Experience of ‘Profile’

Despite limitations of Profile, we thought that students would find it a useful tool. We asked them to rate its usefulness on a four point scale. Respondents overall rated it as useful, despite feeling that it could be improved. The pie chart below shows the large proportion of respondents who found Profile useful.

![Experience of using Profile](image)

Fig 3. Experience of using Profile

Future use of electronic portfolios (ePortfolios)

Students were asked in the questionnaire whether they would make use of an ‘electronic portfolio’ (The question given was: ‘Profile or another tool with better functionality’) in future, and if so what functions would they want it to have. 77% of respondents (33 students) said that they would use Profile or another ePortfolio. Since, for all respondents Profile seems to have been their first and only experience of an ePortfolio, this is very positive. However, there is a question of how to interpret this response because a number of respondents did not have a clear concept of what was meant by ‘electronic portfolio’ (see below). It appears that this sample could see the value of a system which archived personal materials and produced reports and CVs as well as PDPs from these. And despite its limitations (there was criticism of Profile- see below) Profile was positively received and respondents could see the potential of similar systems. The following comment was very common:

‘I was very pleased and found Profile very easy to use.’

In response to the question about the functionality respondents they would like to see in a future ePortfolio application, respondents tended to refer to those aspects that were problematic in Profile, for example they wanted easier production of reports in standard CV formats. Some of the key functions that they suggested future ePortfolio systems might incorporate include: a method of outputting data into a variety of CV formats, having an area in the contents for research publications and outputs, having an archive for completed applications or projects, having a key word search for linked files and images. Some of these functions are there in more advanced ePortfolio systems and given more resources would not be difficult to produce for Profile. However, it is worth noting that this group has suggested a functional area that others might not need: research and publications. To ‘have legs’: i.e. be robust and flexible enough to move with the end user through their working life, an ePortfolio needs the flexibility for the user to create new category areas to store evidence and activity that is specific to a particular stage of that user’s career.
Those who said that they would not use an ePortfolio in future were asked to explain why not. A few referred to the functionality of Profile and applied that to all ePortfolio systems – this raises the issue of how a particular experience of using one system can influence wider attitudes – alternatively it may be that they misunderstood the question.

Some felt that it would not be worth the time invested in learning to use a new system. Others were happy with the system they already used even preferring paper-based records, as did the following respondent:

‘More likely to keep my CV up to date in Word package. Prefer written work rather than electronic.’

Two respondents could not envisage a system that would allow them to ‘tailor’ a CV for the requirements of particular employers, or for the stage she was in her career. One wrote:

‘[I won’t use an ePortfolio in future] because each application needs tailoring and in my case, in the proposal letter rather than the CV. A portfolio is more useful for young employees who have a lot of changes to come – not so much for those in higher management with along career history.’

For an ePortfolio to be ‘sticky’, it needs to be able to convert evidence stored there into the short documents that employers require of job applicants or of employees for appraisal and promotion systems.

**Keeping other kind of portfolios**

All questionnaire respondents were asked if they kept a personal portfolio of any kind including a paper-based one. Because our respondents were all graduates, most of whom had worked professionally at some point in their lives; we expected most of them to have kept some kind of portfolio. 40 of 46 respondents had done so (87%). What is surprising is not that such a large proportion kept a portfolio but that 6 respondents did not keep a portfolio of any kind. However, when the responses to this question are tabulated against the responses to the question about future use of ePortfolio, most of those who had not previously kept a personal portfolio of any kind expected to keep an ePortfolio in future (5 of 6 respondents in this category). However, only 70% of those who had been keeping a personal portfolio intended to make use of an ePortfolio, which suggests that many see no reason to change the system they presently use (paper, Word documents in files etc).

Questionnaire respondents were also asked if they used a different electronic portfolio system other than Profile. This question was included to find out if there were any other ePortfolio systems this particular population might be using. 12 respondents said that they were using such an electronic portfolio system but appear to have been confused by what was meant. When asked what their system was called it was clear that they included any kind of digital archive or CV under the heading ‘electronic portfolio’, some even included reference to paper systems.

‘I am starting to use MS Works journal and planner templates to record and arrange my past and future thoughts and details. I’ll be transferring paper journals into this on my laptop and saving ecopies. Wanted to do so for years – T160 and Profile gave me the push to start.’

In general the response to Profile was also good from the five telephone interviews. The interviewees had been chosen to represent a range of ages and SET occupations and responses to Profile. In their questionnaire responses they did not all say that they would continue to use Profile. Four out of five women spoke positively about Profile and said they had used it as part of the course and would use it again in the future. One of these was currently using it for actual job applications that had resulted in interviews. The lack of job applications from the other women seemed to be mostly due either to circumstances, such as change in career direction or possible relocation, or lack of confidence when it came to starting to apply rather than it being anything to do with Profile. The fifth participant, whilst having used Profile as
part of the course did not intend to carry on using it in the future. She still updated the CV produced by it, but using general word processing software. She thought that Profile was OK and useful for organising information and reflections and for evaluating what had been achieved but found it slightly awkward to use.

Suggestions from the interviewees for improvement included facilities to keep a record of job applications sent and their outcomes, names and contact details of people these were sent to and to be able to generate emails automatically. There were also well known irritations because Profile will not allow the user to have more than one template open at a time. Users expect any new application to have the functionality of general purpose software, they will cope with something with more limited functionality, if there is no alternative and the software offers them something useful, but it falls short of their ideal.

This evidence suggests that this sample had no prior experience of an ePortfolio system before T160, and that although they used Profile they did not have a ‘technical’ concept of it as a particular kind of application called an ‘electronic portfolio’. It does not seem to have mattered to these students, they were happy to use it anyway since it was highly serviceable for their purposes. Our participants are looking for a system that allows archiving and supports the production of reports and CVs. It is interesting that there is often no distinction made between ePortfolios and other computer applications – only between the useful and the not useful. This might have an implication for the labelling and visibility of future ePortfolio developments.

Conclusion

This paper reports on the use of an ePortfolio by a particular group of people at a transition point in their lives. A point when they re-enter education – all be it briefly- in order to obtain tools to support them in their working lives. Others (Richardson and Ward 2005, Harley 2005) have noted the potential importance of ePortfolios for such people, but there are few published case studies of their use. We have argued from our data that to be of use to people in transition an ePortfolio needs to be both sticky (Jafari 2004), and it also needs legs.  

As far as T160 is concerned, Profile was received better than the course team might have expected since they were conscious of its limitations. The responses from this sample of students suggest that other population groups, particularly those planning to return to work after a career break or period of unemployment, would be receptive to similar applications. It is likely that mature students will have more experience of employment and will clearly see the need to keep personal records of achievements, than young students who been reported to be resistant to ePortfolios. Mature students returning to employment are particularly aware of how important it is to demonstrate their worth to prospective employers through a well presented CV, and the potential of using development plans in appraisal and promotion situations. The majority are keen to have tools to help them do this better. But it is also the case that some older people might not feel it worth expending the energy to start an ePortfolio late in their careers.

Results from our evaluation study indicate that integrating the development of an ePortfolio within the curriculum and assessment for our target group has proved highly successful. The inclusion of a stand-alone product which can be used after leaving the institution is particularly useful for those who are undertaking short programmes of study and offers the ‘stickiness’ that many other ePortfolios struggle to implement. Perhaps most importantly from

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6 Here we’d like to make a less than serious analogy for an ePortfolio with the fictional ‘travelling luggage’ from Terry Pratchett’s Discworld books. This luggage has legs, contains everything a traveller needs, is fiercely protective of its owner and literally devours all threats, goes everywhere with him, and is larger on the inside than the outside. It sticks with its owner through all events, and when lost find its owner rather than the other way round. (Those unfamiliar with this see the Wikipedia entry)
the student perspective, a supported environment in which to reflect and then build an ePortfolio can be a life changing experience that can enhance employability.
Acknowledgements

We would like to acknowledge the work of Rachel Hawkins and her ePortfolio team at the OU who were responsible for the production of Profile and thank them for the support they gave us in using it. We hope that they can make use of our feedback in their work on a new Open Source ePortfolio.

References


TECHNOLOGY MUST FOLLOW POLICY - A SOCIO-
TECHNOLOGICAL RE-ASSESSMENT OF THE CONCEPT OF
LIFETIME PERSONAL WEB SPACES

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Abstract

There are three trajectories which need to be taken into account when designing future ePortfolio systems: firstly, what role can extended models of ePortfolio systems play in a knowledge based society and what social impact may come from such systems? Secondly, who will guarantee a balance of power between stakeholders for ePortfolio systems and what kinds of guarantees will be given to whom? Thirdly and lastly, how should any advanced technology and semantic web technologies in particular, be used in order to serve societal objectives. This paper argues that a number of key enabling technologies are being developed at the moment and that the main inhibitor for ePortfolio systems is the lack of trust resulting from the dilemma of ownership concerning personal data. We indicate routes towards using semantic web technologies as enabler and we propose a radical legal position with respect to ownership of data. From this, we develop an approach towards Lifetime Personal Web Spaces.

Keywords

ePortfolio, Lifetime Personal Web Spaces, Semantic Web, Trust, Ownership of personal data.

I. Introduction

With this article we address the problem of lack of policy awareness for the political, legal and institutional framework necessary for implementation of Web.2.0 and Semantic Web technologies as a platform enabling the implementation of the vision of “ePortfolio for all citizens”. Particular focus lies on the “dilemma of ownership” of ePortfolio data being published by learners and automatically processed within local software systems or in ”Web 2.0” applications. This dilemma might hinder the emergence of a powerful didactical method for competence-based learning in combination with powerful knowledge technologies. How can learners build up trust in ePortfolio systems, how can institutions secure the ownership of the encoded Portfolio data, what is the societal position towards this topic and what can semantic web technologies contribute here?

The paper is organised as follows: In section one, we present the provocative idea of a “fundamental right to my portfolio data”. In section two, we show that some work on this issue is on the way. However, most of it fails to take into account the above “big” question of social impact and the role that certain enabling technologies may play in this account. In section three we show how knowledge based technologies have already merged with content management and are providing a strong option for implementing ePortfolio systems. This should demonstrate that the technological questions of ePortfolio may be less severe than the design challenges which follow from the question: "What should be the purpose of future ePortfolio systems and who will reap what benefit from such systems?". We conclude by summarising the relevant three trajectories, namely those of ePortfolio technologies, of data ownership and protection, and of the semantic web as an enabling technology.
II. The technologies for “ePortfolio for all citizens” are almost there - the societal and legal framework is nowhere near!

In 2004 when the ePortfolio trend had just reached its first height, Cohn and Hibbits wrote a cautionary article in EduCause Quarterly, painting a scenario that would make current ePortfolio technologies look outdated already today. They referred to Vannevar Bush's Memex notion and proposed the "Lifetime Personal Webspace" (LPWS). They also pointed out that even in Greek and Roman times, various means of extending one's personal memory were in use, including the ancestors of modern pedagogy, namely knowledgeable slaves who had to accompany Roman boys to school. Cohn and Hibbits' assessment of current technologies and approaches can be summarised with the following recommendations:

- avoid building "silo systems"
- do not enforce predetermined institutional approaches
- support community building
- integrate school, university, commercial and governmental systems
- address the question where these systems can be usefully housed
- address the question how one would assure long term access
- address the questions of privacy, security and rights of access

One of their visions is that of "Personas" which exist beyond the lifetime of the actual person, including the use of avatars to bring the thoughts, ideas and messages of people back to life, at least in this virtual space. Such personas could once include critical reasoning strategies to explicate much of a person's acquired experience, even beyond the individual's life span.

In Cohn and Hibbits' paper, all this sounds very much like (technological) science fiction, but we invite the reader to think again: perhaps the more serious limiting factor is the poor state of affairs with respect to the legal and organisational/institutional frameworks of such systems. Let us now conduct a - paper based - feasibility study of the visions, starting with the policy level: One of the first things that will have to undergo profound change is people's attitude towards their personal data. In the future, you will inhabit a virtual and a physical space. In the civilised societies, we are all used to the constitutional assurances that our physical integrity will be protected by the state or by society at large. At present, your virtual body (called "data") is not protected anywhere near as well as your physical body. Instead, your virtual body is being carved up by greedy "warlords" as well as by ignorant public institutions and you are left with neither owning nor being able to control, a vital part of what will constitute your identity as a citizen of the 21st Century. Here are some examples:

- Your supermarket chain owns your buying behaviour - thanks to all the customer cards - you are selling important information for a few cents that they promise you for using the card. You will pay the price in the end, because using the card makes it easier for the supermarket chain to find out what you will buy even at a higher price.
- your employer owns all emails you have written, and all the good ideas you put in memos and which were never put into practice - they will not give you access to these once you leave the organisation and they will claim it is for reasons of data protection. What they mean is: they protect you from owning your data.
- Google owns your search behaviour and your telecom provider owns your web navigation behaviour. They claim they will "do no evil" with that information. So we suggest a deal: You should have the right to access and change any information which they can access about you and all you need to do for this right is to promise that you will do no evil either, with what you know that they know!
- Your dentist owns your dental history (and to some extent, he or she should indeed have some rights to that dental record, because it is also part of his or her professional record!)
- last but not least, your university is trying to own your academic track record. However, the university (in most of Europe) is paid by the tax payer and your academic record is an
achievement that you share primarily with your teachers. The university can at best be a
custodian of your data.

All of the above leads us to this cornerstone of a future eCitizen's Charter:

"Your data belongs to you just as your body does"

Once we have established this fundamental law, certain things can be derived from it:

- Society guarantees your virtual existence, just as it guarantees - with differing social contracts
  - your physical existence.
- Nobody can hold your data against your will, except where there are laws which allow it, in
  which case you should have the right to know what others (claim to) know about you.
- A new kind of - possible private - "data banking" system may emerge: trusted institutions will
  hold your data for you and others, will help you keep the information in shape, will offer
  value-adding services (like forwarding - with your approval - your CV to interested
  employers).

Once you subscribe to this vision of a future Charter, we suspect that your view on the ePortfolio
problem will change significantly and so will the kinds of technological solutions that you might
envision. The next section demonstrates that the thinking process is already starting, but needs to
reach an even more fundamental constitutional rather than institutional perspective.

III. Identifying the blind spot: What educationalists mean when they say "Ownership of
ePortfolio"

Almost any definition of ePortfolio declares that portfolio work encompasses the individual steps of
collection, selection and reflection of digital artefacts during learning episodes. As prerequisite it is
demanded that students should be the “owner” of his/her digital portfolio (see Austrian ePortfolio
Forum 2005 http://eportfolio.salzburgresearch.at). However, what do educationalists mean by that?

Some educationalists and/or portfolio researchers focus on the level of creation (the learner privately
decides about the creation process versus or he/she is guided/forced by an institution during a
competence-based programme). Others address more the question of who is the audience of portfolio
stories, who is a trusted tutor and how much control is needed to prevent abused of portfolio
presentations? Finally, some concentrate on the issue of physical ownership: where are the digital
artefacts stored and who has access to edit or select subsections of presentations (Gibson, D. 2006
p.142)? In practice also learners do not know what exactly is meant by the notion of ownership as the
following question, answered by Frequently Asked Questions (FAQ) of the University of Bristol well
illuminates (Charlesworth A./Home A. 2004 p.2.):

**Question:**
*Our Principal/Vice-Chancellor/Registrar (delete as applicable) says that data in our ePortfolio system is owned
by the institution, our ePortfolio team/a guest speaker/a consultant (delete as applicable) says that an ePortfolio
is owned by the learner. Who is right?*

**Answer:** Effectively, they are both right and they are both wrong, in that they are probably correct for their own
given value of “owned” but in legal terms they are effectively mixing concepts including “possession”, “rights in”,
“use of” etc. An educational institution may create, possess and eventually destroy data about its learners;
however, learners will also have rights in the retention and use of that data
[http://www.jisc.ac.uk/uploaded_documents/Legal_Aspects_FAQ.pdf?search=%22legal%20issues%20eportfoli o%20jisc%22]

The complex issue of digital data ownership in the context of ePortfolio usage was recently raised by
lawyers in the project “Study to Explore the Legal & Records Management Issues Relating to the
Concept of the Lifelong Learner Record, launched by Joint Information Systems Committee (JISC).
They observed key legal problems of ePortfolio projects in the areas of administrative/management, data protection, privacy and confidentiality, ownership and Intellectual Property Rights (IPR) in contents, user accessibility and disabilities and international dimensions, which might influence the operational success of lifetime personal webspaces. Concerning the dilemma of “data ownership” they reported the following needs surveyed by several ePortfolio projects in the UK (Progress Report, 2005 p.2-3):

- appropriate arrangements to secure effective management of intellectual property rights in the ‘background’ and ‘foreground’ project materials. [ePortfolio] projects were reported to be often uncertain about who owned the IPRs in pre-existing material which was incorporated into applications and tools, and what agreements were in place for the future use of such material by project partners and others. It was also often equally unclear who would own the IPRs in materials developed during the lifetime of the project.

- appropriate arrangements to secure effective management of intellectual property rights in the data contained in project applications and tools, including learner generated data. It was observed while most transcript-oriented learner data appeared uncontroversial in this regard, it was clear that ownership rights in valuable material created by learners in the course of their studies, and the use by learners of potentially sensitive/proprietary research data in the portfolio [PDP] process remained a potentially controversial, if largely unexplored, issue.

- clarity with regard to data privacy and confidentiality. Projects were found to differ widely as regards the nature and scope of the data collected, the channels of collection, the mechanisms for collection, methods of data quality control, and authorised access by staff to learner records. The majority of projects were not currently engaged in significant linkages to external data sources, nor releasing learner data to third parties outside the project, and were unsure about their position were they to do so.

It would go far beyond the scope of this article to analyse how national or European legislation react to requirements for ePortfolio work (or PDP Personal Developing Planning in UK) and what role the European legislation plays in the protection of individuals with regard to the processing of personal data and on the free movement of such data plays a (Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 http://www.cdt.org/privacy/eudirective/EU_Directive_.html 10-09-2006).

Instead, we will have a look at how technology providers so far have reacted to the above needs by screening the ePortfolio case studies, described in the new Handbook of ePortfolio Research (Jafari A./Kaufmann C. 2006): Unfortunately, only a few projects describe explicit technical approaches securing learners the appraised “ownership”. Among the most interesting ones in this context is the case study of the University of Maryland: There the aspect of assuring the ePortfolio author’s intellectual rights on multimedia content (portfolio artefacts) is addressed with a complex digital rights management system due to the fact that the portfolio facility/system is incorporated into the web-based Education Accountability System (EAS: http://education.umbc.edu) (Huang, 2006 p. 508-509). The system invites users to clarify ownership of the artefacts and/or acquire release permissions. Once published, images are watermarked with the customized watermarking function. Also authentication and assurance of artefacts and content have been developed. For learners displaying confidential information, such as Social Security numbers, a special algorithm for security, TripleDES is being employed.

Another interesting work is described by Simon Grant et.al (2006, p. 147/pp), who suggests a conceptual software architecture which separates the storage of information from the service which allows the owners of the portfolio information control over it. This service is called PIADS, meaning personal information aggregation and distribution service. The purpose of a PIADS would be to give the individual owners of information the facilities to manage the storage of and access (by themselves and others) to that ePortfolio-related information. This is precisely one aspect of the more comprehensive solution which we outline in the next section.
IV. Model for reducing the dilemma of data ownership

There have been a number of parallel developments in e-Publishing, knowledge and content management and e-Learning in the past few years and ePortfolio research can be seen in the same vein, combining the domain expertise of educationalists with technological questions. In technology consultation meetings for research at European level, similar topics have been in circulation for a few years now, partly coinciding with the ePortfolio discussion, but without knowing much of each other. One such idea was the "semantic life recorder" which was envisaged to hold all sorts of media information, e.g. your wedding video with associated semantic annotations (where the user can click on an object in the video stream - e.g. one of the persons shown in the video - and find out additional information about that person). The underlying data protection assumptions of the semantic life recorder were of course rather innocent: The semantic life recorder was meant to be more like a modern version of a family album and the tacit assumption was that the data would be under the owner's full control. The ePortfolio community cannot - and does not - rely on such simplistic assumptions. In fact, we propose that today's banking system is a good analogy for solving the problem of protecting one's virtual identity. The reason is that banking was the first service which dealt with virtual goods. As long as there was a barter system in which real goods were exchanged directly, there was no need for banking. As soon as money was introduced as a token for actual goods, a whole service sector developed that was able to guarantee the security of the money (no illegitimate access), it guaranteed its quality (interest rates) and it added services (fund management, pension schemes, etc). As soon as humans become partly virtualised, an analogous process could set in with advantages for the users and the providers. What we would need, however, is the equivalent notion of "money" for "data". At present, no such thing exists because every little Duchy or Kingdom issues its own, inconvertible "currency" (called data format).

In one of the IST projects of the Sixth Framework Programme, we developed a knowledge based content model which we believe has the potential to bring about the notion of "convertible currencies". It may then lead to the convergence of different kinds of knowledge and content management systems including ePortfolio Systems. The core concept for this "lead currency" is that of a "knowledge content object" (KCO) which combines pure content, any kind of meta data and so-called "semantic annotations" which are machine-interpretable descriptions of the human-readable content. KCOs were developed for "Semantic Web" applications. The idea is that web based content must be accompanied by machine-interpretable content descriptions and meta data so as to enable automatic processing of web content by machines thus leaving only high-quality and high-value tasks to human intervention. For example, large organisations receive several hundred thousand application letters every year. Providing a reliable machinery for choosing promising candidates would be enormously valuable for such organisations. KCOs with a specialisation towards ePortfolios could provide such an enabling infrastructure which we will now explain.

A KCO has six semantic facets which are outlined in the following table:

<table>
<thead>
<tr>
<th>Facets</th>
<th>Facet Elements</th>
<th>Short Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Description (CD)</td>
<td>Multimedia characterization</td>
<td>Media type, encoding, access information, of the content part of the KCO</td>
</tr>
<tr>
<td></td>
<td>Content Classification</td>
<td>Connection to established meta data standards such as Dublin Core, News ML etc.</td>
</tr>
<tr>
<td></td>
<td>Propositional Content</td>
<td>The knowledge realized by the content or segments of the content part of the KCO</td>
</tr>
<tr>
<td>Presentation Description (PR)</td>
<td>Spatio-temporal rendition</td>
<td>Description of how the content (and the Knowledge) of the KCO is presented to users</td>
</tr>
<tr>
<td></td>
<td>Interaction-based rendition</td>
<td></td>
</tr>
<tr>
<td>Community Description (CO)</td>
<td>User task</td>
<td>Description of Plans, Tasks, Roles and Goals in the context of a community which uses KCOs</td>
</tr>
<tr>
<td></td>
<td>User community</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Usage history</td>
<td>List of actions performed with the KCO during its lifecycle</td>
</tr>
</tbody>
</table>
This high-level structure of the KCO is built around the semiotic ontology design pattern of "information object" as provided by the DOLCE Foundational Ontology (Gangemi, 2002). The top level of this design pattern is shown in the following graphic.

