarchy
4. Trials by 9 learning technologists applying for CMALT
5. Re-evaluation and development of improved user interface (UI) using a "tabbed" structure
6. Retrial and presentation of CMALT applications
7. Development of a scenario for use in a learning situation: course, personal development planning, job-seeking, etc

The main outputs of Petal 1 were:

- 7 scenarios of use
- a tabbed interface to OSPv1.5

myWORLD went through two iterations with a larger trial base.

1. Case Study leaders were provided with a "vanilla" OSPv1.5 based on the Petal 1 project software
2. Case study leaders were to evaluate and gather localisation requirements to adapt the database to the needs of their particular learning situation.
3. Localisation of the UI and hierarchy
4. Use with trial groups and gathering further requirements
5. Revision of User Interface and development of output templates

The main outputs of myWORLD were

- 10 scenarios of use
- greatly simplified UI and output template formatting

Petal 2 is currently managing the transition from OSPv1.5-based tools to OSPv2.1.x tools.

Project Partners

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|---|---|
| • Oxford Brookes University (Leader) | • University of Brighton |
| • Oxford University Computing Service | • Knowledge Integration Ltd (K-Int) |
| • Thames Valley Professional Institutes Partnership (TVPIP) | • The Association for Learning Technology (ALT) |
| • Abingdon Witney College | • Plumpton College |
| • Sussex Downs College | • Oxfordshire Community Learning Support Unit |
| • Kent PLPP project | |

Implementation

The project had two centres: Oxford Brookes University and the University of Brighton. Each centre was working with a group of established partners: FE colleges and community learning projects. Brookes was also working with representatives of local branches of professional institutes.

The two projects: myWORLD and Petal 2 were consolidated under a single steering group. Steering group meetings provided a useful forum for summary and review of progress to date.

I tried to divide responsibility for case study inception between key project staff. The original idea was that Stan Stannier, Project Manager at Brighton would take responsibility for inception of the Brighton area studies, while I would take charge of the Oxford area studies, with the support of Richard Francis, Head of Media Workshop.

All technical development work was undertaken by Knowledge Integration.

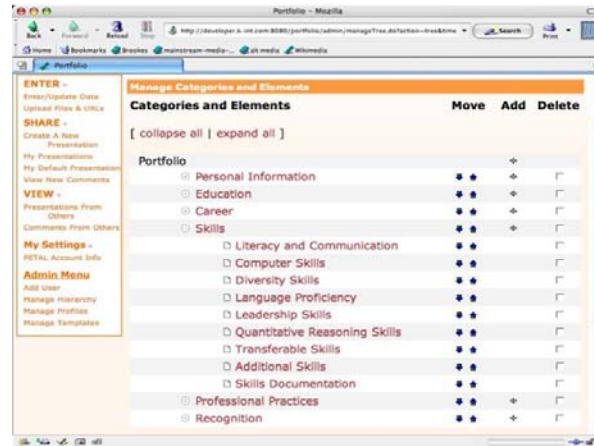
One issue became clear early on in the project, but was never really addressed until the end. While both Brookes and Brighton have well established local networks of partners, and communication channels in each local area were reasonably good, Brookes and Brighton themselves did not have a history of collaboration. Communications between me and Stan Stannier were not always as good as they could have been. I do not mean anything personal by this. We have a good, indeed enjoyable working relationship, but we needed to come to understand one another's local context and competing pressures as well as our individual modus operandi (not dissimilar!). In hindsight we should have formalised a weekly or fortnightly phonecall. As it was communication was more sporadic and ad hoc than would have been desirable. This probably meant that there was more slippage than there should have been. There was a tendency towards optimism on both my and Stan's parts, where "soon" and "tomorrow" indicated rather longer intervals than we wanted to believe.

In general, I fault myself for not visiting Brighton more often in the course of the project. On the other hand, it did prove very difficult to convene meetings in Brighton. Getting the key people from each case study together at one place and at one time was not easy. In retrospect I should have made stronger efforts to visit each study site individually, instead of trying to get them together. In defence of the approach, I did hope that a sense of community would emerge amongst all the case studies. In practice there was only a limited sense of a wider myWORLD community. Each case study ran more or less in isolation.

In Oxford, Richard Francis held inception workshops for Abingdon and Witney College, Professionals into Practice and CILIP. I held inception workshops for University of Brighton, Plumpton College, Sussex Downs College and the PLPP project in Canterbury. Stan maintained close contact with the CUPP studies and the Brighton Music and Visual Arts studies. I tried to keep contact with the professional institutes case studies, but in practice only really kept touch with ALT. The three case studies co-ordinated through the Thames Valley Professional Institutes Partnership were less well served by the project.