DOLCE Information-object design pattern

An important part of the KCO Model is the "task" element of the Community Facet. Using an extension of the DOLCE foundational ontology, called the Descriptions and Situations Ontology (DnS) we can model the intended usage patterns of the content of a KCO. This way, we can define a workflow of how the content is intended to be used by actors who play a specific role. For example, we can say that a curriculum expert has to approve the content for its suitability in a specific learning situation. The task model specifies the approval procedure. Another facet, namely Trust and Security will then be updated by that expert approval. The result of the update would be that users can see the experts' approval in the trust status. A very simple demonstration of such a mechanism can be seen on http://metokis.salzburgresearch.at/demonstrations/index.html

Note that the task descriptions are not intended to be prescriptive. Rather, different systems may choose to enforce the tasks prescriptively (like a workflow management system) or they may simply ignore them, leaving it to a user to open a KCO and manipulate its content as allowed by the Security facet. The KCO's history element in the community facet will log what has happened to any of the information contained in the KCO and it will do so by storing instances of the so-called Task-Role pattern which is one of several useful subsets of the DOLCE-DnS Foundational Ontology. These ontological design patterns are currently being identified as part of a methodology for the development of ontologies that can be used in knowledge-rich content applications.
The Task-Role Pattern is a specialisation of the Description-Situation pattern as well as the Participation pattern. A Description defines Roles, Tasks and Parameters. A concrete Situation can satisfy or execute this Description. Endurants which play some Role participate in Events which are sequenced by Tasks. Both Endurants and Events have some Regions assigned. It would be beyond the scope of this paper to describe DOLCE and KCOs in more detail, but the full deliverable of the DnS extensions to DOLCE can be downloaded from: http://metokis.salzburgresearch.at/files/deliverables/metokis_d07_task_taxonomies_final.pdf

Figure: The Role-Task Pattern derived from the DOLCE foundational ontology

In our current work, we assume that any ePortfolio schema can be modelled as a specialisation of the generic KCO model. To illustrate the usefulness of both a foundational ontology and a generic model for content adorned with semantic annotations we suggest the following example of mapping between the IMS ePortfolio specification and the KCO model. The IMS ePortfolio specification (Cambridge, 2006, pp. 234 - 246) consists of the following upper level parts:

<table>
<thead>
<tr>
<th>IMS Portfolio Part</th>
<th>Purpose according to Cambridge 2006</th>
<th>Mapping onto KCO Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
<td>Preferences for interacting with systems and content</td>
<td>Presentation and interaction facet</td>
</tr>
<tr>
<td>Activity</td>
<td>Describes relevant activities</td>
<td>The community facet combines user roles, possible activities (tasks) and preconditions of tasks as well as outcomes of tasks</td>
</tr>
<tr>
<td>Affiliation</td>
<td>Describes organisational affiliations</td>
<td>organisational affiliations of the owner of an ePortfolio would be modelled in the Business facet</td>
</tr>
<tr>
<td>Assertion / Reflexion</td>
<td>Represents reflections upon, or assertions about, a portfolio part, including</td>
<td>reflections such as comments or explanations are activities and are therefore modelled in the community facet. The actual manifestations of such</td>
</tr>
<tr>
<td></td>
<td>comments and explanations</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Competency</td>
<td>Describes skills required</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are likely to be described as preconditions for certain activities which are - in principle - enabled by the system. This would therefore be modelled in the Community facet of the KCO</td>
<td></td>
</tr>
<tr>
<td>Goal</td>
<td>Describes personal objectives or aspirations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A goal is part of a plan and plans are mental abstractions of tasks. Goals would therefore be associated with tasks in the KCO model.</td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Indicates the owner</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This would be part of the description in the business facet. Note that ownerships may require sophisticated semantic modelling: If three surgeons succeed in a complicated operation then the information may belong to the surgeons, the hospital and the patient. Each party will have different rights, such as the patient's name being withheld.</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>Describes hobbies, recreational activities, etc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This would be part of the ePortfolio domain model. Part of the content would be about these activities and therefore, the basic terminology would have to be declared in the domain model.</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Accommodates ePortfolio information of other types</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depending on the kind of information, one of the five main facets would be applicable.</td>
<td></td>
</tr>
<tr>
<td>Participation</td>
<td>Group of people (who participated in an activity, created a document, etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The community facet has a history element which would log the activities provided they were representable as tasks. Else, participation needs to be represented in the domain model.</td>
<td></td>
</tr>
<tr>
<td>Product</td>
<td>Materials produced by the owner</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In a KCO, there are either digital representations of products or references to actual (digital) products.</td>
<td></td>
</tr>
<tr>
<td>QCL (Qualification)</td>
<td>Describes qualifications, certifications and licenses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This would be part of the domain model that specialises a KCO to an ePortfolio KCO.</td>
<td></td>
</tr>
<tr>
<td>Rubric</td>
<td>Represents guidance about how a portfolio has been or is to be assessed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part of the domain model</td>
<td></td>
</tr>
<tr>
<td>RubricCell</td>
<td>Refers to outcomes at the intersection of dimensions within a rubric</td>
<td></td>
</tr>
<tr>
<td></td>
<td>We are not sure how this is intended to be used.</td>
<td></td>
</tr>
<tr>
<td>SecurityKey</td>
<td>Represents passwords, security codes, etc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maps to the KCO Security facet.</td>
<td></td>
</tr>
<tr>
<td>Transcript</td>
<td>Store summary records of academic performance at an institution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any such transcript is a specific sort of content which can be ontologically typed e.g. as a &quot;certificate&quot; of some sort which belongs to a person and which certifies some level of achievement. Thus, transcripts would be semantically described in the ePortfolio domain model.</td>
<td></td>
</tr>
</tbody>
</table>

This initial mapping indicates that ontological alignment of current ePortfolio specifications is a feasible task and therefore, the migration or immediate modelling of ePortfolios with semantic web technologies is a likely development in the near future. Doing so would bring about the scenario which we have alluded to in the beginning of this paper and would lead to the following capabilities of
ePortfolio systems: semantic search with a high quality of results may soon be possible, but the
designers of such systems would need to know what requirements ePortfolio stakeholders have and
which controls have to be in force to keep the balance of power between the stakeholders.

Cambridge (Cambridge, 2006) also suggests that four interoperation aspects are important for
ePortfolios: Aggregation, Syndication, Distribution and Migration. We would argue that these are
interoperation aspects that hold for any content so there needs to be support for it at the level of
generic KCos. This is precisely the reason why we start modelling with a foundational ontology.
However, the generic model will indeed, require specialisation to meet the needs of learning objects or
ePortfolios. This will need collaboration and dialogue between researchers solving general
interoperation problems on the one hand and researchers understanding the specific interoperation
hurdles of learning or ePortfolio systems on the other.

V. – Conclusions

We suggest that there has been a technology-induced misconception which has viewed ePortfolio
primarily as a promising additional tool-suite for advanced forms of learning and keeping track of
personal achievements. In our view, ePortfolio appears to have strong societal impact and must be
seen as a pillar of a future knowledge based society. It can therefore ill afford a naïve approach to the
question of data ownership and protection of virtual integrity. This paper points at three major
trajectories: from eportfolio to lifetime personal web spaces; from insular data protection to the
integrity of the "virtual self"; from a data model for learning modules to an encompassing
infrastructure for knowledge-rich content objects that can be endowed with trust and security features.

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USING BLOGS FOR LEARNING LOGS
Martin Homik (Saarland University), Erica Melis (DFKI)

Abstract. In general, students leave a course and do not continue to reflect on its content. Therefore, learning gaps are neither identified nor closed. Studies showed that paper-based learning logs that target cognitive and meta-cognitive processing by prompts can overcome this deficiency. We conducted an explorative study with electronic learning logs based on the blog function of the e-portfolio system Elgg. Results indicate that using blogs for learning logs are well accepted by students but the cost-benefit ratio related to time investment is considered too high.

1. Introduction

In general, students forget a course’s content rather quickly, if they do not work with it actively. In fact, most students leave a course and continue to deal with the course’s contents only if they have to. Just a few interested students spend time for reflection on the seminar sessions. A personal organisation of learning content, thoughts, and critical reflections is usually not present, although it should be one of the results of higher education. This situation results in learning gaps that are neither noticed nor closed. Hence, the lack of comprehension and a poor long-term retention is a direct consequence.

Learning logs in e-portfolios as an active part of the course can overcome this deficiency. However, naive learning logs prove to be inefficient with respect of memorisation and understanding. Students following this type of learning log do not address cognitive and meta-cognitive questions which are necessary for self-organisation and self-assessment [9].

Learning logs with prompts can guide students by asking questions. Prompting means question answering. It is a simple method for helping students to activate background knowledge, i.e., to bring to mind and state, write down, or otherwise record what they know. A review by Pressley et al. [11] builds a strong case for the hypothesis that question answering approaches can increase learning. After reviewing a large number of research studies, they conclude that asking students to generate explanatory answers to questions about content to be learned can facilitate learning of the material.

Many studies have been conducted with paper-based learning logs (see §2). To our knowledge, there are no studies on learning logs based on blogs. In this article, we describe an explorative study based on experiments conducted with the blog-based e-portfolio tool Elgg (http://www.elgg.net/) within the scope of two seminars. The goal of the experiments was to investigate the usage and acceptance of blogs as part of an e-portfolio tool for writing learning logs, the effects of learning logs on retention and comprehension, and the effects of prompted learning logs compared to naive learning logs.

2. Related work

Gallin and Ruf [3] emphasise the importance of documentation and presentation of core ideas by the learner in his own words. They empirically validated traditional (paper) learning logs with students in primary school as well as in secondary school [2]. Further pedagogy researchers, e.g., Mayr [7] and Plamenig [10] investigated the use of paper learning logs with students from different educational
levels. Their results show that learning logs help to strengthen learners’ autonomy and support their meta-cognitive reasoning such as planning, reflecting, looking back, memorising, and exploring different viewpoints in a situated way. Berthold et al. [1] showed in an experiment with psychology students that prompting fosters cognitive activities, comprehension, and retention.

This observation motivates the integration of electronic learning logs in any e-learning environment, and in particular in e-portfolio management systems. People write electronic diaries for a long time and with the emergence of blog systems writing electronic diaries found a new popular platform [5, 4]. Schmidt investigated the German blogosphere [13] and in particular he examined in a sub study the motivation and behaviour of so-called knowledge bloggers – people who like to report to the public about their current work, research ideas, or learning progress in their blog [12, 14].

Homik and Melis describe an implementation of a learning log [6] for ActiveMath [8]. It allows to associate entries with particular learning items in ActiveMath. Type-specific prompts allow students to store input with semantic annotations. For instance, students can grade their performance, point to learning items they (did not) understood, list resources they considered helpful, etc. This framework potentially enables the overall learning system to analyse the users’ self-identified abilities and deficiencies. It can detect inconsistencies between self-assessment and the beliefs of ActiveMath’s learner model.

3. Research questions

We investigated the following research questions and hypotheses:

- To what degree are blogs accepted as reflective tools in short-term learning? How useful are blogs in a seminar? How much blog activity is devoted to discussion and collaboration?
- Do students believe that their performance increased by using learning logs?
- How do students reflect when they can write logs freely without being guided by prompts? What kind of issues do they address? What do they omit when not prompted?
- We expect an increased motivation to blog if student’s know that their blogging activity is graded.
- We expect a better performance in the post-tests for students who were instructed to use prompts.
- We expect that students who write free learning logs switch to the prompt schema after the second session.

4. Experiments

The first experiment was set up for a weekly seminar, the second for a block seminar. In both experiments we used Elgg as a discussion and reflection tool. Before the seminar, students were instructed that the quantity and not the quality of their participation would influence the final grade. Moreover, we promised to follow their logs regularly and, in case of misunderstandings or questions, to provide clarification and answers. Feedback was given from researchers from our group and partners of our EU project LeActiveMath. To experience the use of Elgg in this setting and to provide examples on how to use Elgg, the first author participated in both experiments under the same conditions the students had. After each seminar, the first author questioned students via e-mail when unclear points occurred.

4.1 First experiment

4.1.1 Setting
The first experiment was conducted in a weekly seminar *Hands-on mathematics for computer scientists* in the winter 2005/2006. The seminar’s topic was about technologies for mathematics learning. Students had to prepare a series of short presentations and to deliver small programming projects. The seminar included the work with ActiveMath, a learning environment for mathematics, which is being developed by our research group. Since bugs were still likely to occur at that time the students were asked to report and describe them in a blog.

Nine computer science students started but only five finished the seminar. The students were asked to use a local Elgg installation for maintaining an individual e-portfolio, recapitulating the seminar sessions and presentations, reflecting on their own performance, and discussing with all participants (see http://elgg.activemath.org/). We instructed the students once to answer the following questions:

- What was the last session about?
- What did you (not) understand?
- What did you like/dislike?
- Summary of the session

4.1.2 Results

In the beginning, students did not volunteer to reflect in a blog. They explained that they were not used to this and did not want to invest extra effort. Only after announcing that the quantity of their blogs will contribute to their grades most of them started to write. Usually, they wrote one blog entry per week. Entries consisted mostly of a brief summary which sometimes also included bug reports they encountered in the ActiveMath system.

In general, the tutor was the first who wrote a detailed public entry some days after the seminar session. Chances were high that students copied some of his statements. They admitted that they wrote an entry just before the next session and realised that they already forgot the last session’s content. Therefore, they might have read the tutor’s entries before they wrote theirs.

Unfortunately, the students never introduced other topics than their reflective entries. Moreover, they rarely commented the tutor’s entries and never those of their fellow students.

For quick communications, the students and the tutor used e-mail communication. It was much more convenient than writing blog comments and waiting for answers. Only if the content of an e-mail became interesting for others the tutor put it into the blog.

Some students created their own communities – a function specific to Elgg – but the tutor was never (made) aware of this.

In the last third of the course, the tutor asked students to upload all their course work into their e-portfolio. Again, they were rewarded with a slight improvement of their grade. After a while, the tutor noticed a nice change in behaviour: in the beginning, the students had sent the tutor their work for the next session via mail. Later, he wondered why they stopped. He found out that they uploaded their work into their e-portfolio files folder and expected that the tutor would inspect it anyway. Only two were so kind and announced their uploads in their blogs. In the context of a learning platform, where the participants do not meet each other face to face this is acceptable. But for a tutor, extra steps are involved, because he has to look into the students’ file folders. Receiving their work via email is a bit faster since it is delivered “into his hands” and he only needs to open it. A notification or watching mechanism might be useful.

In the final seminar session, the students stated that they appreciated Elgg as a reflective tool. It helped them to remember facts or to pick up ideas expressed by others. However, they would not use an e-portfolio for each subject. The reason is not the appropriateness of a subject. Rather, the obstacle was
the time they had to invest for keeping a reflective blog. If they had to use a blog, they would focus on some selected subjects. The tutor himself made the same experience: it took him two hours to write a good, reflective blog entry because he had to think about the questions raised during the seminar, to talk to his colleagues, and to publish the answers in the blog. During the two months after the end of the seminar nobody added any new entry into the blog.

4.2 Second experiment

The first experiment yielded first data and helped us to set up a more controlled second experiment whose conditions would be more significant wrt. our the hypotheses and research questions.

4.2.1 Setting

The second experiment was conducted in a three-session seminar on Intelligent Tutoring Systems in summer 2006. The participating students were assigned to read publications on intelligent tutoring systems and to present the key ideas in a 30 minutes talk plus 10 minutes discussion.

Ten computer science students attended the seminar. The first two sessions included 4 presentations each. For supervision, a tutor was assigned to each individual student. Altogether, there were 7 tutors (Table 1 list the first author of this publication as Tutor 1). To answer our research questions, we arranged the students into two groups. Prior to the blogging activity, the groups received different instructions via e-mail.

The first group was instructed informally to write a review of minimally 300 words for each talk containing a summary and a description of their impressions thoughts, ideas, and assessment.

The second group was instructed to answer the following given questions. They base on the prompt framework introduced in [1]. The first three questions target cognitive processing, the last three questions target meta-cognitive processing.

1. Organisation. What is the story line of the talk? Describe the motivation, the goals, and the path to the goals.
2. Elaboration. Make up own examples, counter examples, or illustrations. Did you come across the presented techniques in a different context? If yes, where?
3. Critical reflection. What did you find interesting, useful, convincing, inspiring? Is there anything you criticise?
4. Monitoring. What did you not understand about the talk?
5. Self-diagnosis. What is the likely reason?
6. Self-regulation. How would you overcome your deficiency?

Post-tests. In the beginning of the second and third session, we selected two presentations of the last session and asked the seminar students to recall the presentations’ key ideas. They had 15 minutes to write a report.

4.2.2 Results

In this section, we first evaluate the second experiment in general. Then, based on the results, we investigate the research questions and hypotheses.

General evaluation. Right from the start, it was announced that the blog activity would contribute to the final grade for the seminar. We expected that students would write blog entries without delay.
Unfortunately, due to technical problems with our e-mail system most students did not receive the exact instructions on how to use the blog and how to publish in the blog in time. Thus, only three students blogged between the first and second session (9 blog entries in total, 2 by tutors). The blog activity increased between the first and second session (19 blog entries in total, 8 by tutors) but most blog entries were added on the day of the third session (9 blog entries in total). This is in line with the experience from the first experiment. After the third session and until the closure of the blog one month later, 30 blog entries were posted of which only 3 were authored by a tutor.

A detailed analysis of the blog activity in the second experiment is shown in Table 1. For each user (student and tutor) it lists how many blog entries and how many comments she/he has published. In summary, there were 57 blog entries of which 24 were commented by 45 comments in total. Four entries were open questions, 19 entries were announcements, and 43 entries were summaries. Two open questions were followed-up by 9 comments and two announcements received by 5 comments. In general, commented entries had two to four comments. They were mainly answers to questions or issues raised by the first tutor. Students rarely commented their fellow students’ blog entries. Usually, they watched for comments on their own blog entries and answered those.

Only three students (User 1, 5, and 6) posted and commented quite often. An explanation is that they followed own interests. One student is writing his bachelor thesis in our group; the second was interested in a good final grade and blogged, because “it was part of the seminar” and because he

<table>
<thead>
<tr>
<th>User</th>
<th>Number of Entries</th>
<th>Comments</th>
<th>After Session 1</th>
<th>2</th>
<th>3</th>
<th>Entries in English</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>User 1</td>
<td>User 2</td>
<td>User 3</td>
<td>Group 1</td>
</tr>
<tr>
<td>User 1</td>
<td>8</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>User 2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>User 3</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>User 4</td>
</tr>
<tr>
<td>User 5</td>
</tr>
<tr>
<td>User 6</td>
</tr>
<tr>
<td>User 7</td>
</tr>
<tr>
<td>User 8</td>
</tr>
<tr>
<td>User 9</td>
</tr>
<tr>
<td>User 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tutors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor 1</td>
</tr>
<tr>
<td>Tutor 2</td>
</tr>
<tr>
<td>Tutor 3</td>
</tr>
<tr>
<td>Tutor 4</td>
</tr>
<tr>
<td>Tutor 5</td>
</tr>
<tr>
<td>Tutor 6</td>
</tr>
<tr>
<td>Tutor 7</td>
</tr>
</tbody>
</table>

| Total   | Total 57          | Total 45 | Total 8        | Total 19 | Total 30 | Total 26 |

Table 1: Second experiment’s blog usage (Tutor 1 is the first author)
wanted to “make a good impression”; and the third tried to improve his grade because his presentation was quite bad.

Most blog entries were extended summaries plus a few sentences about the presentation itself. Although not required, six students posted partly in English (most popular foreign language in Germany). There were 25 entries in English. Four students wrote all their entries in English (User 4, 5, 7, and 8) and one student (User 6) wrote all but one entry in English. This is remarkable as students usually prefer their native language (here: German) for communication.

It was striking that students carefully criticised the presentations. They suspected that bad presentations might have been a consequence of bad or superficial publications, of the circumstances (being excited, last talk of the day, hot weather), or a lessened concentration.

Some students pointed out that the presented slides were not published on the seminar’s web page and appealed to their fellow students in the blog to upload all presentation slides into the community e-portfolio folder in Elgg. They hoped to get an opportunity to glance at the slides and recall the presentation before writing a blog entry about the presentation. In the end, only three slide presentation were uploaded into the community blog.

Although the students appreciated the idea of reflection and learning logs they disliked the setting of the seminar. They criticised the blog entry overload as everybody had to reflect on a presentation. They lost the overview, and reading and re-reading the same thing was boring and decreased motivation. Finally, the lack of notification hindered the activity of the blog.

The students’ motivation to blog was rather low. They did it, because it was expected and it was part of the grade. As opposed to this, students appreciated a blog as a learning environment for recapturing presentations, discussion, and lectures in general. They valued the opportunity to read other peoples’ views. However, the cost-benefit ratio was considered too high.

To what degree are blogs accepted as reflective tools in short-term learning? How useful are blogs in a seminar? How much blog activity is devoted to discussion and collaboration?

In both seminars, the majority of students confirmed that using blogs for learning logs is a useful tool for learning. Among others, they appreciated blogs as means to recall and memorise learned material, to structure and organise own thoughts, to read about their fellow students’ views, and to exchange and discuss raised open questions and opinions.

Compared to other seminars, where students were asked to write a summary of their own presentation, we asked our students to write summaries of all presentations. Consequently, as the students stated, this helped them to pay more attention during presentations and to get a broader overview of the seminar’s content, because they were forced to deal with it in the blog. Also, they liked the comment function which enabled to ask them or answer questions.

On the other hand, the students criticised the usage of blogs. Writing summaries is time-consuming. The students wrote blog entries because they thought they were supposed to do so. In fact, as soon as the first seminar ended, no student continued to use it.

A key critique of the current Elgg version is the lack of workflow functions such as the notification via e-mail when blog entries or comments are inserted. In principle, notification for new blog entries can be handled by using RSS feeds. Depending on the RSS Reader (e.g. Thunderbird), the interested user can see at once when new blog entries are available. A user who uses no RSS Reader has to look up the blog regularly. One student suggested, if the seminar’s main purpose was to stimulate online collaboration and discussion, then, it would be much more efficient to use a forum, which can be set up to signal the student that a new post or answer to a post has arrived. Moreover, forums are more concise as they offer a hierarchical view on the topics.
Do students believe that their performance increased by using learning logs?

Indeed, those students who blogged regularly believed that their performance increased but this cannot be fully confirmed by the post-test results. For instance User 1 was very active in the blog and wrote a detailed summary to each presentation. To do this, he even read all provided scientific publications. However, his first post-test results were weak (see Table 2). An explanation is that he intensified his blogging activity just after the third session. Between the first and second he wrote only a blog entry about his own presentation which was not tested in the post-test. Since he was not present in the last session, we cannot say if he would have improved in the second post-test.

But altogether, we can state that those students who blogged actively dealt in depth with the seminar’s topic and gained a broad overview which is documented by their blog entries.

How do students reflect when they can write logs freely without being guided by prompts? What kind of issues do they address? What do they omit when not prompted?

In this evaluation, only three students were asked to write logs freely. User one posted quite often (see Table 1). All his entries were summaries except for one, a post about his own talk, in which he also briefly expressed his curiosity about the topic of his talk. The second student posted only twice: the first post was a general remark about the blog instructions, while the second was a summary of his own talk including a few statements that were raised in the discussion after the presentation. He did not reflect at all. The third student always added a paragraph to his summaries in which he judged the presentation. Where possible, he also described related situations in which he came across the presentation’s topic and recommended further reading. His style of writing resembled the text structure induced by the special questions that were given to the second group. That is, he commented whether the presentation was comprehensive, easy to follow, logically structured, well thought, and convincing. He also pointed out what ideas were most interesting for him. Finally, he compared the presentations of a seminar session by naming the best talk of the day.

Due to insufficient and diverse data we cannot state a tendency towards a specific style of writing or reflection.

We expect an increased motivation to blog if students know that their blogging activity is graded.

We can reject this hypothesis. The students knew that blogging would be a minor part of the grade, hence, we can assume that they considered it negligible. Concerning the effort, the cost-benefit ratio was too high. Also, working with Elgg and the lack of workflow was cumbersome. Statements such as

<table>
<thead>
<tr>
<th>User</th>
<th>Talks</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>User 1</td>
<td>weak</td>
<td>weak</td>
<td>n.p.</td>
<td>n.p.</td>
</tr>
<tr>
<td>User 2</td>
<td>-</td>
<td>good</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>User 3</td>
<td>good</td>
<td>-</td>
<td>n.p.</td>
<td>n.p. (x)</td>
</tr>
<tr>
<td>User 4</td>
<td>weak</td>
<td>weak</td>
<td>weak</td>
<td>weak</td>
</tr>
<tr>
<td>User 5</td>
<td>good</td>
<td>good (x)</td>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>User 7</td>
<td>weak</td>
<td>good (x)</td>
<td>n.p. (x)</td>
<td>n.p.</td>
</tr>
<tr>
<td>User 9</td>
<td>good</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>User 10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

“The Blog is too complex and too unstructured” or “I didn’t know that someone commented my blog entries.” underline the observation.

We expect a better performance in the post-tests for students who were instructed to use prompts.

Due to insufficient data we cannot confirm or reject this hypothesis (see Table 2). Students skipped sessions and were, thus, not present or could not reproduce anything because they missed the preceding session. We cannot even say that students who blogged quite often remembered more details than students who rarely blogged. However, we can confirm that good students who participated in the blog actively (User 5 and 6) also performed well in the post-test.

Though all students knew that the participation in the blog will be graded most did not put enough effort in it. The hypothesis that students who want to achieve a good grade or make a good impression as well as that students who are (about to be) involved in the work of our research group would be active in the blog could not be confirmed. For instance, user 2 applied during the seminar for a master thesis in our group and user 10 is a member of our group. However, both did neither post entries nor submit comments.

We expect that students who write free learning logs switch to the prompt schema after the second session.

This hypothesis bases on the assumption that students follow public entries written by fellow students guided by prompts and that they prefer to answer prompted questions in two respects:

1. Prompts give hints what tutors might expect.
2. Suggested prompts are reasonable.

The only candidate for answering this question is the third student. Hence, the data does not suffice for a generalisation. However, he pointed out that he did not adapt on purpose to any style nor did he know that other students received special questions. He combined summaries and reflections according to his own preferences.

Even if there were more students in this group it would be difficult to answer this question, because the students in the second group focused more on the summary rather than on the cognitive and meta-cognitive questions we asked. As a matter of fact, there was exactly one entry in which a student explicitly answered these questions and structured the blog entry accordingly. Thus, there were not enough entries which could serve as examples for adaptation.

Usage of Elgg by tutors. A quite interesting result of the experiment is that no seminar tutor but one posted in or commented the blog (see Table 1). A common reason was the lack of time and the effort that is needed for following activities in the blog. This observation is in line with the author’s experience: sometimes, it took him two hours to write one entry, because he had to think about questions and correct answers.

One tutor mentioned that he followed the blog activities from time to time but he was not tempted to contribute. Like the students, the tutors criticised the lack of a notification function. Nobody was aware of any new (significant) blog entries or comments. As opposed to this, when a learner contacted the tutor via e-mail, he responded immediately. Finally, a tutor argued that the system was simply not “handy” enough.

Finally, the first tutor stopped writing blog entries about student presentation into the blog after the second session due to lack of time.
5. Discussion

Obviously, there is a discrepancy between the appreciation and acceptance of reflection in form of learning logs and a blog system which is used for the maintenance of learning logs in form of blogs. The cost-benefit ratio related to the invested effort and time is considered too high.

One way to reduce this ratio is to simplify the user’s daily work with the system by provision of workflow facilities (e-mail notification) and more structure (thread hierarchies). But then, if collaboration is the main purpose, forum systems such as phpBB (http://www.phpbb.com/) may be more suitable than blog systems. Principally, they offer all those features which were used in our experiments plus those that were demanded by the students. Quite often, those forum systems are integrated into larger learning management systems (e.g., Moodle (http://www.moodle.org), Sakai (http://www.sakaiproject.org)) which offer many more functionalities. It is an open question whether blog-based e-portfolio systems can survive on their own or if they migrate into a larger learning management system on the long-term as it is the case with OSP (http://www.osportfolio.org/) and Sakai.

Even if workflow and collaboration problems are solved, students have to invest a significant amount of time for writing reflective entries. This might be infeasible if tutors of different lectures/subjects demand such kind of reflection and collaboration. Also, tutors usually can due to time constraints follow and answer to only a small subset of the accumulated posts. We believe that tutors will either stop using these collaborative environments, restrict legal posts to a few post types (e.g., only open questions), or leave the community to itself.

In general, to establish a sustainable and a vivid community, it must consist of members who have common interests and who are willing to share and communicate information. In fact, those users identify themselves with the community. This was not the case in our experiments. The creation of a collaborative community within a lecture seems to be forced and artificial. It is unlikely those communities become active or persistent.

Students in the second group focused their blog entries on the summary rather than on the cognitive and meta-cognitive questions we provided in the instructions. They occasionally dealt briefly with some of these questions somewhere within the summary or in a preceding or succeeding paragraph. They rarely structured their blog entries according to the questions. Only one student did so once. To provide structure prompts would be needed inside a blog. That is, whenever a user starts writing a new blog entry, questions will be added automatically. To do this, templates for blog entries are needed.

Finally, we learned that the instruction part of the second experiment’s setting did not foster collaboration. The students usually focused on their own blog entry and lost the motivation to read those of their fellow students because it was essentially the same. Instead, they waited for the tutors’ comments. This put the active tutor in charge of reading all entries and providing helpful comments. A slight modification of the setting that increases collaboration and relieves the tutor from an amount of work could be to ask each student to read and comment all blog entries that are related to her/his individual presentation.

So what are the consequences? Is a blog-based e-portfolio system such as Elgg appropriate for lectures? We believe that it is – despite of the negative results. It is up to the individual whether she/he decides to maintain private (or public) learning logs, and it is their decision if they wish to create, join, or contribute to a community. This is the essence of Elgg’s vision of a learning landscape [15].

In addition to the students’ statement that blogs are useful for reflection, we underline that, at least, the first author profited. By reading and commenting blog entries he was able to identify and close his learning gaps. He investigated open questions by interviewing his colleagues and tried to document and to publish the newly learned information. Our research group profited as well because members of
the group got in touch with users they develop software for. The students became contributors and beta-testers (first experiment) such that we were able to improve our software.

6. Conclusion

We described an explorative study using learning logs with a blog-based e-portfolio system. The two experiments we conducted indicate that the idea is well accepted by students. However, the cost-benefit ratio is very high and decreases motivation which puts e-portfolio systems to some extent in question. Future systems will have to lower this ratio by incorporating sophisticated workflow mechanisms to provide a maximum of usability. To stimulate cognitive and meta-cognitive processing in blogs prompts are required in form of template blog entries.

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6. References


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EPICS – OUTCOMES OF A REGIONAL EPORTFOLIO INITIATIVE TO SUPPORT LIFE-LONG LEARNING


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Background

The facility to transfer portfolio data between different systems has the potential to provide greater continuity in life-long learning and may help put more emphasis on continuous development, rather than fragmented and episodic learning. Transferring portfolio data may also deliver other educational benefits such as the explicit recognition of prior learning, achievements and existing skills. However, there are many challenges to overcome in achieving this transfer of data (technical, pedagogic, legal/ethical etc.).

The EPICS project is a regional ePortfolio collaboration in the North East of England, funded as part of the JISC Distributed e-Learning Programme, which aims to address some of these challenges. The partners include the OWL consortium of Further Education colleges and five Higher Education institutions (Universities of Durham, Newcastle, Northumbria, Sunderland, and Teesside), which collectively use a diverse range of ePortfolio applications, including ePET and Blackboard CMS. The partners have a history of working closely together and, following extensive dialogue, chose to prioritise learner needs as a key area of work, acknowledging other collaborative work, and complementary proposals in response to this project. EPICS builds on a number of previous projects developing ePortfolio technologies and pedagogy. Within the region a number of different ePortfolio systems are used for a diverse range of purposes across the educational continuum, ranging from supporting PDP to assessment.

The project itself used a methodology designed to develop, test and evaluate a practical approach, building on existing tools, to implement a region-wide infrastructure for the easy transfer of individual progress file, ePortfolio and PDP information across a range of agencies and institutions. Enhancing the learning experience by supporting the individual needs of each learner is at the heart of this development, along with permanently embedding collaboration in regional activity.

Aims and Objectives

1 The OWL Consortium is a collaboration between the local colleges in the Tyne and Wear area (City of Sunderland College, Tyne Metropolitan College, Gateshead College, Newcastle College and South Tyneside College).
2 Regional collaboration on ePortfolio Progression Pathways with Illustrative Case Studies (EPICS)
The aim of the EPICS project was to collaborate with representative institutions of North East educational sectors (within and between FE/HE), to extend the regional partnership through active engagement and dissemination of illustrative case studies, and to learn from parallel activities elsewhere.

The project’s objective was to establish a regional collaboration to:

- Identify the conditions necessary to create a framework within which a single ePortfolio PDP, directly linked to the individual learner, can be followed through its full lifecycle from the final secondary school years to A level and FE, through foundation courses and degrees to graduating from HE and on into the workplace, whilst providing a seamless experience to the individual learner
- Develop a suitable technical framework to deliver the transfer of learner ePortfolio information (which may be different in each institution) between a range of educational institutions, and web based interfaces to enable access from learners’ homes, educational establishments and the workplace
- Implement an agreed base-level technical schema to test the portability of learner ePortfolios.
- Examine the regional, legal, political and cultural issues which need to be addressed in order to offer a full progression pathway
- Evaluate the integrated use of ePortfolio tools to support widening participation and lifelong learning, by developing 5 model case studies to illustrate how local, regional and national systems will work together to provide coherent access across educational institutions to learner portfolio information
- Disseminate the practical outputs of the project to other regional partnerships and the JISC via the website, documentation (including a handbook and case studies), and events

Potential Barriers

There was a degree of difficulty in engaging with multiple colleges and universities across the region. The EPICS Project involved close collaboration between the five Universities in the North East – Newcastle, Northumbria, Sunderland, Durham and Teesside, and with a number of Further Education Colleges including City of Sunderland College and Stockton Riverside College. One key issue this raises is the geographic spread, as the distance between institutions made any collaboration significantly more difficult. In a bid to address this, the monthly project meetings were held at different locations throughout the region and a project management website was established using the Basecamp\textsuperscript{8} software package to facilitate online collaboration between partners. This allowed partners to engage with one another without having to travel between institutions.

The cultural and historic differences between the institutions proved to be as large a barrier as the geographic disparity. From the beginning, the partnership was delicately balanced with a dichotomy between the institutions that wanted the project to explore the pedagogical, political and legal aspects of ePortfolios and those who were more involved in the technical components of the project. The project plan required both sides, exploring the barriers to ePortfolio usage and progression to provide the foundations on which to build the technical framework.

Most partners have been very keen to involve their institution throughout the two areas, although it proved more difficult to achieve the necessary buy-in from other key parts of their universities and colleges. For example, a number of institutions approached their ICT department and found an unwillingness or inability to co-operate on the technical developments required. It was agreed that only the institutions that were willing and able to collaborate on a technical level would need to be involved in these aspects of the project. This was to the benefit of the project as the small numbers of technical staff involved could work closer together than would have been possible had all partners been involved.

It was recognised that pedagogical and technical elements are of equal importance, but that the pedagogic may be the more intractable. To counter this, a regional PDP forum was established, chaired by Jamie Thompson from Northumbria University. This proved to be one of the key outcomes of the project, and
was recognised early on as an important group, and many of those who were more interested in the pedagogical elements of the project believed that the EPICS project should have been a similar group, looking at the more strategic usage of ePortfolios, with less emphasis on technical issues. The establishment of this forum has ensured that the project has engaged with all partners, without losing any momentum.

**Pedagogy and Governance**

**Regional Forum**

As part of the EPICS activities a Regional Forum has been established to share good practice for Personal Development Planning (PDP) and ePortfolios within the region. Given the relatively large number and diversity of partners this has been a major achievement with productive workshops leading to a closer community of practice within the region, while maintaining links with national and international initiatives.

From early in the project a consensus emerged around the need for EPICS to develop a practice reference group, a ‘process and practice’ forum to explore the broader issues involved in PDP / ePortfolio activities at a regional level.

The emergent Regional Forum organised its activities in workshops around three key themes central to the development of transferable ePortfolios to support PDP. The workshops identified common practice, differences and served to shape some shared understanding and vision. Following the workshops a Regional Symposium was held where the results of the workshops were disseminated to a wider audience and from which the Forum was given a clear steer for its future activities. Three key proposals emerged from the symposium;

The Forum should include and embrace the student voice as an integral part of its activity.

The Forum should reach out to the wider stake-holding community and into its member institutions to involve and engage a wider range of people.

Building on the useful foundations established the Forum should undertake a specific project; to identify portfolio templates acceptable to each institution to be used to pilot large scale transfer of ePortfolio between institutions and systems. There will be at least three such templates identified.

Drawing significantly on the Evaluation workshop and the Symposium Forum partners have subsequently designed a matrix situating PDP / ePortfolios in relation to their purpose (as mirror, as map or as sonnet) and to the different stakeholder perspectives (student, lecturer, employer, institution etc). This work will provide a framework for two significant projects over the next year. First it will inform the development of the three regional portfolio templates and the piloting of concurrent and contrasting evaluation strategies for those templates in practice. Second it will provide an underpinning rationale for a national research pilot to explore the meaning, delivery, outputs and outcomes of personal development in tertiary education and employment. This research project will be led by a collaborative partnership between HEIs and the Extended Lifelong Inventory (ELLI) at Bristol University and will seek to build on the work done by ELLI principally in the school sector.

The work undertaken to date and lively and exciting future planned for the Regional Forum reflect the rigorous pedagogic debate that has underpinned and continues to underpin the technical developments.

**Governance Tool Kit**

Governance relates to the distribution roles, responsibilities and accountabilities across stakeholders. A ‘toolkit’ has been produced as part of the project to increase awareness of governance issues relating to the transfer of portfolio data across institutions. The toolkit aims to inform new projects on getting a good alignment of technology, management and pedagogy in order to reduce the risk of failure. The toolkit is

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10. *ie. The Philosophy and Meaning of PDP, PDP Practice and Evaluating PDP*

**Technical Interoperability**

The technical elements of the project were designed to look at how the contents of an ePortfolio record could follow a student as they progressed through their academic career and beyond. This involved moving student data from an ePortfolio system at their previous college or university into their new ePortfolio at their future institution. For example, student may go from school to college to university and then into postgraduate education or work. Their portfolio record from each previous stage is very likely to be useful within each future stage.

The Faculty of Medical Sciences Computer Services at the University of Newcastle developed the ePET ePortfolio system. Originally developed as part of a collaborative FDTL-4 project, the portfolio became synonymous with ‘ePET’ after the JISC funded ePortfolio Extension Toolkit (ePET) project which followed on from this. The original ePET project created an additional component that allowed ePortfolio data to be extracted from the ePortfolio in XML in a variety of interoperability schemas. A modified version of this was used in the EPICS project.

The ePET portfolio system is component based and easily customisable. It is structured in such a way that institutions can easily create and adapt tools to meet their own pedagogical requirements. It is built using open source technologies, principally Zope and MySQL. ePET is in used in a number of institutions, including Newcastle University, and was trialled at Teesside University throughout the duration of EPICS.

Blackboard is the market leading Virtual Learning Environment (VLE), used internationally by a wide range of customers, including some of the EPICS partners. To meet growing demand for portfolio systems, they have produced an unstructured tool that allows students to develop a web-based portfolio. The ePortfolio system is an add-on to the main VLE, and unlike the structured design of ePET, it is more of a file repository and a way of creating personal webpages. The City of Sunderland College has purchased this module, and has been using it successfully for a number of months.

The unstructured nature of the Blackboard ePortfolios means that they are able to blend format, resources and text very effectively. For example, within Blackboard, it is possible to have a page with text referring to the images displayed adjacent to it, all formatted according to the user’s wishes. This requires very little know-how, as the What-You-See-Is-What-You-Get (WYSIWYG) editor is fairly straightforward to use. However, because of the unstructured nature, these associations are not defined in the HTML source code, and as such will not be seen to exist by a machine reading the source code; and this poses significant issues for transferring portfolio data between Blackboard and other systems.

**Interoperability Case Studies**

The technical interoperability study involved transferring real and mock student data between ePortfolio systems, replicating the progression pathways that real students might take, while testing the options and possible solutions to the transfer of data between systems. A series of Case Studies were put forward following discussions with representatives of the partner organisations. This was documented in a series of case studies, and the actual tests involved transferring data from:

- ePET ↔ ePET (Newcastle and Teesside)
- ePET ↔ Blackboard (Newcastle and CoSC)
Case Study 1

A Full-time CoSC student, 16-18 year old, studying AS levels in Biology, Chemistry and Maths, who has also studied French, General Studies, Citizenship and Key Skills. They intend to go on to the University of Newcastle upon Tyne to study Medicine. Data would be transferred from Blackboard to ePET.

Two real-life CoSC students were asked to allow the transfer of their data, and although they did not fit exactly into the student model suggested when determining this Case Study, they provided invaluable real life data, thereby helping to bring into focus the relevance of data transfers, and as such of the EPICS project as a whole.

The system at CoSC had only recently been implemented, and as such the portfolios were quite new and undeveloped, meaning that they lacked the diversity of content that could be expected from a mature portfolio. In particular they lacked examples of multimedia, with the only examples of binary data stored in their portfolios being a JPEG photograph and a CV in Microsoft Word format.

The CoSC portfolios were downloaded from Blackboard using the standard download tool. This allows the web pages forming the portfolio, along with any supplementary files to be downloaded into a zip file. The original data is safely archived in this zip file for future use, and allows the student to browse their portfolio locally as static HTML. This zip archive was uploaded into ePET using the date transfer module that allows zip files to be imported into the system. It reads any folder structure within the zip file and recreates that in the ePET file repository, storing the files in the corresponding folder. The contrasting nature of the structured ePET portfolio, and unstructured Blackboard portfolio meant that the design of the pages was lost in the transfer, although the original pages were kept in the archive.

During the zip file upload process, ePET reads through the uploaded archive attempting to locate any XML file. If an XML file is found it checks to see if it will verify against IMS-LIP\textsuperscript{14}, and if so will parse that data inserting records based on the XML into the database structure. As Blackboard creates HTML and not XML, any text data stored within the HTML files in the zip archive could not be transferred into the relevant text boxes of the ePET portfolio. Some initial ground work was conducted to investigate how to achieve this and it was determined that for numerous reasons this was unlikely to be successful. The Blackboard WYSIWYG HTML editor allows so much flexibility that it was very difficult to program a system to take into account all the various possible permutations. This was exacerbated because the templates in use by CoSC did not produce valid XHTML, meaning that standard HTML parsing libraries available to ePET could not read the Blackboard HTML in the way expected.

To transfer text data into the relevant ePET fields a ‘cut and paste’ technique was actually the most straightforward method, even though this was effectively a manual transfer. The student uploaded their zip file, and then went through the rest of their portfolio copying from their Blackboard portfolio and pasting into the most relevant area of their ePET portfolio. Although not automated, it was noted that this form of transfer empowers the user, in that he or she is in control of the data and its processing, which bypasses some of the more difficult legal issues around data ownership and data protection.

Case Study 2

A Part-time mature CoSC student on a vocational course studying Music is interested in taking the Popular and Contemporary Music BMus Hons (W301) course at the University of Newcastle upon Tyne. Data would be transferred from Blackboard to ePET.

The unstructured nature of the Blackboard ePortfolios means that they are able to blend very effectively format, resources and text. As a music student, this was very important as their portfolio was multimedia-rich, containing sample music files and potentially videos of their performances.
A fictitious student record was created within Blackboard. For expediency, it was decided to use a sample portfolio exported from ePET which was imported into Blackboard, modified to add multimedia, and subsequently re-exported, and uploaded into ePET. This actually replicated closely the sort of information that we would expect such a student to have recorded, although it also meant that the exported web pages were XHTML compliant, and mapped very closely to the IMS-LIP XML standard used by ePET for data importing and exporting. These web pages remained virtually unchanged during the importing and exporting process.

As the web pages were produced in a standard format, it was possible to map the data structure of these pages to the data structure of ePET. During the process of converting the XML downloaded from ePET to HTML, <div> tags were used to surround the required content, and these were given class attributes relating to the relevant tags within the IMS-LIP schema. Some work was undertaken to map these attributes to the ePET database, and on uploading the zip file, ePET could take a large proportion of the information within the HTML files and place them into the relevant area in its database.

The file transfer was quite quick, given the size of files being transferred. However, this could become a huge barrier if an institution has a slow bandwidth, because there is a possibility that the file could grow to a size that would time-out during a standard HTTP transfer, especially if the student has graduated from a four-year, multimedia-intensive course.

This process could only work as well as it did because the original source of data was a structured one, i.e. ePET. If the data had been extracted initially from an unstructured source (i.e. Blackboard) it would have been much more difficult to extract the data, as was shown in Case Study 1, which required the student to copy and paste from one portfolio into the other.

Case Study 3

A University of Teesside Student, studying Midwifery, wishes to go onto the University of Newcastle to complete the MBBS. Data is transferred from ePET to ePET.

The University of Teesside have been piloting a number of ePortfolio systems as part of the EPICS Project, including ePET and Pebblepad. Although no midwifery students are involved in the pilot, it is very likely that the School of Health and Social Care would actively take on board one of these ePortfolio systems. Medical students studying on the MBBS Course at Newcastle have access to an ePET portfolio through their Learning Support Environment (LSE).

A student record was created within Teesside’s portfolio system that was designed to simulate what information a real student might store against their record. This information included CV-based data, a SWOT analysis and a number of Microsoft Word documents. The ‘XML Transfer’ option of their Newcastle Portfolio allowed them to move this data from their Teesside portfolio. Teesside University was selected from a list of institutions and to request that information they simply entered their username and password from Teesside. An XML-RPC request was sent from Newcastle to the Teesside server, where the request (including username and password) was verified. The contents of the Teesside portfolio were transferred into IMS-LIP v1.0 XML, and were transferred back to the Newcastle server, which read through this XML document and wrote the data found into the database.