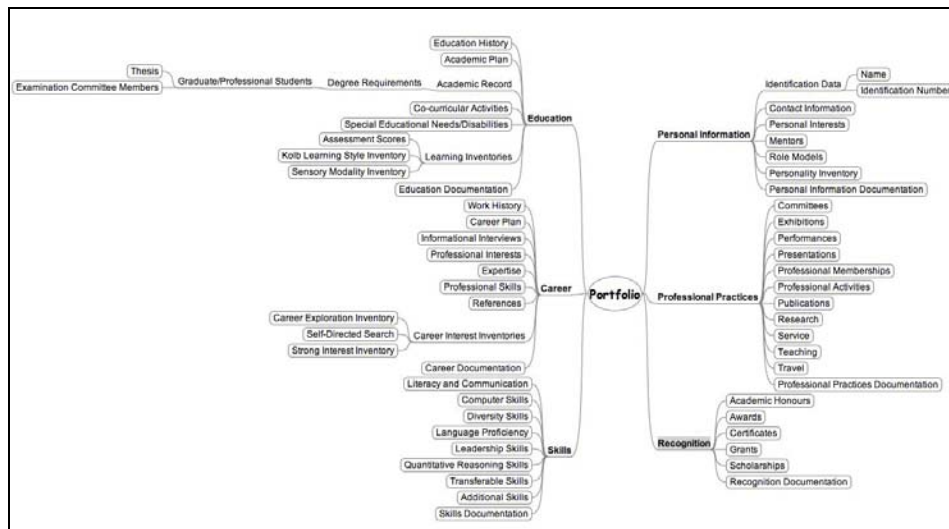
After brief initial familiarisation, case study leaders were asked to write a scenario of use using a template devised by Peter Reese Jones (see appendix and: http://www.jiscmail.ac.uk/cgi-bin/filearea.cgi?LMGT1=MYWORLD&X=&Y=&a=get&f=/PETAL_scenarios_template.doc and <http://www.jiscmail.ac.uk/cgi-bin/filearea.cgi?LMGT1=MYWORLD&X=&Y=&f=/Scenarios>).

Then they were asked to develop a hierarchy for the local implementation of the software. It was the development of the hierarchy that revealed the real difficulties that underlay the OSP tools.



Manage hierarchy facility: an easy web interface to move, add or delete elements in the database, promised great flexibility

The assumption made by the Open Source Portfolio initiative was that the OSP e-Portfolio could be used in any educational setting. It is intended to be a generic e-portfolio tool that is sufficiently flexible to allow customisation for any setting. Probing this through the case studies revealed problems in two dimension. The first was that, in spite of the claim to be generic, the hierarchy (base taxonomy) and consequent screen labeling and help text, out of the box, was firmly located in a US undergraduate context. It was not just a question of changing –or for –our spellings.



Petal/OSPv1.5 Base Taxonomy “out-of-the-box

A complete discourse analysis of the UI might reveal a lot about the attitudes and mores of US undergraduate education. Simply interpreting the hierarchy for use this side of the Atlantic was a significant job. Then, there was the implicit level of digital literacy expected of the end-user. The software grew up in the context of a large US university with a good reputation. As our case studies were predominantly outside the HE context we found that we had to adopt different tones in order to speak through the software to different user bases. For CMALT, “Generic, flexible, tools (like OSPI) require extensive configuration and “detuning” to ensure that they make sense, and are not distracting, to a user who is providing a narrowly defined set of evidence.” ALT, for example, chose to remove most of the hierarchy (correspondence with Seb Schmoller).

The second problematic dimension was that the hierarchy could only be edited by an administrative user. Unlike the growing number of social softwares (mySpace, Elgg, etc) where the user can enter

text freely and create user-defined “tags” OSP is explicit about the categorisation of data that can be entered. This gives OSP-derived tools a strong institutional feel about them. While we set off to develop “personal e-portfolios” we found ourselves developing “institutional e-portfolios”.

This has become a key part of one of the unanticipated learning outcomes: e-portfolios are a complex field of work. There are many kinds of eportfolio. The relationships between different types of e-portfolios are often difficult to negotiate.

Outputs and Results

Although our number of test sites grew from 10 to 13, only 4 case studies could be considered to have achieved most or all of our aims (Plumpton College, Abingdon and Witney College, ALT, University of Kent).

The project produced live websites for

- Abingdon and Witney College
- Plumpton College
- Association for Learning Technology
- University of Brighton

In addition the Petal software was implemented by the University of Kent, Canterbury in the context of the PLPP project.

A “showcase” site and a “demo” site are available for presentations and demonstrations at:

<http://petal.k-int.com/>

The project produced pilot, demonstrator, or draft sites for:

- CILIP
- Blackbird Leys
- Fit for Practice (Health and Social Care)
- CV Dynamic

Scenarios or hierarchies were produced for:

- Access to arts
- Professional Bodies
- Music and Visual Arts
- Foundation Degree (HND) in multimedia arts
- Brookes Certificate in Teaching in Higher Education.

In addition to these software outputs, the project produced many conference reports and dissemination activities. Over fifty dissemination activities are logged in the appendix.

There is a project blog that is continuing at http://my-world.typepad.com/my_weblog/.

Categorically we can identify process issues, OSP issues, project issues, local issues and accessibility issues.

Process Issues

There are three different abstractions that get blurred in e-portfolio systems design and implementation. If these three abstractions are given equal attention then interoperability and usability will be facilitated:

- pedagogical design
- domain knowledge representation
- system interoperability

The pedagogical design of the course, the lesson plans must include an introduction to the meaning of e-portfolios as well as to the software interface. The pedagogical design regardless of the domain content has to at least consider the rudiments of human-computer interaction. The e-portfolio has to

be relevant, useful and possibly assessed, in order to become embedded. The pedagogical design is to some extent distinct from the domain knowledge representation (epistemology) and its database (metadata, cataloguing system, course structure folder, activity network). Similarly the database design of the e-portfolio system is to some extent distinct from the system-to-system (predominantly xml) interoperability interface design.