This was a very quick process, and the majority of information recorded in their Teesside portfolio was passed between the two servers in less than a second. This would make life very simple for the student, and it may even be possible to transfer this data using a batch process before the student even joins their new college or university. A request could be sent listing all the users required, and the returned data could update multiple user records.
The main barrier to this kind of transfer is that it requires an agreement between the institutions involved to ensure that the data being moved is validated. It is hoped that the advances in Shibboleth could validate this process, but this is unlikely to remove the core debates between institutions regarding ownership and data protection.\(^{15}\)

A small amount of data was not transferred. Some was as a result of data not being mapped to the IMS-LIP schema. We found that many parts of the ePortfolio, mainly assessment related data, could not adequately be mapped to IMS-LIP. This issue was increased because in turn, a number of the key elements used by IMS-LIP could not be mapped to ePET in any way that would have been meaningful to external systems. The information that was not transferred included the SWOT analyses, action plan records, reflections against learning outcomes and comments made about the content of the portfolio. These items were all very much related to the Teesside course and how the student had performed while studying at Teesside. In many ways this information was no longer useful, and may even have been considered ‘baggage’. In the case of reflections made against learning outcomes, it may even have had a negative effect on the new portfolio to transfer this information. The learning outcomes on the two courses are very unlikely to be the same and, without changes being made to the ePET database, recording reflections against these would cause conflict with any future claims, and would have produced nonsense records.

There was one additional reason why some information was not transferred, and this was because the Teesside server used a previous version of the data transfer software to the Newcastle version. Although this proved to be backwards-compatible, in that data mapped to Teesside was transferred, it meant that some key portfolio data did not move between servers. The most important of this information being the files the student had stored.

It was felt that the biggest point to note from the work involved in creating this case study was that although some information must stay within a student’s portfolio as they progress through their educational life, a large proportion of portfolio information has a definite ‘shelf-life’, and is not necessary after a certain point. However, this raises the question as to who decides which elements are important and which are not?

It was agreed that the most important information to keep within a portfolio are the documents created outside of the portfolio itself. Examples of this include Word documents containing essays and assignments, multimedia information created during the course and scanned copies of artwork. In many ways these are the items that would form a traditional ‘artist’-type portfolio. Generally, students will want to take with them anything that will help them in their new course or career. Reflections against learning outcomes, SWOT analyses, and meeting records recorded electronically as part of an institutional or course-specific portfolio are unlikely to be relevant to any new courses the student will be studying. Often students see moving to a new course or institution as a ‘fresh start’, and may not want data relating to previous assessments storing within their new portfolio.

One possible solution would be for ePortfolio providers to move towards using external web services to provide some of the data within ePortfolios. For example, a blog tool could use the blogger.com API to allow students to record this information. It would then be accessible via their portfolio and by logging in to blogger.com. When the student changes institution, they simply tell their new portfolio to use their existing blogger.com profile. The number of students joining academic institutions who currently have a web presence through a blog or social networking service is increasing annually, and by utilising these tools it is ensures that students are familiar with the service on offer and are more like to engage with this.

By using external tools to host personal information, the academic institutions only need to be concerned with the development and hosting of course-related or academic elements of the portfolio. As these are unlikely to be required by the student as they move on, this would effectively remove any data protection issues, and would mean that in most cases the student would have full control over the personal elements of the portfolio, even when their employer or academic institution did not provide them with a portfolio. The exception to this would be where the home institution or a third party asserts ownership. An example
would be evidence of a project created during an industrial placement. This is a governance issue, and the onus is on the data owner to provide details of what information they do not wish the student to share with additional third parties.

**Case Study 4**

*University of Newcastle student studying Dentistry wishes to go on to study a Taught D Prof in advancing clinical practice at the University of Teesside. Data would be transferred from ePet to ePet.*

A student record was created within the Newcastle University ePET system replicating the kind of information a real student might record in their portfolio. Information recorded included CV data, a SWOT analysis, web links and some Microsoft Word documents.

The student chose to download this information from their portfolio into a zip archive. Students can download their portfolios as zip files at any time by navigating to the ‘XML Transfer’ part of the portfolio and clicking on the link to download their file store. The zip file this creates contains all files stored in the portfolio and a valid IMS-LIP XML document, which stores the text data from their ePortfolio in a format recognisable to other portfolio systems.

This zip file could have been stored on CD-ROM, DVD, or even a USB Flash drive until a time when the student needed the information. By compressing the data within a Zip archive, the download time was reduced and the space required to store this information was greatly reduced. The actual zip file used in this transfer was little over 1MB in size and as such downloaded in a matter of seconds. There may be an issue with download times when using larger archives, especially if the bandwidth being used is not particularly high. The student may be required to download the portfolio in sections, or the institution may have to provide the downloaded portfolio for the student.

It was felt that if the university provided the portfolio, and did so using reusable media, such as a Flash Drive, there could be a relatively inexpensive marketing opportunity. The drive could be branded with the college or university logo and after graduation the student is very likely to reuse that media in future education or work. The costs associated with such devices has been decreasing over the last few years and given the economies of scale associated with the number of drives a college or university would require, the cost per student could be as little as £10.

By navigating to the same page in their Teesside portfolio from which they downloaded their Newcastle portfolio, the student was given the option to upload their portfolio in zip or XML format. The XML option allows text data to be transferred using IMS-LIP. If a student uploads a zip file, the system automatically looks through the files stored within it and if it finds any XML documents that validate against the IMS-LIP schema, will upload them to the database. On this occasion the student simply uploaded the zip file created when downloading their Newcastle portfolio. The IMS-LIP document allowed their portfolio data to be transferred, and the system read through the documents stored in the archive, transferring them into the student’s Teesside portfolio.

This demonstrated quite nicely an alternative method of transferring the data from institution to institution. The alternative, using a HTTP (XML-RPC) transfer requires an agreement between the institutions involved to ensure that the data being moved is validated. This alternative system ensures that the student takes responsibility for the information, selecting for themselves what gets uploaded and what gets downloaded.

Some data was not transferred, and again this was the information that could not easily be mapped to the IMS-LIP schema. There is no obvious place to store information such as SWOT analyses, without causing compatibility issues with other portfolio systems. It is possible that IMS-LIP is not the most appropriate
XML schema to use when transferring portfolio data and the ePET development team are currently investigating the other options available, such as UK-LEAP\textsuperscript{16} and IMS-ePortfolio\textsuperscript{17}.

The question as to what information should and should not follow a student as they progress through their academic life was raised during this case study. It may be that the designers of IMS-LIP have developed the schema with this in mind, as it does seem to fit quite nicely with the information that the student is most likely to need to transfer. However, institutions need to agree what information they choose to allow students to transfer and what information they choose to keep. There are many factors in making this decision, mainly related to ownership of that information and data protection legislation.

\textit{Case Study 5}

\textit{A Full-time overseas student studying the MBBS course at the University of Newcastle by day is also undertaking a part-time course at City of Sunderland College to gain a European Computer Driving Licence on an evening. Data would be transferred from ePET to Blackboard.}

As in Case Study 4, the student exported data from ePET as a zip file containing all their uploaded resources and an IMS-LIP XML data file, essentially producing a self contained record of the data to be transferred. Unfortunately Blackboard is not readily able to import XML data into a meaningful and easily displayable/editable format, which meant that the IMS-LIP data contained within the ePET export could not be uploaded. The solutions put forward to solve this issue were a manual ‘cut and paste’ and the use of XSL transforms to change the IMS-LIP XML document into XHTML that could be uploaded into Blackboard as web pages. Although such transforms do not currently exist within Blackboard, this was deemed the most appropriate option, and appropriate transforms were created by EPICS project officers to facilitate this Case Study.

To transform data using XSL, two approaches can be taken, either the original XML data is kept, and is viewed using the XSL to format the page in a more ‘friendly’ manner, or the data is permanently converted to XHTML replacing the XML tags with XHTML formatting tags. The first approach is the most pure, in that all the data is kept untouched. This means that the data is kept in a usable XML format. However, it is also very difficult to edit as an XML editor package is needed, and various skill levels are required from the user depending on the quality of the XML editor used. The alternative generates XHTML pages, which if properly crafted can keep most of the information held in the IMS-LIP XML data, but which users would find easier to edit than raw XML code. Blackboard uses a WYSIWYG HTML editor, which cannot read XML but could be used to edit the uploaded XHTML document. The main issue with permanent changes is that some data loss can ensue, as it is difficult to convert all the information held in the raw data format into something that is visually appealing once displayed. Although both conversion options had benefits, it was decided to use the transforms to permanently convert the data to XHTML pages prior to import, largely because of the compatibility issues that this might have with Blackboard’s WYSIWYG editor.

Separate XSL transforms were created for each of the key ‘top-level’ elements of the IMS-LIP schema, such as ‘identification’, ‘affiliation’, ‘goal’ and ‘activity’. A DOS batch file was created that ran the series of transforms against the IMS-LIP document, creating a series of web pages that could then be uploaded into Blackboard. The XHTML used was carefully created to ensure that the data remained within meaningful tags, using <div> elements for layout, with id attributes mapping exactly to the corresponding tag from IMS-LIP.

By maintaining these attributes, the XHTML could be transformed back into an IMS-LIP XML format, and used for data exchange once again. This was tested by exporting a record from ePET in IMS-LIP XML format, transformed into XHTML by the XSL transforms, imported into Blackboard and incorporated into an ePortfolio, and subsequently exported and imported back into ePET. Although this is still in the developmental stage, the results were promising, and the HTML parsing libraries available to ePET could readily parse the XHTML generated by the XSL transforms with no data losses.
A clean portfolio was created within Blackboard, and the Web Folder facility was used to upload the new web pages and additional resources into the Content System. A new folder was created into which all the relevant files were copied into this folder, including the newly created web pages, the supplementary data stored in the zip archive, and the original IMS LIP XML data which could be used to archive the old portfolio. Once the files were successfully uploaded, they needed to be incorporated into a Blackboard portfolio. Each imported page had to be individually linked using the ‘add content’ facility to ensure that they were accessible from a link in the navigation frame of the created Blackboard portfolio. A link was added to the newly created folder, setting the permissions for the contents of that folder, making the uploaded portfolio visible to third parties with whom the portfolio was shared.

A key benefit of the XSL transforms was that data from additional ePortfolio systems could be uploaded into Blackboard using the same scripts. It was hypothesised that any portfolio system that allowed an export in IMS-LIP XML format could use these XSL transforms to create data accessible to Blackboard. This was tested and found to be successful with data exported from several systems, with the only errors being raised by data exports that mapped their data to UK-LEAP rather than IMS-LIP. This would be a relatively straightforward addition to the XSL transforms, but was unfortunately outside the scope of the project and was not taken forward.

Recommendations

An agreement needs to be made between institutions as to what information should be transferred. This includes further investigation of the data protection and data ownership regulations. Ideally a common ground should be found whereby all institutions involved agree to passing the same information around. This could be quite limited as very little of the information stored within a portfolio system is required by the student on a long-term basis. Some information must always be available to the student, including any files/documents uploaded to the portfolio and personal (CV) data, and possibly transcript information if available, but most course or institution-specific data is not necessary as it is likely to have little relevance to the student’s future studies.

In some circumstances, no data needs to be transferred from one academic institution to another. During the process of developing the case studies, it became apparent that that the data that users were most likely to want to transfer was less complex than had originally been supposed. For example, records of meetings would be of little future use, but CV and documentary evidence (in any media) would be desirable. This did have the effect of simplifying and making more manageable the technical requirements.

The use of web services could allow the core ‘transferable’ information to be held in external systems outside of the college/university and simply plugged in by the student when they move to their new institution. Course-specific data could then be managed and developed by the relevant institution. Some data would still need to be transferred (document uploads), but managing this would be much more straightforward than using the existing XML method. This could even be linked in to an external or centrally-held document repository, referenced by the student from within all of their portfolio systems.

A barrier to transferring data is the disparate systems in use, as often these will be incompatible or have inconsistencies in the way data is store or managed. For example, ePET uses a very structured database, whereas Blackboard is relatively unstructured, and without some degree of structure it is impossible to map data stored in Blackboard to the database field in ePET. As such, the benefits of transferring data between such seemingly different systems are minimal and it might be more worthwhile to simply provide the file store data.

In terms of the data standards investigated by EPICS, IMS-LIP may not be the best method of transferring ePortfolio data. Other standards are available including IMS-ePortfolio and UK-LEAP, and these are under investigation by the EPICS partners. Additional standards such as HR-XML\(^18\) or Europass\(^19\) (for CV data)
may allow each of the key portfolio components to be transferred more easily by using a specific schema to transfer data from each separate tool.

EPICS tested using an automatic data transfer (using XML-RPC), a download/upload facility and a copy and paste option, all with a good degree of success. Therefore, taking a step back from the more technically advanced part of the work done, it is possibly more useful from the student’s perspective to give the student the option of downloading and uploading the data in the format they prefer. As previously mentioned, their portfolio data could be stored on a flash drive with a dual purpose of marketing the institution. This would make transferring data from ePET to any other system (such as Blackboard, Pebblepad, Lucid etc.) more straightforward, and would place the onus on their ‘new’ institution to provide the ability to incorporate this data into the student’s portfolio.

**Conclusion**

The EPICS project was a great success, providing case studies from Further and Higher Education to demonstrate that portfolio records can follow a student as they progress on their lifelong learning journey. The project looked at various techniques and methods, ranging from fully automated solutions through to relatively ‘low-tech’ user-initiated techniques. In addition to these technical achievements, the project has given significant insight into the complex pedagogic and socio-legal issues surrounding the use of and transfer of portfolio data. There are a relatively large and diverse group of partners within EPICS, the establishing of a regional PDP Forum is therefore an important outcome of the project, providing mutual understanding and sharing ideas and concepts for the spectrum of ePortfolio/PDP practices. Also, the ‘Governance Tool Kit’ produced as part of the project draws on some of the learning from EPICS in relation to the social, legal & ethical issues related to ePortfolios.

The EPICS partners are keen to continue to build on the achievements from the EPICS project, and to take forward the work that has been done. The first step in this is to keep the existing partnership in place and to build on the regional networks, such as the PDP Forum, in collaboration with other national and international initiatives. This will help answer some of the difficult questions raised by EPICS, such as what data should and should not be transferred, and what the legal and political implications of transferring student data are for the institutions and individuals involved. In terms of the technical work, continuous development is taking place to enhance the data transfer techniques, by investigating further the use of additional XML schemas such as UK-LEAP and IMS-ePortfolio, and the use of web services to host student data.

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Introduction

This article deals with ePortfolio implementation beyond a single academic institution. In the past few years a small number of Austrian higher education institutions (HEI) have already started to experiment implementation of ePortfolios in single courses and study programmes. Approaches and concepts underlying these pilot projects have varied significantly, so do the first experiences made up to now. However, the organisational and technical implementation of ePortfolio causes widespread confusion among academic decision-makers, because ePortfolios mean different things depending upon one's point of view. ePortfolios are perceivable both as a traditional reform-pedagogical method for competence-based learning- resurrected by ICT- and as technical instrument archiving/publishing a learners biography very flexibly and clearly by using technologies of the “NET Generation” (Gibson 2006; Hornung-Prähauser, 2006; Aalderink/Veugelers, 2006). Moreover there are issues related with ePortfolios which can not be tackled by a single institution at all, because they require a national framework, e.g. questions of inter-institutional exchange of students, joint study programs etc.

Therefore the Forum New Media Austria (fnm-a), an association of all Austrian higher education institutions providing co-ordinated guidance and strategic advice on the sustainable use of ICT in higher education (funded by the Federal Ministry for Education, Science and Culture), initiated a national project on open ePortfolio issues being of sectoral interest. In the following we describe the objectives of the national initiative among Austria HEIs and how we approached the first step in the development of a national ePortfolio strategy.

Implementation of a sectoral ePortfolio working group for HEI

A national wide implementation in the HEI sector would target the following numbers of students and institutions:

- 200,000 students study at 21 universities (6 universities of art, 9 private universities) and 18 universities of applied science (30,000 students)
- 27,000 first-year students at universities, 8,000 at universities of applied science

The average duration of an enrolled study programme is at present 13 semesters at universities (6.5 years) with a drop-out rate of almost 40% (Österreichische Hochschulstatistik, Statistik Austria, Wien 2006).

In order to find out the needs of Austrian students and HEIs, the fnm-a has suggested to install a working group among those universities most active in eLearning strategies in general and ePortfolio in particular. Active project partners are the University of Vienna, University of Graz, University of Salzburg, University of Applied Science Eisenstadt, University of Klagenfurt. Together with ePortfolio researchers, technological experts and pilot-users, the project plans the following activities:

- developing a common understanding of ePortfolios in academic settings,
- providing an overview of the international ePortfolio experiences as a basis for constructive debate and
- examining success critical “ePortfolio project killers” on the national scale.

Some of the above have been explored in international contexts already, some need to be examined in the specific regional educational setting of Austrians HEI (Charlesworth, 2006; Beetham 2005)
• developing appropriate didactic models,
• developing students skills in personal study planning, reflection and self-evaluation,
• developing teachers skills in recognising the needs of learners and in giving guidance on educational pathways,
• acceptability and credibility of data,
• legal aspects and data security,
• effective interoperability and open standards,
• the evaluation of technical systems.

Finally the project should help to create a set of typical models of ePortfolio in higher education study programmes as examples of established usage. The expected outputs of the project are recommendations and guidelines for practitioners enabling the successful integration of ePortfolios in single courses, but also in study programmes and furthermore to help institutions to define the requirements for an ePortfolio strategy (user requirements, requirements for administration, authentication, integration).

In presentations and discussions of the Austrian pilot-projects the following issues were reported to be most significant:

• Didactical framework and models: Only few projects are based on a well-developed didactical model, the majority was started in a rather trial-and-error approach.
• Curricular embedded ePortfolio: With one exception (University of A.S., Burgenland) current ePortfolio projects are not embedded in university curricula. This one of the biggest challenges which is worked on at the moment as part of the Bologna process.
• Data security and safety, long term archival storage: These topics are considered to be of central importance.
• One fundamental question coming up in the recent discussions turned out to be the degree of freedom given to the users of ePortfolios. What limitations shall be predetermined, how far shall the composition of the contents be regulated? On one hand ePortfolio understood as personal instrument controlled by the single learner seem to allow only few restrictions. On the other hand a higher degree of freedom means greater complexity and therefore clear and predefined models and processes are a necessary guidance for users.
• Tools and technical integration: Selection and technical implementation of software tools (unfortunately) play a very dominant role in current ePortfolio processes, taking away the focus from the development of didactical models. The Austrian Federal Ministry for Education, Science and Culture is discussing the idea of starting an evaluation of ePortfolio tools in order to facilitate those decision processes.
• Data security & safety, long-term storage: as mentioned above a fundamental aspect of the use of ePortfolios concerns legal matters and safety-related questions. Considering ePortfolios as a method reaching into highly personal domains of learners by exceeding borders of formal institutional learning, it is self-evident that these topics must become a fundamental part of a national ePortfolio strategy. Up to now as the main challenges which have to be faced concerned are access authorisation, long-term data storage & availability, authentication, inclusion (import?) of different data sources, data portability (standards).

Decision-support models for eLearning/ ePortfolio strategy stakeholders

In June 2006 Salzburg Research started to work for the fnma-project preparing basic information and orientation and assisting in developing a joint implementation strategy. In particular, the work encompassed search for international best-practise examples in sector of HEI, identification of success/failure criteria and state-of-the-art analysis of the ePortfolio software landscape (stand-alone tools, home-grown solutions, open source tools). Since the implementation of ePortfolio is most of all a change management agenda, we propose in the preparatory study-report a three-tier approach when having to decide about large-scale ePortfolio implementation. As the graphic below indicates ePortfolio processes are influenced by three interrelated influential factors, ePortfolio didactics, eLearning/ICT readiness of the organisation and its environment (i.e. national legislation to IPR, data security) and technical solutions. However, the effort for implementing the portfolio processes may
vary to the extent of how intensive students are expected to work with the portfolio processes.

Table: Influential dimensions of a sectoral ePortfolio strategy

What does this mean in practise? In our view benefits and demands for ePortfolios change during a typical study and academic career path. In order to find out at what point of a curriculum suits best for ePortfolio work and what technical effort is needed, we propose three concrete scenarios in which Austrian students can derive highest benefit from using the ePortfolio as learning and study orientation method, supporting by a webbased application.

Scenario 1: Entering the university - ePortfolio as orientation method and tool

At an early stage in HEI, (and even for assessment reasons before entering the University), ePortfolios offer the possibility to organise a students life: learning targets, tutorials, assignments and assessments may be collected and stored by the learner, offering an overview on all the tasks which need to be carried out necessarily.

HEI in Austria have introduced this phase as the so called "Studieneingangsphase", which allows students in the first 6 months to get familiar with the objectives of the curriculum, the tasks and the methods. The reason behind may be as well considered as a mechanism to provide students from drop out at a later stage by offering them a holistic view on the study, the objectives and the workload.

The ePortfolio approach in this phase seems to support this idea, but further methods and workflows/processes have to be defined by the HEI and or curriculum developers.

Talking about the user requirements for this phase, we consider the usability as the most important issue here: Young students and learners need a tool, that provides all required information at a glance as well as a mechanism to collect and store the individual artefacts in a personal archive. Direct connection into a university ERP-System (for the list of the courses, the curricula and the schedule) is necessary as well as the comprehensible FAQs, Process descriptions and an installed helpdesk.

It seems, that quite a number of tools or tool-types support these processes for universities and learners, however a "perfect" tool for this process was not identified during the research.

Scenario 2: Producing (guided) scientific work - ePortfolio as learning assistance method and tool

Once a learner has made him/herself comfortable at the university, there is a great need for a tool, a process and a method for his/her research activities. A vast volume of information will be collected...
and annotated, multimedia objects are found, literature and seminar works are being produced.

The learner lives and works within a peer group, he/she is collecting and reflecting about the targets, he/she is in contact with tutors who provide feedback. All materials are stored in a personal archive, but from this time on, the amount of artefacts is growing exponentially. The learner needs a tool that assists him/her organising his/her own material, but at the same time offer the peers and tutors the possibility, to comment and provide feedback to their work. Furthermore, a thesis must be written in this stage, therefore the learner needs the possibility to search effectively through his/her resources, even if they are not all stored in one system.

The interoperability of the required tool shall offer full featured search but at the same time, the learner's privacy must be protected.

Technological requirements in this phase may well be served with a combination of Learning Management System with personal Learning Environment enhanced with „Social Software Components“. The latter one is needed, to support the process of reflection and communication for the purpose of individual research at HEI.

Scenario 3: Leaving the university – ePortfolio as documentation instrument of qualifications and/or as career guiding systems (alumni)

During long periods of studying, students have collected a vast amount of artefacts over time. They served for the process of learning, whereas in this phase these documents are needed for proving one's competence. This presentation stage can be seen as a flexible, digital collection of artefacts, describing the competence of the learners not only as a „Status Quo“, but also as a process documentation over time. Therefore the learner needs the possibility, to extract certain pieces of work and additionally the work history of how this piece was developed.

The technological requirements are enormous, because one needs the possibility to generate an overview over a product AND its (formation) process. Until now, no ePortfolio or Content Management system or approach could be identified that are implementing these requirements satisfactorily.

Besides the possibility of documenting the process of development from the learner's point of view, the tutor's point of view must also be taken into account: talking about the freedom for learners, to learn with a portfolio system individually, a method/process must be defined, where tutors get the possibility, to „evaluate“ the process of construction. One possibility thereof is sketched in [Wolf Hilzensauer, Veronika Hornung-Prühauser, and Sebastian Schaffert: Requirements for Personal Development Planning in ePortfolios supported by Semantic Web Technology. In: I-Know 2006, Graz, Austria, September 2006], but further research and detailed evaluation is needed in order to find a suitable way to evaluate a learning process as a whole.

In the preparatory study, these three (didactical) scenarios will be outlined in detail. In the next step we propose a model matching the requirements of portfolio processes with the intensity of change that will be expected from the IT-infrastructure of a university. Although the “ePortfolio software scene” is still on the flux, we will scrutinize several tools (LMS/CMS and ePortfolio stand-alone software tools) by this indicator. Such a matrix should help the Austrian decision-makers assessing the effort of organisational energy, budget and know-how for tool-implementation.

Conclusion and further steps

The integration of ePortfolio concepts and systems into programmes of study can be seen as to sustain the objectives of the Bologna process – a core agenda of Austrian higher education institutions in 2006 – requiring competency focussed study processes. Thus the FNMA is continuing this work aimed at contributing towards a common understanding about objectives and benefits of broad ePortfolio implementation to Austrian students and academic institutions and providing orientation about technical, legal and personal infrastructure needed thereof.

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BEYOND ASSESSMENT: BUILDING AN E-PORTFOLIO FOR ORIENTATION, COMMUNITY AND REFLECTION

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Introduction:

This paper is intended as a snapshot of an optimistic moment in the early development of e-portfolios for a one-year, taught postgraduate programme in the Management of Training and Development (MTD) at the University of Edinburgh. The programme team has a range of experience in relation to reflective learning and practice, and on- and offline portfolios. The diversity of the student group, as well as our constructivist approach to teaching and learning, means that we all agree with the view that students "...increasingly require educational programmes and the way of experiencing those programmes tailored to their own situations, rather than fitting a standard model... . There are moral, social, and financial reasons to adjust university programmes to these increasingly diverse cohorts." (Collis 1998, 376). We see e-portfolios as a key element of our evolving strategy for this programme.

Our respective roles in the programme team are as learning technologist (JR) and Director of Studies\(^1\) (HM). Most of the student comments included in the paper are drawn from responses to an email questionnaire sent to a group of 9 MTD students in July/August 2006, and a subsequent focus group session. Six students sent responses, and three were able to attend the focus group. Our thanks to them and to Brian Martin, Head of the Department of Higher and Community Education, who was an additional key informant from the programme team and commented extensively on this paper.

Background:

The MSc in Management of Training and Development at the University of Edinburgh (http://www.education.ed.ac.uk/courses/MSc/MTD/index.html) is an intensive one-year programme bringing together a small and diverse group of participants. It is aimed at practitioners with an interest in training, staff development and organisational learning. The programme attracts an international group of participants (a typical year sees participants from China, North and South America, India, the UK and a number of other European countries) with experience gained in various sectors, including a wide range of commercial businesses, public authorities (e.g. local authorities, the health service, social services, education and the armed forces), and voluntary organisations (e.g. the churches, welfare organisations).

The programme is validated by the UK Chartered Institute of Personnel and Development (CIPD), and students can follow a path leading to qualification for entry to graduate membership of CIPD. All candidates are required to keep a learning log in the first semester of the programme. CIPD candidates are also required to produce a Professional Development Portfolio and to maintain this as both log and forward plan.

This paper will describe a new initiative to embed an e-portfolio element into the programme with a view to enhancing the student experience, supporting and encouraging networking within the student cohort and beyond, and contributing to the assessment of the programme’s learning outcomes. The tool likely to be used is the WebCT/Blackboard Portfolio, for which the University of Edinburgh is part of WebCT’s ‘Early Access Programme’. The e-portfolio will be situated as a hub for other online and offline resources. This paper will explore some of the challenges and opportunities we have experienced and anticipate along the way. In particular, three broad themes will be explored: orientation, community and reflection.

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1 Director of Studies is the title given at the University of Edinburgh to the “personal tutor”.
Orientation

The orientation period is significant for both MTD students and staff, for two principal reasons. One is that this one-year programme brings together a very diverse group of people who must quickly learn to work together. For staff, it is crucial to gather as much information as possible from students so that their needs and expectations can be taken into account in the delivery of the programme. For students, ‘hitting the ground running’ can translate into a substantial advantage in such a short and intense programme.

The other is that many students are coping with a range of new experiences and expectations, and require support to adapt. Some are travelling away from their homes and families. Others come from work environments and have not studied for a number of years. Some come from cultures quite different from Scotland, and ‘culture shock’ can prevent people from functioning at their best (Furnham 2004). Most will not have studied in such a diverse group before.

With that in mind, the induction week serves as a multi-faceted starting point for the year. The week consists of a range of activities designed to make the students known to the programme team and familiar with each other, the university, the programme, their tutors, and learning technologies and resources. Students rely heavily on the induction week and describe it as being an “excellent” and “comprehensive” introduction to the course and each other. However, this is a high-stakes week for both students and the programme team, and it is felt that there is a need for some additional, pre-arrival activities and resources to be made available to students.

Some students are quite explicit about wanting information earlier:

“I expected I could get any related info about the course but I received nothing before I came. I felt so helpless and anxious...” MTD student, 2005/06

“I didn’t receive much information about the programme before I started… I would have liked to know a little more about each specific course and definitely a little more about CIPD.” MTD student, 2005/06

“It would have been useful to have info about the class/classmates e.g. class size; nationalities etc and had the chance to make links with them before [the programme] started.” MTD student, 2005/06

Indeed, this year, before the programme began, several students were in touch with the programme team to ask about meeting fellow classmates online:

“I’d like to know I can see the members who will study the same course with me. I want to know who will be my friends as well as their profile. I expect that there are some community which come together on-line.” prospective MTD student, 2006/07
Others, looking back, felt that the induction week was sufficient:

“I don’t believe that there was something I would want to know beforehand because everything was explained with detail at the beginning of the course and all the details and worries were discussed.” MTD student, 2005/06

“The Postgraduate university induction/briefings were excellent and highlighted a range of support services and sources of information… combined with the MTD induction, the package within the time frame was comprehensive.” MTD student, 2005/06

There is clearly a wide spectrum of views and requirements amongst the students, and we wish to accommodate this diversity as fully as possible. To that end, we will use a range of social networking and collaborative technologies, including e-portfolios, to encourage early communication, reflection and identification of goals and needs which will help students to enter the crucial induction week with a clear view of what they want to accomplish, and a jump-start into the year.

During the pre-arrival period and early weeks of the programme, an e-Portfolio could provide incoming participants with tools and resources to ‘point them in the right direction’ — to assess their own learning styles, aims and objectives; to introduce themselves to the rest of the group and get to know their colleagues and tutors; to access relevant information about the context of their year at Edinburgh (city, University and programme-specific resources). And further, the reflections and material that participants choose to share would help tutors to orient themselves to the strengths and needs of the newly arriving cohort.

A particular issue for this programme relates to the diversity of learning backgrounds the international intake has – including people from those cultures which rely on heavily didactic teaching and rote learning. Chinese students, for example, may have had “little opportunity in class to express their opinions in open discussions”. Chan, 1999, “explains how ‘students prefer not to express their opinions in public’ (Chan, 1999, p. 301) and contends ‘many would feel that ineffective teaching is taking place if they are continually asked in class to express their opinions’ (Chan, 1999, p. 301)” (Forrester et al 2006, 200). For these learners, a constructivist model of learning – which underpins the MTD programme and our use of an e-Portfolio – will require a radical shift in thinking and expectations. Orientation activities will also, therefore, make explicit this philosophy and invite participants to question and challenge some of their assumptions about what ‘learning’ involves.

Community

"Technology used in a collaborative context and for an authentic audience can foster student engagement in ways that would not be possible without technology." (Carroll and Carney 2005, 470)

The diversity of the MTD participants – culturally and career-wise – means that forming a cohesive group can be challenging, particularly in a programme which is only a year long. In addition, there are a few part-time students whose sense of belonging to the current year group can be fragile, though full-time students on the programme have emphasised how important the presence of the part-time students is to their understanding of how to relate theory and practice, and their overall experience of the programme: “The part-time students are an important dynamic and well positioned to support networking, again this is an area I believe should be developed further” MTD student, 2005/06. Furthermore, participants have different levels of fluency in English – from merely competent to completely fluent.

We anticipate that an e-Portfolio will act as one site of contact and community for the group, providing flexible spaces for sharing aspects of the self and communicating with one another.

When asked, students were clear about the value of the community during the programme:
“The very nature of the course has meant that student interaction and participation was essential to the overall dynamic of the course.” MTD student, 2005/06

“The unique diversity of the course composition opened my eyes to a range of views and opinions. This was of great benefit to me and provided me with an insight [into] wider society.” MTD student, 2005/06

There was also concern, however, that group discussions in class were often dominated by a subgroup of confident students, and, as one student said, he “would be very interested to learn more from my quieter classmates”. For those participants whose English is still improving, the time afforded by an asynchronous medium to consider their words, and how best to express themselves, would clearly be beneficial. The ability to share photos, music and other personally meaningful artefacts may facilitate cross-cultural appreciation.

We also wish to consider how we can extend the reach of the e-portfolio beyond the current year group to involve prospective and former students in a community of practice that could, for some students, facilitate networking and provide lifelong benefits:

“With some [fellow students] I will remain friends for a long time and most of the friendships were established from the beginning of the course. Indeed, it was one of the goals to meet new people when deciding to travel and study abroad.” MTD student, 2005/06

“I think I’ll keep contact with some of the classmates after the program ends. I’d like to know what kind of the biz or jobs that my classmates engage in in the future.” MTD student, 2005/06

“We will remain in contact after the course, although due to the international mix of students on our course, many of them will be returning home after term ends.” MTD student, 2005/06

Although at present the programme is always over-subscribed, the team is keen to ensure we are attracting and encouraging the best-qualified students to the programme. A network of former students who were willing to be contacted via e-portfolio profiles for information and advice about the programme could be an invaluable resource for prospective students.

Reflection

Students on the MSc in MTD are required to demonstrate their ability to be what the CIPD calls ‘thinking performers’ (CIPD 2006). This demands skills of critical self-assessment and reflection. Different learners on this programme will have different levels of experience in doing this kind of reflection, and an e-portfolio will provide contextual support as needed in the form of focused questions, self-assessment activities and links to resources at key points. Some students may choose not to use these resources, and therein lies the strength of an e-portfolio approach: the flexibility to provide optional scaffolding for those who need or want it, while allowing others to develop their own reflective practice as they see fit.

In 1996 in a study of the use of portfolios for teacher education, Wade and Yarborough found that many students struggled to understand how to build a portfolio, and what its purpose was (69). MTD students appear to have similar difficulties with the Professional Development Portfolios (PDPs) they are required to keep in the first semester (and which the CIPD students are required to maintain for the entire year):

“I have found it extremely difficult to maintain my PDP and therefore quite honestly have not maintained one. It was for me becoming exceedingly time-consuming and I didn’t quite see the point in it and therefore eventually gave up.” MTD student, 2005/06
“[The PDP] was a good chance for reflecting what I’ve learnt though many of us didn’t understand well the purpose of keeping the pdp and wondered why we had to finish something without getting credits (as non-CIPD members).” MTD student, 2005/06

At present, students participate in a PDP session at the start of the year, where the purpose of the PDP is explained and strategies suggested. They then work independently to create their PDPs, and submit them at the end of the first semester. Tutors give formative feedback on the presentation of ideas, evidence of knowledge and understanding of key concepts, use of experiential evidence and use of literature and theory. Both tutors and students feel that there is a need for more or different feedback, perhaps at an earlier stage in the process, to enable students to get the most out of the experience of reflecting on their learning.

We are considering possible models for different kinds of feedback, including asking students to choose their two “best” PDP entries and getting more detailed feedback from tutors on these, or discussing a few entries early in the semester. Russell et al explain a similar approach taken using email:

"Students are also encouraged to email their tutor on a one-to-one basis, and frequently do so. When this approach to formative assessment works well, feedback becomes an ongoing conversation between student and tutor, so feedback is given at multiple stages in small chunks as and when needed. …it is frequent, timely, and specific to the students’ learning needs at a particular time." (Russell et al 2006, 474)

Because e-portfolio-based entries are available to be viewed by more than one person at a time, we are also considering asking students to share PDP entries with one another. Whether this could be implemented in a way that would encourage and motivate students is a question we would like to explore. We would hope that everyone who engaged in a community of reflective practice in this way could benefit from the range of cultural perspectives on a predominantly Anglo-American theory and literature, again drawing on one of the strengths of the programme: its cultural diversity.

Conclusion

Conrad claims that "while e-portfolios may provide an attractive and useful vehicle for the presentation of learners’ knowledge or skills, they do not contribute to or alter the critical processes of 'collection, selection, reflection and projection' that constitute meaningful portfolio work." (2006, 1). Our view is emphatically that e-portfolios have the potential to contribute to other “critical processes”.

While the e-portfolio is only a tool, tools influence the way that a task is addressed and pursued (McLuhan et al 1967; Carroll et al 1991). Our goal is to present the optimal social and intellectual affordances such that the student participants are drawn into a situation in which their portfolio activities are in manifest alignment with their social and professional aspirations, and in which they are engaging in richly reflective learning practices.

References


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The implementation of e-Portfolio at INHOLLAND University: strategy and implementation issues, two years after introduction

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This contribution focuses on the implementation of e-Portfolio at INHOLLAND University from the introduction of this system in 2004 until more recent developments in 2006. We will address several issues. Firstly, we will discuss the digital portfolio system in general as well as the choices that were made concerning the functionalities of the system. Secondly, we will focus on the actual use of the system within Schools throughout 2004-2006 regarding study guidance, competence assessments and as a showcase. Thirdly, we will discuss implementation issues based on our two years’ experience at INHOLLAND University.

Context
INHOLLAND University, the result of a merger of four major Dutch universities in 2002, is one of the largest institutes for higher education in the Netherlands with more than 38,000 students and over 3,500 employees. INHOLLAND comprises of 16 campuses and learning centres throughout the western part of the Netherlands. The university offers a wide range of bachelor and master programmes such as finance, information technology, business management, communication, economics, education, social work and health care.

Since the year 2003 INHOLLAND has been implementing a new educational concept within the bachelor master structure which is competence-based and emphasizes collaborative team projects and individual learning. Projects help to demonstrate real-world proficiency in selected disciplines and give students valuable hands-on experiences in collaborative teamwork. By introducing the bachelor master structure as well as a new competence based educational concept INHOLLAND University took up a big challenge. The use of an e-Portfolio was regarded a central component within the system.

The INHOLLAND portfolio system
INHOLLAND has started using the e-Portfolio in all Schools (over 14,000 first-year students and over 3,500 employees). Some of these Schools had already experienced using e-Portfolio. The campus-wide implementation was supported by a special project team of ICT-experts, education experts, trainers and functional application managers. The project started in September 2004 and was finished in September 2005. The aim of the project was for all first-year students to use their portfolios in a meaningful way for PDP, assessment purposes and showcase.

In order to develop an adequate infrastructure for competence-based education, INHOLLAND University thoroughly analysed its value chain. The question was: in which way could IT profoundly affect one or more of the value adding activities; by either improving effectiveness, by fundamentally changing the activity or by altering the relationship between different activities.

INHOLLAND experimented with third-party applications, downloadable forms, shared folders and other e-Portfolio concepts for several years, but none of these showed enough functionality and scalability to meet the current needs. As a result, INHOLLAND deployed a comprehensive solution based on Microsoft SharePoint. In less than a week INHOLLAND developed a project plan for an e-Portfolio based on SharePoint Portal Server 2003. Only three months later the release of INHOLLAND’s e-Portfolio had been completed - in time for the beginning of the 2004-2005 academic year.
When drafting a system, there is a tendency to reach for (and sometimes cross) the limits of the intended functionalities of the system itself. That is why it is important to sharply define the limits of a system while developing it. During the construction of the e-Portfolio system, the following definitions were set:

- A portfolio is the student’s property; the student therefore decides who can have access to his/her e-Portfolio.
- This also indicates that the e-Portfolio is not meant as a tracking system and therefore does not have any functional characteristics of a “qualitative” student control and tracking system.
- A portfolio is no co-operation environment. In fact, the communities in Blackboard are being used to create new products.
- The basic assumption of this is that students own their portfolios. We define a portfolio as a collection of students’ work showing the efforts, progress and achievements in one or more fields. Achievements are linked to competences and are presented for feedback or assessments.

In the current portfolio system students, making a selection from the material from their personal documents archive, comment on it in an essay and present it to their tutor.

An essay is a website in which a reflection of the student on a certain process is included. In this essay various pieces of evidence from the documents archive can be included. The student motivates his choice of these pieces of evidence in his essay. In principle, an essay is drafted for a certain purpose: an objective. Every essay can be linked to maximally one objective.
At INHOLLAND the e-Portfolio has three functions in the educational concept. These functions are:
1. The e-Portfolio as a tool for study guidance
2. The e-Portfolio as a tool for learning and assessment
3. The e-Portfolio as a tool for showcase
These three functions will now be further elaborated on.

The use of the portfolio system in study guidance
As the composition of a portfolio is a reflective activity, it is obvious that the first application of a portfolio is found in the integration of meta cognitive knowledge and skills. Within INHOLLAND this reflection is expressed within the aspect study coaching (SLB) In this article we prefer the international terminology of Personal Development Planning (PDP).

Students allow their tutor access to its relevant elements. In their portfolio, students include a personal development plan which expresses learning targets based on the development of competences. The way in which these learning targets are realised is included in this personal activities plan. In effect, the personal activities plan is a further elaboration of the personal development plan.

An example
We would like to illustrate the use of portfolio related to study guidance by an example at a School of Social Work. In this particular situation, the digital portfolio is used as a tool for study guidance. The digital portfolio plays an important role in the preparation for assessments and is used as a tool for the assessment itself. During the first year the digital portfolio is used in the preparation of an assessment, as a means of determining specific goals within study guidance and as a preparation for a portfolio assessment in the second year. During the second year, however, the portfolio is used as a preparation for work placement in the third year. The specific steps related to the digital portfolio in the first year are shown below. This example shows the growing integration of the use of digital portfolio as a goal within study guidance and competence assessment.
1. Introduction
The study guidance program starts with an introduction of amongst others the digital portfolio system. A training consists of actual working with the system, inviting a coach within the digital portfolio system, making objectives and essays, placing pictures as evidence material.

2. Reflection on assignments
During the first year the students work together in the groups. Important aspects of these group sessions are: motivation for the education, the competencies in the education, an overview of the profession, reflection skills. After each session the student makes a reflection report which is put in the portfolio, together with other evidence material. The student makes an abstract of that in his personal development plan. (MY PDP)

3. Assessment of assignments
The assessment consists of a 10 minute conversation. In this conversation the student has to prove that he is able to reflect on his learning strategy and must motivate his choice for the profession. Criteria in this assessment are: the student has in time invited his coach to view a selected part of the digital portfolio, proper use of language, the required evidence materials, the reflection reports, the personal development plan. Some specific criteria of essential competences within study guidance are also assessed.

The use of digital portfolio in competence assessment
In competence-based education the collection of evidences is an important part of the students’ activities. The portfolio system plays an important role in the presentation of these evidences and the feedback on the learning process.

Whereas in traditional educational concepts, evaluation takes place after performance, in new educational concepts evaluation is integrated into the learning process. The portfolio system thus offers an insight into the progress while the process of learning is still going on, hereby adjustments can be more quickly implemented and relevant feedback can be more quickly sent to students. This should result in a higher quality of instruction, a greater task-orientedness and a more profound assimilation of the learning contents. The concept of “life-long-learning” implies that students are involved in the assessment process thus completing the “learning loop”. After all, reflection and assessment are essential to the learning process. In this respect the term: “assessment for learning” is used contrary to “assessment of learning”.
The general recognition is that a correct and consistent change over between instruction, learning and assessment (ILA) is important for realizing the objectives of the education.

An Example
We would like to illustrate this form of portfolio use with an example. The example we have chosen is a School of Education. The portfolio assessment has been set up for graduation. It contains the following:
1. the students profile
2. the students vision on the profession of primary teacher
3. the students vision on education
4. the proofs of capabilities

The actual assessment will be elaborated on below.

During the work placement, which is followed by the graduation, the student collects pieces of evidence for his final portfolio assessment. The evidence underlying the assessments exists of characteristic professional problems which can be encountered by a primary school teacher in his daily work. There are six problems in which the student must show proof of capability to act. These problems have been defined by the School in cooperation with the working field in advance. Linked to these situations are several competences (the sum of needed knowledge, skills, attitude that is needed to act in a professional way in these situations) which are needed to solve these problems effectively and adequately on a level that has also been described in advance.

To help students proving their development, the so called STARR method is given to the students to describe their behaviour in these situations. The students describe: the situation, the goal of the task they did, the activity they undertook to solve the task in this situation, the result of this activity and the reflection on this. The actual assessment has two parts:

A. The statement
With the use of the above stated method the student describes an actual situation, task, activity, result and reflection on that.

B. The evidence
To underline this statement the student links this with evidence material (such as: documents, emails, video material, pictures).

The steps that are taken:

1. Preparation
In the portfolio assessment the student proves that he is able to perform on a professional level that is required to work as a primary school teacher. Before the actual assessment the student invites the assessors to the essential parts of his portfolio. The assessment takes place after all activities in the study have been concluded, except for the final graduation paper. The portfolio meets the requirements formulated by the education.

2. Presentation
The student gives a 15 minutes presentation about his development in front of two teachers and a person from the working field. The assessors have already had the chance to view the essays and evidence linked to that. After the presentation they will ask several questions about the essays, the evidence and the presentation.

3. Evaluation
After the portfolio assessment the evaluation of the assessment takes place by at least two persons.
The use of the portfolio system as a showcase
In relation to the portfolio, various authors explain the double value of the portfolio in this connection. On the one hand; the portfolio is a working area. On the other hand, the portfolio is a signboard, with which someone shows what he is able to do.

The meaning of a portfolio in competence-based education should regard all components of a competence. In that sense, the composition of the portfolio should be such that the competence gets full attention.

In the above stated example the School of Education plans the digital portfolio also to be used for future job solicitations. Because it does not only give an overview of competence development but also contains a profile of the graduate with amongst others his personal views on teaching practice and the role of the teacher in that.

Implementation
E-learning has been identified as a useful tool for change management within institutions. Within INHOLLAND the change involved setting a direction, causing changes in the structure, processes and infrastructure of the organisation. This is a rational and corrective approach involving a realignment of the organisation. The top down approach is characterised by policy and strategy development instigated by members of upper management and then propagated throughout the organisation.