OSP issues

OSP can be used to provide

- a learning or development tool for the learner
- a monitoring or assessment tool for institutions
- a mechanism to improve career prospects

OSP offers a structured environment for individuals

- to be arranged into groups with common resources
- to store digital files of any type
- share selected files with others (individuals or groups)
- organise viewing of these files into presentations using templates (e.g. cv, recent research papers)
- receive input from selected other users (e.g. mentors)
- organise files against the cells of a matrix (e.g. competences)

OSP issues can be divided into hosting issues, platform issues, v1.5 application issues, and v2.1 issues.

Out of the box, OSPv1.5 required some customisation. During the course of the project, there were two key developments:

- the interface of the OSP v1.5 was greatly improved
- improvements were made in the abstraction of the view layer from the control and data model layers, enabling easier customisability.

Hosting

Brighton hosted 5 instances of PETAL for cases study use. Whilst an initial technical assessment had indicated hosting multiple instances should not present problems, it became apparent that substantial input from developers was required in order to achieve this. Further shortcomings with the administration of the software required regular remote intervention from the developers (e.g. to reset and restart specific services) which caused additional delays to beginning case study sessions. In particular, creating data hierarchies/structures frequently led to server crashes which could only be resolved by remote support from the developers which caused delays in sessions with case study tutors whilst configuring the data structures to meet their needs prior to running sessions with students. This both delayed the process of preparation for student sessions and reduced confidence in the software amongst tutors.

It was intended that ALT host three instances: their own, CILIP and Abingdon and Witney College. ALT's hosting is provided by a third-party. This organisation was concerned about the threat to the integrity of their systems represented by novel software. The layers of responsibility proved complex. One instance was hosted by University of Kent, Canterbury. This illustrated some of the challenges of running in differently flavoured versions of UNIX. Kent had the advantage of a dedicated and highly skilled Java developer in house who had full access to the environment and could resolve problems immediately.

All other instances were hosted by Knowledge Integration on a server located on their site. There was no problem experienced with these instances.

We would recommend that OSP software be hosted in an environment over which full control can be exercised.

Platform

Although the software is open source and runs on a recognised platform, we found that the required configuration and particularly the systems administration and web deployment skills necessary to build out the installation components were not as widely available or as easy to set up as we had hoped.

v1.5 application issues

v1.5 application issues were numerous, but fall into two categories: functionality and embedded pedagogical assumptions.

- Functionally there were parts of the OSPv1.5 application that just did not work well, particularly the “publish hierarchy” function, which limited the effective ability to customise the hierarchy.
- The v1.5 embedded pedagogical assumptions served to narrow the field of applicability considerably. Essentially the software was developed assuming a large, heterogeneous, (reasonably) academically competent body of undergraduate users following a modular course of study. The interface was very “wordy” and, without intending to, alienated many users in the FE and adult community contexts. Similarly the professional institutes sector found the underlying assumptions to be very strongly based on a university context not a professional context.

The current platform has significant issues, specifically with regard to publishing changes to the hierarchy. Although these issues primarily affect initial configuration and deployment, they also affect long term hosting. The complexity of the code base makes it difficult for us to both contribute changes back to the OSPI community and to integrate changes from the community back into the petal code base.

The architectural weaknesses outlined above make it an unattractive option to develop the 1.5 code further. Whilst superficial enhancements are clearly possible, underlying problems cannot be tackled without significant re-factoring.

v2.1 application issues

The current released version (2.0) contains all the structural advantages of SAKAI 1.5, but lacks some of the polish and usability of a system deployed to production environments. In summary, this is essentially a development release, and not really appropriate for PETAL.

The delay to the release of the v2.1 application by the OSP development community has meant a delay to the development of Petal2 functionality. We considered seriously branching off of the OSP development track and building our own related e-portfolio system but with the advice of CETIS and JISC concluded that it would be better to remain within the OSPI fold.

Writing now, nearly six months after this decision, OSP 2.1, although available, is still not considered sufficiently well developed for use. And, in late breaking news, it appears that OSP2.1 has been abandoned, and the OSP community is now working on 2.2, in order to bring closer integration with Sakai. In the discussion that follows I refer to OSP 2.1+.

OSP 2.1 is based on SAKAI 2.1 and represents the integration of the OSP and SAKAI code bases.

Strengths

- OSP 2.1+ through SAKAI 2.0 is built upon a significantly improved technical architecture which is both easier to extend, improve and maintain. Specifically, the dynamic creation of java data objects to represent structured data has been replaced by mechanism which parses XML Schema documents enhanced with annotations to provide better visual prompting and field labels. This mechanism can also manage nested and repeating schema elements. The new infrastructure also replaces dynamic database schema generation with stored xml fragments. This improves database manageability and removes many of the existing issues with OSP system deployments.

- SAKAI 2.0 / 2.1 is more widely deployed, with stability and manageable incremental updates.

Weaknesses

- OSP 2.1+ is ultimately constrained by elements of the core SAKAI 2.1 architecture. Sometimes this means that the SAKAI style guide restricts the behaviour and visual attributes of the OSP application.
- The OSP hierarchy is not currently available in the code base. Some OSP 2.0 implementations have chosen to use nested folders and forms to replicate the structure of the old hierarchy mechanism. However, the SAKAI architecture makes the construction of new hierarchy widgets a real possibility.