In contrast to this top down approach, the bottom-up approach is characterised by pilot projects as well as individually funded projects. As the implementation of the e-Portfolio system in the first year focused on a wide implementation in all Schools, the more profound implementation of the system requires other methods of change management. The bottom-up approaches are characterised by
pilot and individually funded projects by innovative Schools in a rather more uncoordinated way. These local practices can travel beyond the boundary of the education that created them. It appears to be important to diagnose this process as well as its impact. The top down approach might coincide with in several studies, so called instrumental paradigm. This approach focuses on the implementation of an instrument and is often undertaken in a project with clear phases, the implementation is conducted step by step. This has been illustrated by the way in which the portfolio implementation was undertaken during the first year. In contrast, to that the bottom up approach can be twinned with the so called communicative paradigm which focuses on implementation through consensus of the people involved, thus defining a shared point of view on the actual problems and suitable solutions. This tendency can be recognised in later developments of the e-Portfolio implementation.

Because of the fact that study guidance as such still needed to be developed further, the use of the e-Portfolio as an instrument in study guidance was more or less separated from the rest of the curriculum. Nevertheless, today we observe a more solid use of the e-Portfolio closely related to proven aspects of the educational concept. In fact, as the bottom-up approach creates pockets of excellence it also leaves areas of inactivity. However, we do need to stress that although there may be resistance to change and its impact upon practice is debated and made sense of by using other ways of implementation strategies, the areas of inactivity could very well be filled by adopting the communicative paradigm.

Two years after introduction
Two years after its introduction over 14.000 students are actually using an e-Portfolio and thus descriptions of the way the portfolio system is used are available. The implementation of an e-Portfolio is challenging because it meets with several difficulties in a developing educational concept. Competence based learning is still in its initial phase, the aims formulated in terms of a holistic approach of competences have not yet been achieved. However, it appeared that specific use of e-Portfolio indeed has a positive impact on learning regarding increasing student motivation, ownership and responsibility.

In some cases we came across some interesting examples of assessment for learning and formative assessment, especially in types of education where the e-Portfolio has an important role concerning the alignment of instruction, learning and assessment. Whereas the implementation of the e-Portfolio was stimulated by one project carried out in 2004-2005, embedding the e-portfolio in 2005-2006 was more closely specified by different groups for different educational purposes.

Portfolios can inform different stakeholders of ongoing growth and development. In technical and vocational training, gaining practical experience plays an important role in the educational curriculum. An e-Portfolio appears to be a useful instrument in the communication between the tutor, the teacher and the student. The tutor better appreciates the goals and instructional approaches of the learner and the teacher which makes them more effective partners in learning. During the first year of the implementation a dichotomy between competence-based education and a more classic approach was seen as an obstacle for further development. At the time portfolio use mainly focused on study guidance, but nowadays different kinds of users tend to demonstrate a more sophisticated use. More meaningful application of the e-portfolio system is observed in new modes of assessment, work placement and graduation.

The difficult process of implementing an e-Portfolio has been started as a top-down approach. Now, two years after the broad implementation, a bottom-up process has started, resulting in several different aspects of portfolio use. While the broad implementation focused on portfolio as a tool in study guidance, we now observe interesting other aspects coming into use. Both the top-down approach and the bottom-up approach are necessary when successfully implementing the e-Portfolio. Whereas the one approach deals with resistance and the “pocket-veto” of the professionals, the other approach creates pockets of excellence. The gaps left behind by the instrumental top down approach are starting to be filled by a more communicative bottom up approach.
PORTFOLIO SCENE IN DUTCH HIGHER EDUCATION

Rubens, G.F.L.M. Utrecht University, Kemps A.H.M. INHOLLAND University

Management summary

The Special Interest Group NL Portfolio of SURF has asked Alex Kemps (InHolland University) and Wilfred Rubens (Utrecht University) to carry out a desk research into the who, what, where and how in ‘Portfolio Holland’. Objective of this research is to map and to open up the portfolio landscape within Dutch Higher Education.

This portfolio landscape has been mapped on the basis of a questionnaire. Besides, a ePortfolio maturity model has been developed that is used to position institutions in the portfolio landscape. Apart from that, descriptions per institution are available online.

In this paper an example of the questionnaires’ working out has been included about one topic: educational concept. The other topics, not worked out in this paper, from the questionnaire are:

- Policy-related basic assumptions
- Use of portfolio
- Institution-wide portfolio systems
- Freedom of choice of students portfolio
- Roles with portfolios
- Embedding curriculum
- Guidance/coaching
- Assessment
- Freedom of choice students educational programme
- Still, a list is included of the institution-wide portfolio systems mentioned.

Furthermore, the ePortfolio maturity model is explained and the institutions are positioned in the portfolio landscape on the basis of this model.

On the basis of the abovementioned results, a number of conclusions can be drawn. For instance, it has been found that it is complicated to examine at an institution-level how the portfolio is used in education. Supposedly, the portfolio is used in a great variety of ways within institutions. Students also have reasonably much freedom when using the portfolio, whereas the freedom of choice in the design of the educational programme is not very large. From the perspective of the portfolio this can be called remarkable. After all, the portfolio is often considered as a tool that gives an insight into the development of a student who has much freedom of choice in the determination of his learning targets and learning activities. The research also shows that the portfolio is mainly used for the students’ learning (and not, for instance, to promote the expertise of employees). Here, the main thing is to coach the individual development of the student, reflection on development and the collection of materials. Moreover, the portfolio seems to fill an important function within higher education.

Also remarkable is that, in a majority of cases, nobody from the professional practice is involved in the support of the portfolio. That is remarkable since it is the professional practice in which the level of competency must be demonstrated (and involved people from the professional practice are the best judges of that).

It is also striking that a large number of various portfolio systems is used. The market of ‘digital portfolios’ is as yet strongly split into fragments.

The ePortfolio maturity model shows that institutions are often in a higher phase of application, as regards ICT-infrastructure and freedom of choice portfolio.
Generally speaking, the institutions seem to be in the phase of process redesign as regards the consistency policy/practice and the curriculum embedding.

Finally, this paper is concluded with a number of recommendations.

**Objective of research**

The Special Interest Group NL Portfolio of SURF has asked Alex Kemps (InHolland University) and Wilfred Rubens (Utrecht University) to carry out a desk research into the who, what, where and how in ‘Portfolio Holland’. Objective of this research is to map and to open up the portfolio landscape within Dutch Higher Education. A stock-taking is made of what is happening per institution: which tool/system they use, which materials and templates there are and what one’s position is in the portfolio landscape. The commission by NL-portfolio offers the opportunity to make a broad stock-taking of portfolio applications in Dutch higher education and to describe a current Portfolio landscape.

**Method**

The researchers made a questionnaire for this research. Most questions were multiple choice questions, other questions were open. The draft questionnaire has been discussed with met Prof. Dr. Robert-Jan Simons (IVLOS, Utrecht University) and Dr. Jeroen Onstenk (reader InHolland University).

The researchers then made an inventory of who within the SURF-connected institutions could be considered as ‘portfolio contact persons’ of the institution. This inventory was carried out among the contacts of the Platform ICT and Education of SURF and among contacts of the SIG NL Portfolio. Then, the questionnaire was sent to a total of 38 ‘portfolio contact persons’. The researchers did also remind the intended respondents of the questionnaire a number of times through e-mail and telephone.

Most respondents have responded in writing. In five cases, the questionnaire was answered by telephone.

Then, the questions were scored in SPSS. The researchers gratefully used the advices by Dr. Heinze Oost from the IVLOS. Frequencies were calculated and where possible averages (and standard deviations) and contingency tables (if a connection between variables is suspected). A draft-report has been discussed with Prof. dr. Robert-Jan Simons (IVLOS, Utrecht University) and Dr. Jeroen Onstenk (reader InHolland University).

Then, the researchers developed an ePortfolio maturity model–also on the basis of literature. After that, the institutions were positioned in this model on the basis of the completed questionnaires. The respondents had the opportunity to react to the positioning. In part 3 this is further explained.

In this way, this document contains an overall outline of the current portfolio landscape within Dutch Higher Education.

Per institution a ‘random picture’ is also made. These descriptions can be found through [http://wiki.ossite.org/index.php?title=SIG_NL-Portfolio:_Portfolio_landscape](http://wiki.ossite.org/index.php?title=SIG_NL-Portfolio:_Portfolio_landscape)
Response

The questionnaire was completed by twenty-seven institutions (twenty-one HBO= Higher Professional Education, six WO= Scientific Education). The HBO dominates, which may lead to a distorted picture.

One questionnaire was received when the tables and the text were adapted for the second time. That is why this questionnaire was not incorporated in the quantitative analysis, but it was included in the qualitative descriptions. For the rest, five institutions mailed information that has been incorporated in the qualitative data. These institutions however, did not complete the questionnaire.

A number of respondents indicated to find it very complicated to give an opinion about the whole institution. The way in which the educational process is designed and the portfolio is used, varies greatly. This paper gives an outline of the dominant applications within institutions. Undoubtedly, it fails certain exceptions because of that.

In a single case, two questionnaires were received from one and the same institution. Since the responses in these questionnaires were very different, they have been incorporated separately. It also is remarkable that the size of scale of some institutions varies strongly. Some PABO’s (Teacher Training Colleges), for instance, are still organised as separate institutions, whereas other institutions (such as InHolland University and Utrecht University) comprise many different faculties/schools and filled in one questionnaire. Therefore, a distinction has been made between institutions with a limited size and those with a large size. The first category contains for instance the separate Pabo’s or faculties that responded. This regards 9 institutions. Institutions with a large size are ‘broad’ colleges or universities (with several faculties/schools). Seventeen incorporated questionnaires regard large institutions.

Questionnaires

The questionnaires were designed on the basis of the following topics:

- Policy-based assumptions
- Use of portfolio
- Institution-wide portfolio systems
- Freedom of choice students portfolio
- Roles with portfolio’s
- Curriculum embedding
- Support
- Assessment
- Educational concept
- Freedom of choice students educational programme

Below, the applied institution-wide portfolio systems are named and the elaboration of the topic “educational concept” is included as an example.

Institution-wide portfolio systems

Systems mentioned are:

- Topshare (intranet environment as portfolio environment) (2x)
- Sharepoint (5x)
- Portfolio portal (self-developed application to open up portfolio)
- WebCT
- Blackboard (courses per student) (2x)
- Blackboard CMS (4x)
- Own facultary system (3x)
- Netschool (5x)
- ID Portal
- Studyweb
- First Class
- Amico
- Concord
- DU Portfolio
- Self-developed system
- Portfolio on the basis of the CMS Roxen
- OSP (2x)

A large number of systems is used. Some respondents also indicate here that the use of the system is in a pilot phase as yet.

In well over 60% of the institutions, there are limitations with regard to the choice of portfolio systems for faculties/schools. 23 out of the 26 respondents indicates that institution-wide choices are managed at a central level (in almost 60% of the cases this regards a limited project organisation).

**Example of elaboration of questions around the topic ‘Educational concept’**

Admiraal et al. (2002) distinguish three educational concepts (‘educational orientations’):

- Guided learning (comparable with ‘organised travelling’; for example in the form of lectures/tutorials).
- Experiential learning (comparable with ‘backpack tourism’; for example in the form of problem-based education).
- Active learning (comparable with ‘explorers’ who go and explore and have a lot of self-responsibility for their own learning process; for instance in the form of competence-based education).

In the questionnaire it was asked, on the basis of the abovementioned description, which educational concept is leading within the institution. That provides the following picture:

<table>
<thead>
<tr>
<th>Concept</th>
<th>Frequency</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided learning</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Experiential learning</td>
<td>2</td>
<td>15.4</td>
</tr>
<tr>
<td>Active learning</td>
<td>12</td>
<td>61.5</td>
</tr>
<tr>
<td>Collaborative/experiential learning</td>
<td>1</td>
<td>65.4</td>
</tr>
<tr>
<td>All</td>
<td>8</td>
<td>96.2</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Dominant educational concept

A large group of respondents (46.2%) indicates that within their institution active learning is the dominating educational concept. Almost 31% indicates that within their institution there is a mix
between guided learning, experiential learning and active learning. Those institutions that claim to use purely ‘active learning’ as an educational concept, originate from the HBO.

<table>
<thead>
<tr>
<th></th>
<th>Guided learning</th>
<th>Experiential learning</th>
<th>Active learning</th>
<th>Collaborative / Experiential learning</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBO</td>
<td>1</td>
<td>2</td>
<td>12</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>WO</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>1</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 2. Dominant educational concept and type of institution

Furthermore, those institutions that use ‘active learning’ as the educational concept, relatively often seem to consider the portfolio as heart of the education.

<table>
<thead>
<tr>
<th></th>
<th>Guided learning</th>
<th>Experiential learning</th>
<th>Guided learning</th>
<th>Experiential learning</th>
<th>Guided learning</th>
<th>Experiential learning</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio separate from regular educational programme</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Portfolio assignments within subjects</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Learning line/skills line</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Portfolio heart of the education</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Several variants</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 3. Relation curriculum embedding and educational concept

**Maturity model**
‘Maturity models’ are developed to support the improvement of processes, products and services. The IBM company was among the first to use a maturity model to describe the relation between the quality of the developed software and the quality of the development process. IBM discovered that this development takes place step by step (Becta, 2005iv). By now, more often ‘maturity models’ are used to map the step-by-step development of technology and change processes. The British Becta, for instance, composed an ICT Maturity model for educationiv. Marshall and Mitchell (2002) have developed an e-learning maturity modelv. KPMG Consulting (2002) described the use of ICT within the professional education and the adult education through a so-called ‘variant model’v.

In this part, we want to describe the portfolio landscape on the basis of an ‘ePortfolio maturity model’. This model was developed by us. A central point of departure here is that flexibilisation, personalisation and ‘lifelong learning’ become essential within higher education and, in fact, already arevi. The ePortfolio will especially have to be considered within this framework. We also want to emphasize that this is mainly a random picture, made in the winter of 2005/2006.
For the division into phases of the ‘ePortfolio maturity model’ we use Becta’s classification. We also used some elements from the use of ePortfolios from our research. In our opinion, that mainly regards a number of –as BECTA calls it– “key organisational features”. For the use of ePortfolios within higher education, these core elements are, in our opinion:

- Consistence policy/practice: is there a match between the policy-based basic assumptions of the ePortfolio and the implementation in practice?
- ICT-infrastructure: is a fitting ICT-infrastructure available for the development, storage and distribution of ePortfolios? By this we mean, within this framework: the application (software) and the server on which this application is installed.
- Freedom of choice portfolio: assuming that the ePortfolio is a tool within flexible education, the question is which freedom of choice students have in the use of the ePortfolio.
- Freedom of choice educational programme: assuming that the ePortfolio is a tool within flexible education, the question is which freedom of choice students have in the design of their educational programme (think of learning targets, learning activities).
- Curriculum embedding: to what extent is the ePortfolio integrated in the curriculum.

In practice, it sometimes happens that an institution can find itself in various phases per core element. This may lead to tensions within the organisation. It is better if there is a balance between the elements. Therefore, the model also indicates the priorities for an institution to undertake actions (for instance when the institution is in phase 3 as regards freedom of choice portfolio and in phase 2 as regards freedom of choice educational programme).

Each core element is described for each phase. Below you will find a description of the core element ‘Freedom of choice portfolio’ for three phases.

<table>
<thead>
<tr>
<th>Phases</th>
<th>Description core element ‘Freedom of choice portfolio’</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: local use</td>
<td>The faculty/school formulates frameworks for freedom of choice in the use of the portfolio. Within these frameworks, schools are allowed to make their own choices. The chosen ICT-application puts limits to this freedom of choice. Students are allowed to partly determine themselves which material they include in their portfolios and who will get access to their ePortfolios. The school also indicates who must have access to the portfolio. Furthermore, students can adapt the layout of the portfolio to a limited extent.</td>
</tr>
<tr>
<td>2: process redesign</td>
<td>The faculty/school indicates to what extent there is a freedom of choice in the use of the portfolio. Schools are allowed to make their own choices to a limited extent. The chosen ICT-application puts limits to this freedom of choice. Largely, students can determine themselves which material they include in their portfolios and who will get access to their ePortfolios. On the basis of the collected material students can use several portfolios (for several purposes). They can also adapt the structure, within the limits the faculty/school sets. The school also indicates who must have access to the portfolio. Possibly, students can also allow others access to their portfolios. They can also adapt the layout of the portfolio to a limited extent.</td>
</tr>
<tr>
<td>3: network redesign and embedding</td>
<td>The faculty/school formulates frameworks regarding the freedom of choice in the use of the portfolio. Within these frameworks, the student (in consultation with the coach) can make choices of his own. The ePortfolio environment does not put any limits to this freedom of choice. Students themselves can determine which material they include in their portfolios.</td>
</tr>
</tbody>
</table>
and who will get access to their ePortfolios. On the basis of the collected material, students can use several portfolios (for several purposes). They can also adapt the structure, and determine who gets access to the portfolios. Students also determine which functionalities/services are used and when they work on the portfolio. The student makes decisions about this in consultation with the coach. Furthermore, students can adapt the layout of the portfolio.

5: redefinition and innovative use

Then, we try to position the various institutions within this model, thus creating a portfolio landscape. For that matter, this model seems mainly suitable for more complex organisations. Therefore institutions of a more limited size are left aside in this chapter. That also applies to institutions from which we did not receive sufficient information.

Summarizing, the ePortfolio maturity model looks like this.

<table>
<thead>
<tr>
<th>Phases:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Redefinition and innovative use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Network redesign and embedding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Process redesign</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Internal coordination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Local use</td>
<td>Consistency policy/practice</td>
<td>ICT-infrastructure</td>
<td>Freedom of choice portfolio</td>
</tr>
</tbody>
</table>

Anyway, not every institution has to strive for phase 5. Some institutions might not even consider that desirable.

**ePortfolio maturity model applied**

In this paragraph, the institutions are placed within the ePortfolio maturity model. This is done on the basis of the individual questionnaires. Then, the respondents got the opportunity to react to the positioning. Finally, this positioning was adopted. So the point is their personal assessment/estimation of the positioning.

Some respondents did not fully complete the questionnaire, because of which they could not be positioned in the model below. Institutions of a limited size were not placed in the model below either. In this paper it was indicated earlier that the ePortfolio maturity model seems mainly suitable to map larger, more complex organisations.

The point is not that every institution exactly matches the abovementioned descriptions. The point is the dominant picture. Within some institutions there also may be schools/programmes who, as regards certain core elements, find themselves in a different phase. As has been said, institutions may also find
themselves in various phases per core element. Besides, some institutions find themselves in several phases as regards a number of core elements.

<table>
<thead>
<tr>
<th>Phases:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Redefinition and innovative use</td>
<td>HR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Network redesign and embedding</td>
<td>HAN InHolland</td>
<td>Avans Fontys HAN HR InHolland UU UvA VU WUR</td>
<td>Avans Fontys HAN InHolland UvA VU WUR</td>
</tr>
<tr>
<td>3 Process redesign</td>
<td>Avans Fontys HAN Hanze HR UU UvA VU</td>
<td>HU</td>
<td>HAN UU UvA</td>
</tr>
<tr>
<td>2 Internal coordination</td>
<td>HU UvA</td>
<td>Hanze</td>
<td>Hanze HU UU</td>
</tr>
<tr>
<td>1 Local use</td>
<td>WUR</td>
<td>Consistency policy/practice</td>
<td>ICT-infrastructure</td>
</tr>
</tbody>
</table>


In this survey it is striking that not one institution is fully in the phase of redefinition and innovative use. It is also remarkable that several institutions often find themselves in a higher phase as regards ICT-infrastructure and freedom of choice portfolio than as regards the other core elements.

In general, the institutions seem to be in the phase of process redesign, as regards the consistency policy/practice and the curriculum embedding.

The ePortfolio maturity model is a way to map the portfolio landscape of Dutch higher education. It can also play a role in the formulation of scenarios in this field.
Conclusions

On the basis of the research, a number of conclusions can be drawn.

- It is complicated to examine, at an institution level, how the portfolio is used within the education. Respondents find it difficult to give an opinion about the whole – often large-organisation. The portfolio is supposedly used in a large variety of ways within institutions.

- Schools/programmes have a relatively large role in the determination of how the portfolio is used, whereas in many cases it is often determined at an institution level in which way the digital portfolio is technically used.

- In many cases there is a central steering of the introduction of portfolio systems, usually through a project organisation of a limited scale.

- Students have reasonably much freedom of choice in the use of the portfolio. It is remarkable that large institutions have comparatively more freedom of choice in the use of the portfolio, than institutions of a more limited size.

- The portfolio is mainly used for the learning of students (and not, for instance, to promote the expertise of employees). The main point there is guiding the student’s individual development, reflection on development and collection of materials.

- It seems that the portfolio is used for the individual learning process of students. In chapter 2.6 the conclusion was made, among other things, that the portfolio is (reasonably) little used for peer feedback and collaborative learning. That could also explain why students have relatively little access to each other’s portfolio (see chapter 2.5). The finding in chapter 2.2 that the portfolio is mainly used to coach and to reflect on the individual development of students seems to justify this conclusion. This is remarkable since recent views on knowledge and knowledge acquiring in educational science and educational psychology have an effect on the design of education that tends towards learning in powerful, flexible learning environments with complex tasks, in which learning is considered to be a social process. With this, the introduction of the ePortfolio anticipates in fact the introduction of more flexible, personalized education.

- The portfolio seems to fulfil an important role in higher education. The portfolio seems to fill a central position within learning lines/skills lines or even forms the heart of the education. Furthermore, in many cases students spend more than 25 hours a year on working with the portfolio, and institutions often invest much in the implementation of the portfolio. Besides, the portfolio is compulsory for students. Possibly, this finding is influenced by an overrepresentation of the HBO within the group of respondents. Within the HBO, competence-based learning seems to gain more and more foothold. The portfolio is often considered as a major tool in competence-based learning.

- Generally speaking, there seems to be a consistency between policy and practice of the use of the portfolio. With regard to the application possibilities ‘reflection on the development’ and ‘guiding the individual development of the student’, this is, according to the respondents, the largest consistency between policy and practice.

- In a majority of the cases, nobody from the professional practice is involved in the portfolio implementation. That is remarkable since it is the professional practice in which the level of competency must be demonstrated (and involved people from the professional practice are the best judges of that).

- There is a large degree of diversity in the way in which the assessment of the portfolio is organised. A large group of the institutions uses the portfolio both diagnostically and certifying.

- A large number of different portfolio systems is used. The market of ‘digital portfolios’ is strongly split into fragments. Besides, some respondents indicate that the use of the system is still in a pilot phase as yet.

- In general, the freedom students have in the design of their educational programme, is not very great. From the perspective of the portfolio, the relatively small degree of freedom of choice
regarding the educational programme is also remarkable. After all, the portfolio is often considered as a tool that gives an insight into the development of a student who has much freedom of choice when determining learning targets and learning activities.

- It seems that there is no connection between the educational concept and the degree of freedom of choice students have to design the educational programme. The concept ‘Active learning’ is mentioned the most often. This educational concept implicates much freedom of choice. Possibly, the concept is not widely implemented as yet. It may also be that there is a difference between the intended concept (‘espoused theory’) and the educational practice (‘theory in use’). A single respondent did explicitly indicate that in the response to the questions.

- The ePortfolio maturity model seems a meaningful tool to map the development of the portfolio landscape.

- From the ePortfolio maturity model it shows that institutions often find themselves in a higher phase as regards ICT-infrastructure and freedom of choice portfolio. These are also those aspects that are most arranged at an institutional level; see also table 4 in chapter 2.1.

- In general, the institutions seem to be in the phase of process redesign as regards the consistency policy/practice and the curriculum embedding.

Recommendations

- On the basis of the research, we come to the following recommendations.

- The ePortfolio maturity model is a way to map the portfolio landscape of Dutch higher education. Our advice is to further develop this model, to substantiate it (through research, for instance through a Delphi-study) and also to use it at an institution level. It is also advisable to perform such a “scan” about every two years. The insight into the development of the portfolio landscape will increase in this way.

- It is recommendable to not perform a comparable scan at an institution level, but at programme level. This is especially the level where educational leadership has its effect and where in general the responsibility lies for the educational development. In this way, a more complete and balanced picture of the portfolio landscape will be created. Besides, this may promote network development. Such a research, by the way, is very labour intensive.

- Since the market of digital portfolio systems is strongly fragmented, there is an opportunity to work on standardisation at a central level. At the same time, the very diverse wishes regarding the contents-wise use of the digital portfolio will have to be taken into account. Therefore, a so-called ‘service oriented architecture’ is obvious. At a national level—for instance through the SURF Foundation—services can be offered centrally.

- The introduction of the digital portfolio cannot be dissociated from the didactic concept. If the conclusion is made that the education should be made more flexible and personalized, and there should be more learning in interaction with others, then a more extensive research should be carried out about if and how the digital portfolio can fill a more prominent role in the flexibilisation and collaborative learning.

- With the introduction of the digital portfolio, much room is needed for schools and faculties, the ‘owners of educational development’, to employ the portfolio flexibly—“custom-made”.

- The professional practice can be involved more intensively in the support and development of the digital portfolio. Among other things, that implicates that persons who are not working at an institution for higher education, will have to get access to digital portfolios from students.

- The ePortfolio can be further embedded within the organisation, for instance by also using the tool for the professionalisation of employees and possibly also for the accreditation of schools.
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PACKAGING THE UNDERGRADUATE EXPERIENCE WITH ePORTFOLIOS

DeeAnne M. Kimmel, Clemson University, USA

Abstract
The Packaging Science Department at Clemson University offers a four-year bachelor’s degree in the design, construction and testing of packages of all kinds, from pouches to pallets. In this applied science curriculum, students complete a broad range of basic science courses, the University general education requirements, specialized courses in packaging, an emphasis (or minor) in a related area and a six-month cooperative internship in industry. About two years ago, the Department faculty, with the strong support of its industry advisory board, committed to a department ePortfolio program. The students would develop their individual ePortfolios throughout their undergraduate years. They would be introduced to the philosophy and techniques of constructing and maintaining the ePortfolio in a one-credit course during their second semester of study. They would collect artifacts and reflections from their educational, work, service, travel and recreational activities throughout their undergraduate years. Each department faculty member would require at least one project from each Packaging Science course to be added to the ePortfolios. In addition, the students would assemble the evidence that they met the University’s general education requirements. In a second one-credit course during their final semester, they would be guided to edit and refine their ePortfolios and abstract a career ePortfolio to be shared with prospective employers and a general education ePortfolio to be formally assessed by the University. The first course has now been completed by forty students.

Introduction
The Packaging Science Department at Clemson University has assumed a leadership role in the development of an ePortfolio program as an integral part of its undergraduate curriculum. The faculty agreed that students would showcase their coursework, particular talents, abilities, and their experiences and reflect on all of those in a purposeful, systematic, accessible format. The department support of the ePortfolio initiative included a desire to go beyond the University general education ePortfolio requirement by setting up more comprehensive ePortfolio courses with an emphasis on the major. Two Packaging Science courses were developed and authorized by the University curriculum committee: a beginning ePortfolio course for second semester Freshmen to begin their ePortfolio and a capstone course during the final semester of their senior year to refine their ePortfolio into a career/professional ePortfolio. A faculty position was created to teach the courses for ePortfolio, to collaborate with faculty in the department on the development of ePortfolio projects and to advise and assist students throughout their undergraduate career with their ePortfolio. Faculty agreed to collaborate to develop projects and reflections as part of their courses and thus offer a basis for assessment within the department. Students would be required to reflect and assess their work as an integral part of every packaging science course.

Two additional partners with key responsibilities have participated with the Packaging Science department in this initiative. Staff from our college, the College of Agriculture, Forestry and Life Sciences (CAFLS) have teamed with staff, who are assigned to our department, at the Michelin® Career Center on campus, to develop creative ways to enhance opportunities for our graduates to succeed and even excel in the job market. They offer students an online career network, extensive workshops and handouts, and individualized step-by-step services for job interviews. Their services extend beyond on-campus jobs and internships to follow-up in students’ first post-graduate jobs and alumni who return for additional services. The Clemson University Cooperative Education Office
works with the Michelin® Career Center as well as our department to offer students career-related experiences by connecting them with suitable employers. These job assignments, which are a Packaging Science requirement for graduation, fulfill the Cooperative Education’s mission by complementing students’ academic studies and fostering the development of a work ethic, a sense of responsibility, professionalism and personal growth. They have expanded their global network to enhance students’ awareness of the possibilities for experiences outside the United States.

The packaging industry is the third component of this Clemson Packaging Science ePortfolio partnership. The industry has supported the faculty with real world projects for students, opportunities for students for summer employment, student internships and scholarships. The Department’s Industry Advisory Board has sustained a pivotal role in maintaining interest and support in the program. Members of the Advisory Board were among the earliest supporters of the ePortfolio and were the first group outside of the University to see the Packaging Science student ePortfolios.

The position of the students in the development of the ePortfolio is at the center of this new initiative. The Department has taken the lead in developing the overall concept for the ePortfolio, but the refinement of this initiative relies on our students, who have become active learners and assumed responsibility for collecting their artifacts, keeping organized documents and images to present in a purposeful, thoughtful, creative and consistent manner. Their evaluations of the first ePortfolio class have been the impetus for immediate revisions to the syllabus. Their responses to the development of their ePortfolio have been enthusiastic, and they have been eager to collate and showcase their work in creative, dynamic ways. The framework of the ePortfolio has been designed to go beyond a mere checklist of courses taken and exposure to lectures and labs to include specific documents and projects with reflections on those artifacts, demonstration of critical thinking, information literacy and acknowledgment of responsibility for ethical judgment. The figure below illustrates the partnership roles in the Packaging Science department at Clemson University.
Program Description

Two important decisions defined the unique components and success of the Packaging Science ePortfolio initiative. The first decision centered on the technical aspects of the ePortfolio. In developing the content for these new courses, the faculty consensus was to insist on minimum computer skills proficiency for all department majors. This consensus led to the decision to use an online tutorial, SimNet for Microsoft Office® applications, incorporating Computer Concepts, Word, PowerPoint, Excel and Access for Blackboard Learning Systems®. All students accessed and completed customized lessons and exams during the semester. They received immediate feedback on Blackboard, and their work could be evaluated in a timely and efficient manner through the instructor panel of Blackboard. Furthermore, students received instruction in the use of digital media and appropriate free software programs available to edit and incorporate still images, audio and video files into their ePortfolio. The multimedia component was a requirement for the ePortfolio. Faculty and staff assisted students and students cooperated with each other to enable everyone to incorporate these elements into their final product.

The second decision involved the content of the ePortfolio. The decision was made to add reflections for both general education courses as well as packaging science courses to assess and reflect on both the individual courses and more broadly on the inter-relations among courses. Assignments were chosen to meet multiple objectives that would build new skills and contribute to the fulfillment of the general education distributed competencies. Clemson University has defined six general education competencies. These competencies are:

- Written & Oral Communication Skills
- Reasoning, Critical Thinking & Problem Solving
- Scientific & Technological Literacy
- Social and Cross-Cultural Awareness
- Arts & Humanities
- Ethical Judgment

Specific assignments, such as a multimedia autobiography, required students to use critical thinking skills and digital technology to showcase memories and images in a short biography. A web page evaluation of a packaging science trade association allowed students to use specific web evaluation tools and to refine their information technology skills with emphasis on prior knowledge from packaging science courses. An assignment to interview a person from another generation honed digital storytelling skills with interview techniques and further practice with digital equipment and editing techniques. Students created online virtual field trips to their favorite place and enjoyed describing in minute detail what a visitor would see, hear, smell, taste and experience. This assignment provided additional opportunities to use digital equipment and computer technology and to refine observation skills for the purpose of recounting an experience.

The breadth of the undergraduate Packaging Science curriculum requires students to specialize through one out of eight emphasis areas or minors. Each member of the Packaging Science faculty visited the class to inform students about their emphasis area so students would become knowledgeable about the various emphasis areas, know the requirements and course sequence for each of those areas and have the opportunity to question the faculty about their areas of expertise. Students added reflections on these class visits and their subsequent emphasis area/minor decisions to their ePortfolio content. An integral part of the faculty class visits was the career/internship presentation by a staff member of CAFLS assigned to work with packaging science students. In addition to online guidelines, resume forms and cover letters, and a network/mentoring data base, career development services for interview skills, jobs searching, workshops, employer/salary information and graduate school information were explained. Emphasis was placed on the fact that the ePortfolio would demonstrate purpose, organization, dedication and commitment to showcase the student’s work in a professional manner. Another member of the career center staff observed that the
ePortfolio gave the student a ‘decided edge’ in a competitive job search. The partnership between the Packaging Science department and Clemson Career professionals has ensured a smooth path to successful employment for our graduates.

Microsoft Office online instruction with SimNet facilitated the creation of ePortfolios for in-class presentations. Thirty-two students chose to present their ePortfolios in a PowerPoint presentation. Four students chose to create a web page on the Clemson University server. Three students chose to use the basic ePortfolio tool in Blackboard and modify it to suit their needs. All students received a detailed minimum ePortfolio requirements list and a grading rubric prior to their presentation. Specific multimedia requirements allowed students to use prior knowledge from class instruction as well as personal experience to make their ePortfolios unique and showcase their talents, educational activities and experiences. Students were required to submit their ePortfolio on a CD and to give an in-class presentation.

Conclusions and Future Plans

Students were not enthusiastic about the SimNet software online tutorial due to problems with setup, server downtime, problems with access to content and ambiguity on some of the questions. Many of the students responded that they thought the online tutorial exceeded the time they should allocate for this class. A common problem among many of the students was saving the entire ePortfolio with all the documents and images to a CD. Quite a few students did not know how to burn their ePortfolio to a disk, although the University required them to purchase a laptop with a CD burner. The somewhat negative technical aspects did not overshadow the positive outcome of the ePortfolios. One student expressed his thoughts:

“When I found out that the Packaging Science Department was requiring all its students to take the ePortfolio class, I thought, it’s about time. I knew being the first students to take the class that there would be a few problems with what was expected of us. The way the class was structured was to teach the student the basics of Word, PowerPoint and Excel. Regardless, if you were a wiz with the computer or a beginner, you left the class with valuable skills to accelerate yourself in the work force. …I learned exactly what employers are looking for. You only have a few seconds to catch the eye of an employer with a resume, but with this class, your ePortfolio many not only catch their eye, but get you the job.”

(Jeremy D. Hughes, Clemson University, Packaging Science 2008)

Current plans include teaching the senior ePortfolio class to develop and refine a general education ePortfolio into a career/professional ePortfolio. In addition to the ePortfolio work in the senior class, there is emphasis on specific job skills such as interviewing, presentations, personal financial planning and working in teams.

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EMPOWERING ENGINEERING STUDENTS´ SELF-DIRECTED LEARNING IN PROFESSIONAL ENGLISH COURSES THROUGH E-PORTFOLIO

Tuula-Harriet Kotikoski and Raija Fonselius, Language Centre of Jyväskylä University of Applied Sciences

Background to the study

The study on Empowering Engineering Students’ Learning was initiated in 2002 with the suggestion of the Head of the School of IT that the English teachers of the Language Centre should integrate the language courses more closely into the professional studies of the IT engineering students. Thus, the motivation of the students towards mandatory language studies was expected to improve and the actual study of the professional substance to become easier with students reading the same texts in two courses: the professional as well as the English classes. The texts discussed in classes were to be of the professional field of the students, e.g. software engineering, data network technology.

The study started with a group of data network technology students as a 3-ECTS-credit professional English course with 45 participating students, the amount of contact lessons being 20. Additionally, the students selected courses in professional subjects and prepared two oral presentations to be presented in English as well as two written assignments from the professional courses. The form of assessment was decided to be a portfolio. All the assignments were to be gathered in an e-portfolio. Next, the e-portfolio was expanded to Business Information Systems students using self-directed mode, the e-portfolio and the learning platform R5Generation as their forum.

In all courses the students sent their portfolios with self-assessment per e-mail after course finish and were then assessed by their teachers. The self-assessment was given a strong emphasis as the English teachers wanted to see how the engineering students could reflect on their own learning – one of the main focuses on this portfolio experiment. The experiences were all in all so positive that it was decided that the e-portfolio combined with face-to-face classes and integrated into the professional subjects of the students would be the mode of teaching professional English in future. Between 2003 and 2006 the model used was varied slightly based on the more than 200 students´ feedback, contact classes being between 10 and 24. The teachers learnt in the process to explain the purpose and uses of e-portfolio in learning and especially the meaning of student reflection.

In 2005, one of the mandatory assignments was to answer the teachers´ questionnaire on personal learning results and give feedback on their own success as well as the factors that benefited the success. In addition, the students were asked to perform the Dialang language test in English to find out their own language level and thus, be able to set their individual learning targets accordingly

Portfolio Courses in Engineering Studies

To take the Bachelor’s degree in engineering, students at Jyväskylä University of Applied Sciences have mainly two compulsory English courses, in addition to this some students may have a brushing-up course depending on their previous studies. One of these compulsory courses is general in nature and the content is the same for all the students at Jyväskylä University of Applied Sciences. The other course which the ICT Engineering students have is a professional course, the content of which partly depends on their line of specialisation. Here in this paper the focus is on the professional course of engineering students.

As technology advances and the requirements of the working life change the courses should give relevant and usable skills to students for their future. Educational institutions should take into
consideration the changes in the surrounding society and therefore new ideas of learning and teaching must be exploited as much as possible in order for educational institutions to be able to face the challenges and fulfil the expectations of working life.

Furthermore, financial resources allocated for different courses are more and more limited; the time possible to employ for one single course is becoming shorter and shorter. On the other hand to gain most of the course the students need to get practice as much as possible. In order to learn professional terms and phrases the integration of the courses with professional ones has been a prevailing practice for some time at Jyväskylä University of Applied Sciences. As portfolios are collections of the student’s work representing a selection of performance, a mixture of documents and artefacts, they seemed to be suitable for this type of courses because they can represent in a versatile way the student’s skills and knowledge. Furthermore, portfolios are flexible methods to learn and students have an active role in learning and applying their skills and knowledge. Thus to achieve the best possible results a portfolio course seemed to meet the criteria.

Language learning portfolio is a folder of learning achievements of a participant in language programmes. In a way, it can be a learning 'passport' containing details on achievements concerning the participant's work, endeavours and advancement in learning foreign languages, regardless of the way: by attending a course, by distance learning, or by self-directed learning.

A language portfolio represents the source for an individual's reflection on one's language learning efforts and results. This also motivates the individual to advance further. At the same time it can be an internationally comparable tool for identifying the individual's language proficiency in the process of acquiring internationally valid certificates and attestations.

A language learning portfolio contains criteria for evaluation by a teacher and for self-evaluation. Furthermore, it includes one's self-reflection related to achievements and completions of foreign language learning programmes. (Jelic)

Portfolios are a way to complete a course and a tool for assessment. The student collects his/her best assignments and also the selection criteria and describes his/her studying process, evaluates the strong points of the achievements and the progress in his/her studies and furthermore, evaluates his/her colleagues’ assignments as well, thus learning peer assessment.

When the students are taking a portfolio course, it means that they will do several tasks/assignments during the classes and then enclose them in their portfolio.

**Portfolio Courses at Jyväskylä**

The objective of the pilot study was to find out if the mixed e-portfolio model is suitable for more integrated language learning for engineering students. One of the aims was also to hear the students’ voices in feedback and in reflection of their own learning experiences and results as well as their own assessment: students were also asked to grade themselves with a grade from 1-5 (5 being the best in Finland). Surprisingly, the students and the teachers agreed in about 95% of the cases on the grades and the students were very grateful for getting proper written and oral assessment feedback from the teachers instead of a plain grade. One objective was to study if this mode was more work-intensive for the teacher and the student than the traditional test. A language course cannot be totally transformed into electronic form in a learning environment; the students would not accept that but there must be an ideal ratio of contact vs. distant study classes where the student has enough free space to develop his/her skills individually and on the other hand, in social context with other students.

In future one major target will be the exploitation of peer assessment in a more advanced way. So far the students have been encouraged to send in their assignments in to the learning environment and to a fellow student’s e-mail. This option is not yet used, even if students were promised extra points. Still, they suffer from strong self-criticism and are not willing to demonstrate their personal e-portfolio. This is one of the teachers’ challenges for the future. Of course, the further development of the
integrated model is the greatest challenge and with students’ constant feedback this is possible. There has also been interest from employer side to start using e-portfolio for recruitment purposes.

Portfolios were implemented during the professional courses of engineering students. The idea of these courses was more or less the following: the students had some contact lessons and they were also supposed to give some presentations during their professional courses. Their presentations were assessed both by the language teacher and the ‘professional teacher’. Peer assessment was also in use. Students had to prepare some visual aid, e.g. a powerpoint slide show, for their presentations. During the contact lessons students had a lot of oral practices and at the end of the course they had an oral test which was also part of their portfolio assignments.

There were a number of some required tasks of the course which the students included in their working portfolio. All those tasks were shown to the teacher towards the end of the course then the students also collected a showcase portfolio at the end of the course. For their showcase portfolio the students selected the tasks/assignments which they thought best show their knowledge and skills. Furthermore, as part of the portfolio they also assessed their own skills and tasks as well as reflected on their learning during the course. They also gave some feedback on their fellow students on their portfolios. In the course there was no written test because all evaluation was based on the students’ portfolio work. However, as part of their portfolio there was an oral test where a group of students were given a situation where they had an opportunity to show their oral skills. For example the software engineering students had to negotiate about starting a net café.

Assessment of the portfolio course was based on:
- portfolio work
- self-assessment
- peer-assessment
- teacher’s assessment
- presentations
- oral tasks/tests
- vocabulary test (meeting vocabulary)
- active participation

The students were also asked to fill in some questionnaires during the course and to give some feedback on the course to their teacher.

Most students handed in their portfolios on time. Most of them included the tasks they were given as suggestions only a few of the students had their ‘own’ material.

In their self-assessment students quite nicely reflected their own work during the course.

Development Ideas

The last four years have been a wonderful learning process for both students and teachers, even more so for the latter. The instructions on completion of the course, feedback and assessment have improved a great deal since the first pilot project. Still there are some problems, mostly with the language teachers’ inexperience with the computers and the learning platform in use. The present learning environment R5Generation still needs developing if effectively used for e-portfolio. The students normally refuse to use it preferring e-mail and web pages.

The students’ creativity has surprised everyone including themselves and the forms the e-portfolio takes are very rich, highlights being some videos with students having to e.g. learn to use completely new software.

The students’ feedback has been overwhelmingly positive and they encourage the teachers to go on with the e-portfolio mode. They like the responsibility and the ownership of learning, both features important in future employment lifelong. At the first glance many students claim the e-portfolio is demanding and time consuming but on the other hand, the freedom and possibility to choose tasks
from a variety of possible assignments has been very rewarding for the students. The most difficult
tasks are the ones that they learn most of.

Giving the students comprehensive and detailed instructions how to do a portfolio course is very
important. It is very important that the aim and purpose of the portfolio course is clear to all students.
Deadlines are given at the beginning of the course and they should be clear to the students.

The following should be clear

- aim and purpose of the course
- what tasks and assignments should be included
- structure and organisation of the course
- reflection and assessment
- appearance of the portfolio

Instructor/Facilitator should

- know well the curriculum and contents of courses
- be innovative
- have good organisation skills
- have time
- be willing to take risks
- commit himself/herself to work with students in their portfolio work

The students responded to the portfolio project very well, and they claimed one of the reasons for
their positive response to be the lack of a formal written test and the freedom to choose the topics
that really interested them, which resulted in increased motivation. Instead of test stress and lots of
meaningless rote learning, they were very motivated to introduce their work to other students as
well in writing as in speech. The first experiment was a mixed mode of contact classes and e-
portfolio. The biggest problem of the pilot project was the teachers’ lack of knowledge on
portfolios in classroom action and as an assessment tool. Furthermore, the amount of work, i.e. the
students’ workload was very difficult to estimate in the first project schedule and students
complained about too many assignments and too many other themes than the professional ones
(also meetings and negotiations as well as some cross-cultural issues and business correspondence
had to be discussed in the course). Also they had some other small assignments for the contact
classes, which obviously were too much for them, and evidently they had to complete the
professional courses and learn new substances at the same time. However, the above mentioned
issues were not “mission impossible” for the language teachers and there was a lot of literature on
the topic available.

The opposition from the professional teachers, however, was something nobody expected to be
confronted with on university level. Some of the professional teachers refused to cooperate
because there was no compensation for them included in the experiment (there was none for the
language teachers either). Luckily, some of the professional teachers started to collaborate and the
same teachers are still working together with the English teachers and trying to establish a better
course each new term. Furthermore, they tell they have learnt a lot from work with colleagues and
also their English skills have improved a lot. At least they are neither any more afraid of using
their skills in front of students nor afraid to read students’ written assignments in English and
assess them in English as well.

The course now starts with a checklist of tasks the students are expected to master after the
completion of the course and in the feedback the teachers were delighted to see that the until now
over 200 participating students had ticked most useful and important issues such as information
retrieval skills, use of sources and references but none the less important were their new acquired
skills to reflect on their own learning, write down assessments on their own learning results,
problems, development targets and grade themselves objectively. Individualist and self-directed
learners gain from this method, the less self-directed learners, however, still need the support of
the teacher more and would prefer the classroom model with more contact classes and less work at home.

It can be warmly recommended that a teacher using e-portfolio first acquires good computing skills and studies some of the plentiful literature on portfolio, e.g. user testimonials. At the Language Centre the experiment was started with one group but with more knowledge on e-learning, portfolios and increased experience the teachers are confident to expand the e-portfolio model for all pro-English groups.

Learning to learn is an achievement that benefits the students their whole lives. That is why the e-portfolio mode will be used also in future at the Jyväskylä University of Applied Sciences.

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DETERMINING THE FEASIBILITY OF UTILIZING E-PORTFOLIOS FOR FUNCTIONALLY ILLITERATE ADULTS

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Abstract:

This paper investigates the practicability of utilizing electronic portfolios to engage and motivate functionally illiterate adults to acquire primary literacy skills. This paper is a literature review utilizing the findings of relevant research within the fields of ICT research, educational science and literacy instruction to ascertain whether electronic portfolios can effectively enhance the teaching of reading and writing skills.