Opportunities

- The alignment of SAKAI and OSP code trees affords a number of significant opportunities.
- The improved architecture will make it significantly easier to contribute work back to the core OSP code set, and to integrate changes from the community back into the core project.
- A number of new UI widgets are being developed for the SAKAI 2.1 release, these include new workflow widgets which could help PETAL realize some of its aspirations for guiding users through the process of populating a profiled a dataset.

Threats

- OSP 2.1+ represents the alignment of OSP and SAKAI code trees. Release dates are critical to the teams involved, and releases are managed by cutting and pushing back functionality into the next release. There is a risk that features required for PETAL2 deployment may be cut from the 2.1+ release in order to make the release date.
- Replacement/ removal of current OSP hierarchy and values with SAKAI nested folders, forms, matrices would also be difficult. In order to achieve this we would have to create XSD descriptions of all from elements. Some replacement for the hierarchy structure would also be needed, probably involving nested folders.

Conclusion

- We believe that basing the PETAL2 technical platform on OSP/SAKAI 2.1 is the best option and it addresses significant architectural issues discovered in the PETAL and MyWORLD projects as well as giving us the opportunity to share and adopt more community source. Some preparatory actions can begin now, but the bulk of the work would have to be done after the 2.1+ release.

Project issues

Project issues were primarily to do with size and complexity. There were many institutions and individuals involved with differing needs, assumptions and levels of commitment. The project “vision” was fragmented across sites. None the less, learners in community education (CE), further education (FE), higher education (HE) and professional institute (PI) contexts were introduced to and used e-portfolio and personal development planning systems based on and derived from the Open Source Portfolio (OSP) to prepare CVs and simple e-portfolio collections. In all cases we were able to describe a scenario for e-portfolio use and we uncovered many general learning points about the introduction of e-portfolios into learning and teaching contexts. e-Portfolios are about pedagogy and change, institutions and policy, success and evaluation on three levels: social, institutional and individual. But, most of all they are about learner difference and the tensions between the assertion of learner difference and individuation, and the achievement of institutional, social, or group outcomes.

Local issues

Local issues were primarily to do with the amount of support provided to implementers of the case studies and the level of commitment of the implementers themselves. At the local level each case study had its own challenges. We observed that in all cases the implementer (the “teacher”) is crucial to achieving success with “learner” uptake of the system. Where the teachers had been most active in conceiving and designing the pedagogical intervention that the portfolio was supposed to serve the best results were achieved. Where the portfolio was a late, optional, difficult bolt-on to an already full

curriculum and the teachers had not had much input to the pedagogical design, there was less chance of user uptake.

Adult community learning issues

One direction of inquiry has to do with the meaning of success in society; how can success be measured, how does success differ from person to person and in different contexts. Portfolios can help people to define their own success through reflection on past events with evidence from artifacts they have collected or constructed, often enhanced with peer or mentor commentary and feedback. Through portfolios people can construct a poly-vocal and multi-modal narrative of their lives tailored towards particular rhetorical purposes.

Portfolios are intended to help lifelong learning and to help the progression of learners within and between institutions and between national education systems, often in novel partnership arrangements.

Visual Arts issues

Much of the feedback related to technical and interface issues and reflect the specific needs of students working in media courses where there is a need for greater flexibility both in the kind of information being uploaded and presented (e.g. high resolution images files where quality of image is key, large audio files where, again, quality is important) and the mechanisms of presentation. From the latter perspective, students in art-related areas are used to having considerable control and taking great care in the quality, design and style of their presentations (which may be components against which they are assessed) and the inflexibility of the PETAL software in determining the nature of the final presentation of data was of great concern to the students. Whilst many of the students recognised the importance of gathering evidence of work together to present to peers, tutors and external bodies, the imperative of control over the design of the presentation led them to believe that PETAL had little to offer without substantial changes to the template engine driving the presentational side of the system.

Learning Disabilities Issues

There were clear issues both with the general IT literacy/capabilities of these participants and specific issues relating to the PETAL interface. A key requirement for these participants was a simple and easily understood interface – the terminology used was found to be confusing on a number of occasions. Equally, general accessibility issues came to the fore – these participants required assistive technology (specifically large button keyboards) to use the computers and various elements of the PETAL interface proved to be challenging or unchangeable (e.g. the size of text for some labels). However, the participants generally enjoyed the sessions and were clearly excited about the prospect of gathering together examples of their work for display to others and, as with the VPA students, the shortfalls in flexibility with regard to presentation output were the most critical issues. Aside from the accessibility issues, data input did not present too many problems although it may have been preferable to allow multiple file uploads so that collections or galleries of work could be uploaded in one go and presented as galleries or groups of work.

The use of video as a means of capturing participant input was also trialed in this case study and proved successful, both in terms of eliminating some of the accessibility issues and in capturing a more 'realistic' reflection of the thoughts and experiences of the participants.

Summary

By far the most important issues relating to the software itself were those relating to the interface. In particular, the lack of a flexible mechanism for configuring presentational output was seen by all case studies as the most significant barrier to using the system. It was recognised from the start of the project that the choice of case studies at Brighton would represent real challenges to the system in terms of data presentation given the wide variety of needs of participants ranging from the needs to add mixes of media/galleries of images in the Access to Art and VPA studies to the more formal CV-like presentations required for the Access to HE study. With the art-based case studies, there was a clear identified need to have considerable flexibility and personal control within the system that allowed each user to configure presentations that met the quite specific needs of their potential audiences – whether this be relatively simple requirements such as the software being able to present images organised into galleries or the needs of VPA students to reflect their design skills in the look

and feel of their presentations as well as the materials being delivered by those presentations.. Unfortunately, the software failed to deliver in any of these requirements.

In addition, there were also issues relating to the data input interface that led to a lack of clarity in terms of either how to use the system or the kind of data the each field expected to be entered. Crossing an audience base that included users with learning difficulties, those for who English is not their first language and very IT literate students highlighted the specificity of terminology used within the interface and the difficulties in arriving at terminology that might be appropriate to all.

Accessibility and usability

A thorough accessibility evaluation was conducted by TechDis and Key2Access. The use of the 'usability' alongside 'accessibility' is deliberate. Software may pass the current tests on accessibility but still not be user-friendly and therefore, not accessible in reality. PETAL has great potential as an e-portfolio but must, critically, be adaptable to the user's skill, confidence and reading level/ability, among other things.

A variety of assistive software and accessibility tools were tested with PETAL:

- Text entry into fields using voice recognition software is possible
- Narrator XP reads some of the text but often says 'cell'
- TextHelp Read and Write works by highlighting and reading back
- Accessibility features of Internet Explorer and Mozilla Firefox are usable (though not via institutional networks which lock out options)
- The TechDis Toolbar enables font change and colour background choice

Design and Presentation

- The use of red text could cause some difficulties for colour blind users in the identification of hyperlinks. The design could include better visual support cues for the keyboard user and provide a clear visible status for the navigation section / menu that is active.
- CSS and interactive scripting have been cleverly used to control what content is in view in the presentation view but this might cause problems for some older or simpler text-only / screen reading technologies as they may be presented with all the portfolio content at once.
- There is a clear problem with the design adapting to fit a standard screen size of 1280x1024 when there are three columns being presented as the screen can look quite cramped particularly when using the attachment column.

Navigation and Structure

- A clear homepage link should be provided at the top left of the 'Welcome' text.
- The primary (left hand side) navigation be re-coded to use OL instead of DL.
- Consider making the skip links visible at the top of the screen to all users (as keyboard users would find them useful).
- The use of Headings is extremely inconsistent and in most cases implemented incorrectly. Consider removing all H1-H9 from tables and think more carefully about how headers are used.

Content

- The images with no ALT attributes should be corrected.

Usability

- The site should provide a 'how to use' guide in which some basic advice on the structure of the site is provided. In addition there should be clearer contact details in the 'about us' section. We also suggest that an accessibility statement be provided.

Media and Documents

- It should be made clear that attachments when clicked open in a new window. The project should consider how to provide accessible alternatives for inaccessible media attachments.

Technical Accessibility

- Language – The natural language of the html pages need to be specified in the XML and HTML tags.
- Validation – There are numerous problems with validation of the documents but due to the complexity of the issues and extensive time needed we are only highlighting this issue.
- Tables – Tables should all have TH for table headers and also use the appropriate scope attribute. Standard H1-H6 headers should be removed from listing tables.
- Forms - All forms should ideally have explicit association between the form controls and labels.

Interoperability

- The presentation pages require the use of visual CSS to work effectively. The most interoperable approach would have been to physically break pages up into different documents.
- It was felt that it is essential that the resource provide a mechanism for printing portfolio content either through the use of printer friendly views or printer CSS.

Outcomes¹

The difficulty does not lie in the development of the source code but rather in the requirement for an intelligent design that accommodates the human aspects essential to making the project work (aspects such as the construction of a well reasoned navigational scheme and logical user interface design), which must then be followed by a smooth integration into the existing educational software environments, principally the course management system, the student information system, and the campus portal. ... In many instances, the failure to understand and harness the human aspects of software design, rather than the failure to machinate the computer aspects, is the major cause for the breakdown of an entire eportfolio project. (Jafari 2004)

The working knowledge of the context of use that the user has is at least as vital to the eventual success (or failure) of any system as the technical knowledge of the system designer. ... Formal methods of requirements capture, or so it is supposed, are incapable of rendering these dimensions visible. (Anderson 1994)

It is clear from feedback from case study participants that technical issues with the software prevented a full evaluation of the potential use of the PETAL/OSPI model. However, the case studies were able to highlight key issues both in terms of requirements for the system itself and more general issues relating to the creation and management of ePortfolios.

While technical problems led to reduced participation, the preparation for using the software and the process of organising evidence and thinking through how one presents oneself by way of an ePortfolio were extremely valuable exercises in all case studies. Across the studies it became clear that the underlying model of OSPI may be questionable with respect to applying across such disparate user needs. The imperative here was for flexibility not conformity; for mapping personal data in ways that cannot be predicted adequately by either technical developers or course tutors; for the layout and presentation of data stored to be a matter of personal choice. Indeed, even during the project period itself, significant changes in the world of technologies and ePortfolios themselves have taken place with the emergence of blogs as the new communications media and of “Googling someone” as the default way of finding out about a person.

What are ePortfolios?

Portfolios are collections of objects (items) that attest to claims. A common starting point is that an e-portfolio is simply an electronic version of a physical portfolio. They are, “... the new generation of the old 3-ring binder” (<http://www.pt3.org/stories/eportfolio.html>) or, “... a self-selected multimedia

¹ This discussion follows a draft paper that I wrote following the JISC/SURF e-Portfolio Experts Group meeting in Amsterdam 16 & 17 February 2006. It draws on ideas discussed by the group, but is my own interpretation, not a representation of a consensus.

presentation of student work” (<http://www.eportfolio.lagcc.cuny.edu/>). According to (Richardson and Ward 2005):

The term portfolio as used in the UK generally describes a collection (or archive) of reflective writing and associated evidence, which documents learning and which a learner may draw upon to present her/his learning and achievements.

A portfolio item, in the field of education, personal and professional development, may be defined as any of:

- a unit of information relevant to the focal person structured so that it can be integrated with other portfolio items;
- a unit of information that enables a related object to be integrated with other portfolio items;
- a related object that may contribute to evidence of the focal person's skills, attitudes, competence, knowledge, or any other personal abilities, attributes, characteristics, qualities, etc. related to education or development;

that satisfies all these conditions:

- it must be related to the focal person;
- it must be valued by the focal person, or in some cases by an agent on behalf of the focal person;
- the focal person must have relevant rights over it.

e-portfolios are one of many means by which governments are seeking to maintain economic competitiveness by building so-called knowledge economies. The British Education and Communication Technology Agency (BECTA) says in respect to lifelong learners that:

“ePortfolios will form the basis not only of their learner records, but also of their CVs, applications for both further learning and work, and their career decisions... All education and training organisations have the responsibility to contribute to a learner's e-portfolio for lifelong learning” (BECTA/JISC 2004)

Institutions and individuals (roles: learner, teacher, learning technologist) are responding to trans-national policy initiatives and also have reasons of their own for developing e-Portfolio and ePDP systems.

e-Portfolios are first and foremost about recognising and valuing learner difference and learner identity. This appears to be provoking a cultural shift in the practice of teaching and learning. In order to understand this shift we need to establish stable baselines and measurement criteria to help plan, decide and monitor e-portfolio developments and also to develop a case-based scenario approach to illuminate options. We do, however observe that we are in a time when fields are emerging, boundaries are unstable and there is a blurring of categories.

e-Portfolios are also about the changes in the way that learning and teaching are mediating the relationship between individuals and the institutions of society. This pedagogical change is a response to learner diversity on the one hand and external factors such as national policy on the other. The learning function is the only one in which universities can genuinely claim expertise above other institutions. Therefore it is in universities' best interest to support the learning and teaching function of e-portfolios above other functions they might have.

The problem is not one of technology, except to the extent that there is technology in the world. The problem is learning and how learning is viewed from within our persistent Utilitarian discourse system.

Ron and Suzanne Scollon have put this well in *Intercultural Communication* (Scollon & Scollon, 1995). They trace the roots of Utilitarianism through Montesquieu, Adam Smith, J. S. Mill, Kant, Jeremy Bentham and others, as colonial and industrial expansion transformed the institutions of society: "... formal education was given an exaggerated valuation while at the same time there was a powerful devaluation of non-formal types of learning. Within the Utilitarian discourse system, education through formal procedures has been considered the only acceptable form of learning" (105). From Bentham we get the idea of efficiency applied architecturally through the Panopticon, the structure from within which the watcher at the centre can see, and control, as many participants as

possible on the periphery while at the same time preventing the peripheral individuals from seeing any other person except the watcher at the centre. The VLE represents the Utilitarian panopticon while the PLE represents its antithesis, a decentred actor network. However, every sign from the makers of education policy at transnational, national, and local levels and in each concrete institution of education: schools, colleges, universities despite frequent assertions of "learner centredness", "student 'ownership' of eportfolios" and so on is that "learning" has to be brought under control and counted in order that it can be valued. The implication is that for every learning transaction there are those who learn and there are those who watch, record and value the transaction.

It is anticipated that a fully mature e-portfolio-based pedagogy would have wide impacts on the organisation of learning and teaching. Institutions may develop aspects of such a system and have a role in facilitating its adoption by stimulating motivation through a focus on what works - without ignoring the down side - and on providing support for new forms of teaching, mentoring and assessing in a local culture.

e-Portfolios engage with institutional infrastructure and policy and must go some way towards meeting institutional needs. They are suggested to have a role in bringing about or furthering certain policies such as widening participation or improving the level of our knowledge economy. There has not yet been systematic work to show that e-portfolios are - though they might be - a tool for bringing about greater social inclusion through helping to widen participation and facilitate mobility.

There has been a pedagogical and cultural shift from elitist to inclusive higher education and an increase in globalisation. This is to be valued, or at least to be better understood. Such a shift takes continuous struggle but it can facilitate learning for society. In pedagogies fit for this new dispensation, the main focus must be the unit of learner-and-fellow-learner. This unit, the at-least-one audience for an e-portfolio - the communicating group - is where knowledge, skills and awareness will be acquired and co-constructed along peer-to-peer, professional cpd model lines, even at early stages of formal education. Social constructivism, learning with and from each other's personal learning tracks, sharing coaching and mentoring roles can be fostered through a social use of e-portfolios.

Therefore, above other considerations, the practical needs of the learner-and-fellow-learner and the support of all users should underlie e-portfolio practice. We believe that focusing on the learner will provide, in the long run, the best return for all stakeholders including institutional policy makers. But, this does not always happen. e-Portfolios bring the question of roles and focus into the light. In any e-portfolio project, there are different roles: learner, teacher, assessor, mentor, evaluator, manager, administrator, learning technologist. We observe that for the different roles, support is required differentially. We also recognise that there are in common use the terms "traditional learners" and "non-traditional learners". These categories are problematic but may have to do. I would add one significant dimension to the "non-traditional" learner, that being:

- non-traditional within the traditional cohort (i.e. a non-traditional 18 year old in with traditional 18 year olds),
- non-traditional outside the 18-22 year old cohort (i.e. adult returner, mature student).

Difference

Even this does not sufficiently expose the multiple indices of difference that may need to be handled by an e-portfolio system. Among non-traditional learners, for example, there may be: second language issues, 17 year olds "at risk" of "non-progression", adults seeking qualifications, parents returning to work and learn after an episode of child-rearing, immigrants seeking recognition, workers forced into early retirement, and many other groups of people. We think these groupings are meaningful but acknowledge that all such groupings are fluid. Nevertheless, differentiation remains important at web-services level because of the need to give at least the appearance of personalisation.

Difference is also expressed in disciplines: the traditional "hard/soft", science/arts divide exemplifies this. Difference also expresses itself in the learning preferences/styles of the learners and the corresponding pedagogical/didactical style of the teacher. For both teacher and learner the question of access to symbolic capital is as important as the access to domain knowledge. Symbolic capital brings the dimension of identity into the e-portfolio frame: age, gender, nationality, economic/social class, parental factors can all become important and visible indicators of difference through e-portfolios.

There are at least six dimensions of an e-portfolio context: level, stage, vocational orientation, skills, culture, institutions.

Level

The question of level is concerned with what constitutes “higher” education and other points on a hierarchy. There are many scales: vocational qualifications (VQs), National Curriculum key stages, post compulsory levels (3, 4, 5 in UK, etc). The question of level is an important factor in learner and worker mobility, when the relative equivalency of different national schemas is evaluated. There are Dublin Core descriptors of education level, European credit transfer scheme and Diploma Supplement.

Stage

The question of stage is relevant at any level. For example, is the learner in the first or final year of a level 4 course? Further Education funding follows stages: intake, retention, achievement.

Vocationalism

Vocationalism is the extent to which the course is being followed as a licence to practice in a particular field, or is being followed for general or non-specified interest. Vocationalism will be reflected in an orientation towards either competence or knowledge. Vocationalism will value academic skills differently from work skills such as team work, flexibility and learning ability.

Culture

The dimension of culture in regard to e-portfolios is manifested in things like nationality, gender, religion, neighbourhood/sub-region.

Institutional

Institutional issues in respect of e-portfolios are both abstract and concrete. This is reflected in the different outlooks between the research-led academic universities and the polytechnic universities of professional education. The differences are even more marked with further education or technical colleges.

Scenarios

Are there generic processes that remain useful while acknowledging the challenge of individual digital identity management? Career planning tools such as *Graduate Prospects*, *Fast Tomato*, *Monster.co.uk*, etc. have much in common with structured e-portfolios. They accommodate target setting, allowing learners/job seekers to generate goals with friends as well as teachers/mentors. Other social softwares, blogs, e-journals, friendship clubs are places where the sharing of goals for comment, commenting on others' goals and receiving comments take place.

It is suggested that a general scenario-building approach accompany any e-portfolio development. Ultimately, institutional needs for organisation, management, and standardisation will be realised through single implementations in one actual context, but to get it right it helps to consider options and model work flows hypothetically. To what extent can we generalise beyond the scenario? Can we imagine other paradigms? Because the future is more or less unknown we recommend what-if planning using scenarios. All scenarios in an exercise should be interrogated using the same inventory of questions. We experimented very briefly with an induction and transition to college scenario. This is felt to be a useful direction for more work and we return to the theme below when considering the e-portfolio research agenda.

Administration and standards: the blurring effect

e-Portfolios are being implemented in environments where learning is standardised in order that it can be administered. We observe that where e-portfolios and other related learning technologies and social softwares proliferate we might be able to ask whether the blurring effect, which we perceive, threatens old standards or brings new standards into effect.

Between education and employment

We see this blurring between education and employment. Work-based learning is becoming increasingly fashionable. Medical training is introducing a continuing medical education/professional development approach from the very start of the university course. So too is civil engineering and the buildings tradesⁱⁱ. The medical cpdⁱⁱⁱ model is one that bears consideration for all courses, but may not be appropriate for less vocationally inclined learners.

Between teacher and learner

We see this blurring between teacher and learner where university teachers are now expected to engage in professional development of their teaching skills as well as their domain knowledge^{iv}.

Between different kinds of portfolio

We see this blurring between different kinds of portfolio: portfolios for reflection can shade into portfolios for assessment.

Between digital infrastructure and policy

We see this blurring between digital infrastructure and policy, where what is possible may have to be what is compatible with or non-threatening to legacy systems.

Inclusion: can e-portfolios help widening participation and mobility?

There may be too much emphasis now on reflection and the self-motivated individual; we are not all reflectors. As the JISC posed at ALT-C 2005:

e-Portfolios help technically-confident learners move seamlessly between different education providers throughout their learning life, supporting opportunities to learn wherever and whenever suits them best - perhaps making use of expertise and facilities that aren't available from a single institution, but what about everybody else? A device that focuses on the learner's requirements should be the key that unlocks access to education for people navigating a non-traditional learning roadmap, but do e-Portfolios actually risk excluding some of the very people they set out to empower? How can we progress with this work without leaving some of the most disadvantaged learners behind?

Implications

There are many challenges. Inter institutional and international collaboration adds a new dimension to the matrix, another magnitude of complexity. Frequently institutional decision makers do not seem interested in individual learning outcomes that do not fit certain models. This leads us to ask the question, do portfolios really work at an institutional level? If qualitative issues of teaching and learning are key, how is the work paradigm changing? What is good coaching? How do we increase the joy? How do we know what is going on with people who use the tools? Human resource and personnel departments will start to use e-portfolios for performance review. We should ask if are they using the same tool for teachers as students, and if not why not? And, we must remember that we still do not really know if reflection leads to improved outcomes, nor do we know if appraisal leads to reflection.

Analytical frameworks and methodological questions

As with any new area of inquiry it is necessary to ask what the key questions are? If we are saying that we need to lay down a base for longitudinal work we need to construct a coding system for our data that will be consistent over time, so that future comparisons might remain still useful and meaningful. We need to ask, what do we measure?

A list of possible labels, suggested, include:

- learner needs
- profiles: learner, mentor, coach, teacher
- local culture
- institutional maturity and readiness
- technical infrastructure

- management function
- multi-media mix.

Maturity models

It is recommended that a maturity model should be a part of any e-Portfolio analytical framework. Early maturity stages will have different research questions than later stages. There are at least three that should be considered.

NL Portfolio Maturity Model

The Dutch put forward a three-stage model:

1. counselling, cv oriented study-career supervision
2. counselling and assessing: goal-oriented supervision of cv and personal development
3. counselling, assessing and planning: supervision at the heart of the study programme facilitating planning what comes next. (Kluijfhout 2006)

Love, McKean et al's maturity model

Love, McKean et al's 5 stage maturity model is useful for analysing an institution's level of e-portfolio use and warns against too-precipitate an implementation (Love, McKean et al. 2004):

1. Scrapbook: no defining schema
2. Curriculum Vitae: schemes externally defined, chronological, curriculum, job/person spec
3. Curriculum collaboration between student and faculty: learner contribution to schemas, student control of portfolio information development and sharing; multiple views and presentations
4. Mentoring leading to mastery: multiple redemption of work based on feedback from a variety of interested parties: peers, teachers, employers, etc.
5. Authentic authoritative evidence for assessment, evaluation and reporting: work-sample portfolio-based assessment linked to goals, standards and descriptors or higher-order thinking inventories.

HEFCE embeddedness

The UK Higher Education Funding Council for England (HEFCE), has a five-year strategy for embedding e-learning (HEFCE 2005), with eight criteria of embeddedness, some of which are explicitly linked to e-portfolios:

1. ICT is commonly accepted into all aspects of the student experience of higher education, with innovation for enhancement and flexible learning, connecting areas of HE with other aspects of life and work.
2. Due to more coherence and collaboration, technical issues have been addressed to give better value for money.
3. Students are able to access information, tutor support, expertise and guidance, and communicate with each other effectively wherever they are. They are able to check and record their achievement in a form designed for multiple uses to enable personal and professional development.
4. Tutors have tools for course design to enable better communication between them and their students, giving feedback and targeted support. Individual teachers have access to information about the materials available, and support for continuous improvement of them.
5. Subject communities are able to share materials in ways that enhance their ability to produce customised high quality courses. They are supported to work collaboratively in designing materials, which are effectively quality assured and widely disseminated. They have access to research information to inform curriculum development and research-based teaching.
6. Institutions are able to build appropriate infrastructure and resources support for integrating registration and learning functions. They have links with regional networks of institutions to support progression and community involvement.
7. Lifelong learning networks support connectivity between institutions to provide seamless access for students and staff.
8. Staff are supported at all stages to develop appropriate skills in e-learning, and these skills are recognised in their roles and responsibilities and in reward structures. They have access to accreditation for their level of skills and professional practice in linking learning technology with teaching.

Appendices

1. Scenarios:
<http://www.jiscmail.ac.uk/cgi-bin/filearea.cgi?LMGT1=MYWORLD&X=&Y=&f=/Scenarios>
2. Evaluation report: (to come)
3. Dissemination Diary

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Web references and endnotes

ⁱ <http://www.fasttomato.com/> Interactive Careers Guidance and Education for Teenagers; http://www.prospects.ac.uk/cms/ShowPage/Home_page/pleLaXi the UK's official graduate careers support service; careers advice and CV builder for graduates in the EE; <http://monster.co.uk/>, <http://www.monster.com/>, etc a global network for careers and a monster CV builder.

ⁱⁱ Rapid Progress File: <http://rapidprojects.lboro.ac.uk/progress.html>

ⁱⁱⁱ For example, student physiotherapists must:

- understand the principles of CPD
- begin to collect evidence of learning from your CPD
- continue the process once you have qualified

<http://www.csp.org.uk/director/careersandlearning/continuingprofessionaldevelopment/policy.cfm>

And in psychiatry, "Through moving to personal development planning as the basis of managing CPD, the Royal College of Psychiatrists aims to provide a systematic approach to identifying and meeting personal development and training needs. Within this planning and evaluative framework, CPD activities are an essential component of the actions undertaken to achieve the targets in a PDP." <http://www.rcpsych.ac.uk/publications/cr/council/cr90.pdf>

^{iv} HE Academy statement on CPD for academic teaching staff in British Higher Education
<http://www.heacademy.ac.uk/2562.htm>