Keywords:

Accessibility, constructivist learning theory, electronic portfolios, literacy, social inclusion, whole literacy theory.

Introduction

The purpose of this paper is to investigate the practicability of utilizing electronic portfolios (e-portfolios) to assist functionally illiterate adults acquire or re-learn primary literacy skills such as reading and writing. This research can be viewed as a feasibility study utilizing the findings of relevant literature within the field of ICT research, educational science and literacy instruction. The intended outcome of this paper is to help ascertain whether e-portfolios can engage and motivate learners and effectively enhance the teaching of reading and writing skills.

The motivation for writing this paper is to increase the awareness of the potential of e-portfolios in establishing a conduit to allow those with basic literacy skills deficiency to effectively acquire these skills. The central question behind this research is the following: Is it possible to effectively use e-portfolios to enhance the teaching of reading and writing skills for functionally illiterate adults?

Upon immediate reaction to the research question posed above one may ask the following: if a person cannot read or write how can they use the technologies associated with creating an e-portfolio? This paper attempts to answer these questions posed, as well as to help stimulate a discussion and encourage further research regarding how to effectively harness e-portfolios to enhance the instruction of primary literacy skills for functionally illiterate adults.

Overview

This paper is representative of a cursory examination of the literature from peer-reviewed sources. The sources consulted are from the fields of information and communication technology research (ICT), educational science and literacy research. It is important to point out that this paper will not delve into a detailed analysis of which specific types of e-portfolios and related technologies and software could be utilized among functionally illiterate adults for literacy skills acquisition. Rather, this paper will focus on the core research question stated above and present literature that either supports or refutes the notion that e-portfolios can effectively enhance the teaching of reading and writing skills for functionally illiterate adults.

Working definitions

It is important to take into consideration the working definitions used within the framework of this paper. The following definitions have been extracted from the literature surveyed and also
from several key research studies conducted within the fields of information and communication technology research (ICT), educational science and literacy research.

**Literacy**: Many researchers define literacy as a condition that an individual either has or hasn’t. The National Assessment of Adult Literacy (NAAL) defined literacy as ”using printed and written information to function in society, to achieve one's goals and to develop one's knowledge and potential” (White). According to the International Adult Literacy Survey (IALS) to be literate one must possess the ability to understand and employ printed information in daily activities, at home, at work and in the community – to achieve one’s goals, and to develop one’s knowledge and potential (Statistics Canada, OECD). Furthermore, literacy can be viewed as a set of “proficiency levels along a continuum” which “denote how well adults use information to function in society and the economy” (Statistics Canada, OECD). To expand on this definition further, one can understand that in order to be literate one must have the capacity to utilize the knowledge and skills ones possess to understand and use information from text and other written formats.

**Functional literacy**: Within the context of this paper the term functional literacy will be used. This is a term that denotes the condition in which an individual has the “ability to function effectively as a member of the community and to be able to use language skills for personal and community development” (Greaney).

**Functionally illiterate**: Refers to when an individual is able to manage effectively within society with minimal or no basic literacy skills. Usually these persons have developed a social support network and unique abilities to help them get through their daily tasks without the need for reading or writing.

**Enhanced acquisition**: Refers to the utilization of ICTs to support learning and skills attainment. ICT enhanced acquisition is a form of learning that uses technology as a medium to deliver and support formalized instruction.

**Electronic portfolios (e-portfolios)**: There are a numerous definitions and types of e-portfolios. For the sake of simplicity this paper will focus only on student-centered learning portfolios (an academic portfolio), which represents a digital collection of artefacts and reflections of students which serves as a medium to demonstrate the skills and abilities an individual may possess.

Bearing these working definitions in mind this paper will now explore the existing literature retrieved to help determine if e-portfolios can be used for enhanced acquisition of literacy skills for functionally illiterate adults.

**E-Portfolios for Functionally Illiterate Adults**

According to the United Nations Institute for Statistics there is an estimated 880 million illiterate adults in our world (UNESCO 2000). Illiteracy is a multifaceted global problem which effects both developed and lesser-developed regions of the world and its causes and effects are too numerous to expound upon in this paper. Overcoming the problem of illiteracy is a global challenge that needs to be seriously addressed. One of the most effective ways to address the problem of illiteracy is through formalized education programs in which illiterate adults are given the opportunity to acquire the capability to read and write. However, education is not universally accessible to everyone and thus the lack of access to education is quite possibly one of the main causes for such high levels of illiteracy in our world.

As to not get caught up in the causes and the effects of illiteracy this paper will, for the sake of argument, this paper will assume that the majority of individuals who are illiterate have the capacity to learn to read and write, but they have not been able to activate this capability. Therefore in order to help individuals to activate this capacity to read and write methods and tools are needed to help engage and motivate individuals to acquire these basic literacy skills.

Gilliver, Randall and Pok (1998) argue that “Effective learning cannot take place without motivation. In order for motivation to occur, they suggest, students need to be encouraged to choose what they do
and how much effort they put into the task. Stoney & Oliver (1998), in their research on interactive multimedia learning environments for adult learners, argue that motivation and engagement are essential prerequisites for computer based learning. Moreover, educators in general argue that the key to learning is motivation (Johnson, Hegarty). Furthermore, Kearsley and Schneiderman (1998) consider that learning in which students guide their own projects, is more stimulating and interesting (hence, more motivating) than traditional methods of teaching where students work through textbooks.

One way to achieve a certain level of motivation to learn is through the application of social constructivist approaches of learning to enable learners to actively construct their own knowledge (Au, Carroll). It can be argued that information and communication technologies (ICTs) and in particular electronic-portfolios with all the associated digital tools (digital-cameras, audio recorders, video cams) have the inherent capacity to engage and motivate individuals to learn (Kramer). Additionally, ICTs also help shift the focus away from the mechanical aspects of learning to allow learners to focus on ideas and concepts which more often are more engaging and motivating.

To help support this argument presented above a literature survey was conducted to ascertain if it is possible to effectively use e-portfolios to engage and motivate functionally illiterate adults to acquire basic reading and writing skills.

**E-Portfolios and Literacy: Literature Search**

Findings from several key studies and relevant literature within the field of ICT research and literacy instruction help support an argument for the utilization of ICTs to enhance the acquisition of primary literacy skills for functionally illiterate adults. The literature examined for this paper came primarily from the broad fields of information and communication technology research (ICT), educational science and literacy research. Although the literature that was examined for this study was limited, the results of the literature search were very promising in supporting the suggestion that e-portfolios can engage and motivate functionally illiterate adults to acquire basic reading and writing skills.

In careful examination of the literature the work of Bruce, B. (1997) considers the integration of what is referred to as “literacy technologies” within formalized literacy programs. Bruce demonstrates that there are a variety of stances taken toward the integration of literacy instruction regarding Information and communication technologies found within existing literature.

The following seven stances toward the use of ICTs in literacy instruction are:

- Neutral (sees no advantages or disadvantages to integration);
- Oppositional (integration causes problems);
- Utilitarian (technology is a useful tool);
- Skeptical (technology may be useful but its usefulness is unproven);
- Transformational (integration transforms the very nature of literacy);
- Aesthetic (technology provides opportunities for creativity), and
- Transactional (there is a transaction between literacy and technology).

Bearing these stances in mind, one can make a direct correlation between the use of e-portfolios for literacy instruction and surmise that e-portfolios could also fall with this grouping of “literacy technologies” and the ability for e-portfolios to be engaging and motivating would be dependent on how e-portfolios could be perceived if integrated into a formal literacy programs. In other words, e-portfolios could only be engaging and motivating within literacy instruction if they are perceived to be Utilitarian, Transformational, Aesthetic or Transactional. This correlation is important in that it helps support the idea that e-portfolios could be applied within literacy skill training, although its success would be highly dependent on which stance an instructor, or literacy skills trainer would take towards e-portfolio usage.

Furthermore, the research of Daniel Wagner and Robert Kozma clearly demonstrates that it is feasible to utilize e-portfolios in that they assert that: “literacy and technology are becoming inter-dependent and can be seen as ‘tools’ that have much in common. Neither is an end to itself, but each can amplify
human intelligence and human capability. Literacy education will need to take advantage of the power of technology” (2003). If we consider the tools for creating the digital artefacts for e-portfolios as “literacy technologies”, then one can argue that the ICTs in conjunction with an e-portfolio method can surely be used for literacy instruction.

In summary the literature generally demonstrates a positive stance for the integration of ICTs (such as e-portfolios) within literacy instruction. But what are the advantages of using “literacy technologies” as electronic portfolios in the literacy classroom?

**e-Portfolios Harnesses the Power of Technology**

We come to a point in which it is appropriate to examine specific literature that gives examples of how literacy education is taking advantage of the power of ICTs such as e-portfolios.

Helen Steele, the project manager for the Workplace Basic Skills Network, based at Lancaster University, reveals that a perceived stigma is attached to learning basic literacy skills that it deters many adult learners from attending literacy courses (M2 Presswire 2003). She goes on further to say, “[that] for many people - particularly older workers who have been made redundant - ICT skills are a high priority. But it becomes clear that what they really need is tuition in reading, writing and numeracy, so we (the Workplace Basic Skills Network) use computer skills as a [way] to get them [to attend these courses]. They are happier to acknowledge these needs (to learn basic skills) once they have signed up for computer training” (M2 Presswire 2003).

The above example from the Workplace Basic Skills Network shows how the power and attractiveness of using technology sparks the interest of adult learners and can engage and motivate them to learn basic literacy skills. But how can e-portfolios directly help learners attending these literacy courses?

**The Advantages of Using e-Portfolios for Literacy Acquisition**

In defining how e-Portfolios can directly help learners the works of Barrett (2006), Cambridge, B.L., S. Kahn, D.P. Tompkins and K.B. Yancey (2001), Meltzer, J., & Hamann (2004) and Siegel (2002) demonstrate that e-Portfolios have the capacity to help learners:

- improve their literacy skills
- become self-aware of their own existing abilities
- in identifying areas where they need assistance and support
- eliminate some of the formality from the learning experience
- become more engaged in learning
- remain more focused for longer periods
- raise their self-esteem
- raise their self-confidence

The research demonstrates that electronic portfolios can:

- Support lifelong learning
- Capture outcomes and feedback from formal and informal learning (e.g., from hobbies, travel, clubs) throughout life.
- Increase participative learning
- Encourage learners to take more responsibility for their own learning and management of the evidence of learning
- Support accessibility preferences for all learners

The implications of this research affirms that it is possible to effectively use e-portfolios to engage and motivate functionally illiterate adults to acquire basic reading and writing skills.

**The Problems Facing the Use of e-Portfolios for Literacy Acquisition**

Johnson and Hegarty (2003) describe a project aimed to highlight the advantages and weaknesses of web-based learning for adults with learning disability. Results from this study showed the powerfully motivating effect of the websites for students, but highlighted the access difficulties posed by websites for such students. Regarding e-portfolios as a “literacy technology” it can be argued that similar observations as described by Johnson and Hegarty could be extrapolated for the use of e-portfolios in literacy instructions. It was also noted that further work in this area is needed, to develop strategies for exploiting the motivating effect of ICTs for literacy instruction and to improve the accessibility of ICTs for people with low literacy levels.

The literature surveyed affirms that there is potential for utilizing electronic portfolios for functionally illiterate adults to help engage and motivate them to acquire basic literacy skills. Given that this is an emerging field of research, and that there is a limited source of literature to draw any definitive conclusion, the overwhelming impression is that there is a truly a future in adapting e-portfolios for the acquisition of primary literacy skills.

**Research Reflections**

After conducting a fairly comprehensive survey literature survey and reviewing dozens of literacy projects it has been determined that there is a deficit within the fields of research surveyed of actual electronic portfolios implementations within formal and informal literacy courses and programs. This deficit can be remedied through the development of innovative research projects that examine the use of e-portfolios as a means to enhance literacy instruction. Such studies could include usability testing to help determine the strengths and weaknesses of the e-portfolio implementation and related tools used to create the digital artefacts. This research would be extremely useful in helping identify accessibility issues and could potential improve methods of literacy instruction.

**Conclusion**

This purpose of this paper was to investigate the practicability of utilizing electronic portfolios within the context of engaging and motivating functionally illiterate adults to acquire primary literacy skills such as reading and writing. The literature review conducted, although limited in scope, confirms the central question behind this research that it is possible to effectively use electronic portfolios to engage and motivate functionally illiterate adults to acquire or re-learn basic reading and writing skills.

E-Portfolios are a dynamic tool that can help engage and motivate functionally illiterate adults to develop the communication skills needed to function effectively within our societies. Furthermore, e-portfolios are the ideal platform to document the skills and abilities of functionally illiterate adults to help demonstrate their true worth within society. All too often illiterate adults are written off (no pun intended) by society because they lack certain basic skills such as reading and writing. Yet these adults possess many undocumented skills and abilities that frequently go unnoticed, and e-portfolios are one tool to help engage, motivated and assist adults in acquiring the basic literacy skills to function within society.
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ePortfolio tool as change-agent in the Graduate Attribute and Professional Skills arena: An Australian University Implementation

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Background and context

The University of Wollongong (UoW) is a major Australian regional University, with it’s main campus just one hour south of Sydney. UoW has approx 21, 000 students studying at the Wollongong campus and at 6 Australian and 1 International (Dubai) satellite campuses. Twice named Australia's University of the Year - in 1999-2000 for its outstanding research and development partnerships and in 2000-2001 for preparing its students for the e-world - Wollongong has also been ranked the nation's top university for educational experience and graduate outcomes for the last five years. (http://www.uow.edu.au/about/welcome.html) UoW increasingly extends the classroom environment to the online environment, with around 1000 subjects per annum having WebCT Vista sites for communication, collaboration and resource sharing. Most of these subject will still have a face-to-face component, although increasing number of students (particularly for working post-graduate students) may attend classes in block mode, or not at all.

UoW has been strategically exploring electronic portfolios since 2002. In recent years electronic portfolios (known as ePortfolios) of student work have become more popular, taking over from paper-based versions. Benefits include better educational outcomes afforded by the ability to annotate and contextualise items in the portfolio (Avraamidou & Zembal-Saul, 2006).

ePortfolios facilitate reflection, recording and articulation of the university experience and hence have connections to our capacity to (as the Australian University Quality Audit recommends) “embed the Graduate Attributes into the curriculum and into teaching and assessment practices” as well as draw on the individual’s whole of life experiences outside the curriculum. In addition, some accrediting bodies such as the NSW Institute of Teachers and the Australian Medical Association have made it compulsory for graduating students to show evidence of learning outcomes against complex sets of over 40 Professional Skills criteria.

Portfolios and ePortfolios: a literature review

Research into portfolios for student learning and assessment has been going on for over 25 years (Barrett, 2003). From an educational perspective, portfolios provide a mechanism to encourage student reflection which has the potential to assist with students’ understanding of their own learning.

Unlike a static, paper-based portfolio, ePortfolios allow information to be stored, accessed, updated and presented in various electronic and paper-based formats (Song et al, 2004). ePortfolios can take a number of forms, but at their core is the facility to enable students to store and update records of their achievements both in terms of the development of discipline-specific skills and the acquisition of broader Graduate Attributes (Luca et al, 2003). Reflections, self-evaluation and personal development are central themes to ePortfolio development with the emphasis of most ePortfolio implementations being on helping students to understand their own personal development and identify areas where improvement is needed (DiBiase, 2002). The features of the UoW ePortfolio are in line with these trends, focussing on:
- Skills development including Graduate Attributes,
- Recording achievements, and
- Personal development.

Barrett (2001) identifies three general purposes of ePortfolios in educational settings. Learning ePortfolios are formative in nature and focus on personal development through the use of self-evaluation and reflection. ePortfolios can also be used as a tool of assessment where students are required to show through selection and reflection on their learning activities how skills and knowledge development have been demonstrated. The third general purpose of ePortfolios is focused on the presentation of skills and attributes for employment contexts.

The push for the implementation of ePortfolios can often come from multiple arenas within an institution (Reardon et al, 2005) and can also come from national or governmental organisations (Ravet, 2005). At the University of Wollongong two main driving forces are present. The first is the University’s commitment to the attributes of a University of Wollongong graduate expressed in a policy that filters down to all levels of the teaching and learning environment. The importance of this policy was made very clear in the University’s audit by AUQA in 2005. The Careers Service is one of the primary units responsible for implementing such policies and their programs make the Graduate Attributes explicit for students. The Careers Service also recognise the potential that ePortfolios have in helping students prepare for the process of job seeking.

Another driving force comes from those faculties such as Design and Engineering whose extensive use of paper-based design logs creates an existing “portfolio culture” as well as those such as Education and Medicine who are guided by requirements set by professional bodies for the collection of materials to evidence discipline-specific skills development. The combination of these influences has resulted in the decision to adopt a system which can be implemented across the whole institution but is flexible enough to meet the diverse needs of the different stakeholders.

Whilst the trend for ePortfolio adoption is on the increase, the methods for implementing such tools across entire institutions are many and varied. Central to successful implementation of ePortfolios, according to Roberts et al (2005), is the consideration of the perspectives of the multiple stakeholders involved in the process, the collaboration of pedagogical, administrative and technical processes and integration of technologies into effective frameworks.

**Project Objectives**

In December 2005 it was proposed to make available a single university wide ePortfolio system, based on ePortfolio trials conducted in 2002/03. An additional trial in early 2006 further clarified project aims. The aim is to provide a system that allows students to reflect on and store evidence of their learning, including experiences developing Graduate Attributes and discipline-specific Professional Skills as part of their formal education, as well as learning experienced as part of their work and community participation.

The aim of the project (Project Managed by the author) is to ensure a quality, educationally sound implementation of the ePortfolio tool with a focus on Faculty, School and Discipline consultation to be able to customise the tool to allow students to reflect and store evidence of learning against Graduate Attributes, Professional Skills, or a mixture of both Graduate Attributes and Professional Skills. In addition, an Academic Integration team will look at best practice models of integrating reflective practice, Graduate Attributes / Professional Skills awareness and ePortfolio usage into the curriculum of programs.
Recent ePortfolio trials

2003 “My Portfolio” trial

It was decided to implement a small portfolio database accessed via a website as a trial. Due to the small size of the proposed trial, and CEDIR staffing and technical resources, a FileMaker Pro database was used.

Firstly, a series of webpages were developed to allow students to input record data records via standard web-forms using pulldown menus, checkboxes and text fields.

The CARL framework (Context, Action, Response, Learning) structured the major text entry fields for the student to describe their learning experience, with an additional ‘summary’ field provided to allow a quick overview of the record, essential for making sense of multiple records later.

Users were also required to tag each record by ticking a box for each relevant attribute and choosing one learning domain (university, work, or community).

![Add Record](image)

*Figure 1: input screen showing CARL framework and use of pulldown menu and checkboxes to ‘tag’ each records*
Next, webpages were developed that allowed the user to search for records in meaningful ways. A filtering system enabled users to sort via one of the eight attributes, or one of the three learning domains.

After a prolonged experimentation phase, the learning designer devised a matrix interface which allowed the student to see at a glance the number of records in each category, and to then click on the appropriate category to see details of those records. Therefore the matrix interface was designed to be both a diagnostic tool for students to understand which attributes were potentially underdeveloped, and to locate records via category.

![My Records Summary](image)

**Figure 2:** matrix interface for showing and filtering records became the default homepage.

A second smaller database and input/output screens were added called “My Progress” to provide students with a time-based snapshot of their skills development across the 8 attributes.
Add Record - My Progress

How are you going with your teamwork skills? How confident are you doing verbal presentations?
Spend a moment ranking your skills...

1 = not at all confident
2 = getting the gist of it, need to improve
3 = doing OK, some experience
4 = doing well, building on experience
5 = lots of experience, very confident

Critical Thinking 1 2 3 4 5
Problem Solving 1 2 3 4 5
Teamwork 1 2 3 4 5
Written Communication 1 2 3 4 5
Oral Communication 1 2 3 4 5
Self Management 1 2 3 4 5
Initiative 1 2 3 4 5
Technology 1 2 3 4 5

overall comment or reflection

Submit Reset

Figure 3: My Progress database input screen

2006 wiki ePortfolio trial

In Session 1 of 2006 approximately 300 students trialled an html based ePortfolio using “wiki on a stick” technology – a wiki stored and transportable on a memory stick. A smaller trial was conducted where the ePortfolio provided was a structured Word document. Both provided structured support for reflection on the development of a blend of both Graduate Attributes and Professional Skills criteria. This trial has been useful in understanding student needs and perceptions of both Graduate Attributes, Professional Skills and reflecting via ePortfolios. In addition, the trial has been useful to identify the kind of support that both staff and students require to integrate ePortfolios into subjects, including how it might be assessed.

After a review of a number of wiki/blog tools on the market (including open-source) the new Vista/Blackboard ePortfolio tool has been identified as the tool that best meets current ePortfolio requirements. Pending satisfactory trials in September of 2006 and appropriate funding, the Vista/Blackboard ePortfolio tool could be implemented by February 2007.

Summary of results

At the conclusion of the 2003 trial, the students were asked to respond to a survey designed to assess their perception of the tool’s useability and usefulness. It is clear from student comments that most found the tool reasonably useable, and could see benefit in its deployment.
Negative comments included the fact that without training or support, the tool was not entirely intuitive to use, and that its purpose and technical aspects both had the potential to be confronting.

The 2006 trial was successful to raise awareness of graduate attributes and developing professional skills. Some students relished the opportunity to reflect on these, while others were not happy about having to deal with them as well as current discipline and assignment pressures. The trial involved students across the one discipline in 1st, 2nd and 3rd years and the 1st year students were more open to the new tool and the notion of reflective practice than those students in 3rd year who were used to certain kinds of assessments and not happy about stepping outside their ‘comfort zone’ to take on new technologies and new forms of assessments involving reflective practice. Comments about the best aspects of the ePortfolio included:

“A great way to organize thoughts, skills learnt, and progression”

“Helps improve on your weaknesses”

“I could reflect on my own skills and find what I was struggling with”

Regardless of the time spent to orient students to the ePortfolio, including an initial briefing by the Manager of the Careers Service about Graduate Attributes and the kinds of evidence employers require for job-seeking, as the following comments suggest, some students did not see a benefit in reflecting and evidencing their skills, preferring to get on with the business of learning.

“Hasn’t practically helped me in the slightest, the time it takes would be better spent practicing” (ie working at discipline specific skills)

“Lack of relation to the subject.”

There were a range of technical difficulties with the wiki trial stemming from the wide variety of computers and browsers the students wanted to use it on at both university, home and work. A typical comment was “My home computer was not compatible with the program, so I had to do it at uni. So it didn’t really happen.” There was wide support from students for a simple Word document ePortfolio – using a technology they are already familiar with is more comfortable when being asked to tackle a new learning activity ie reflecting on graduate attributes skills. As expected, the take-up rate of students in trials where the ePortfolio was optional was minimal eg 10% compared to the usage of students in classes where the ePortfolio was assessed.

A “server solution” was the dominant technical recommendation, whereby the complexity of the scripting and functionality is handled by an internet server rendering the users’ machines specifications less of a problem. The move to Blackboard /WebCT Vista ePortfolio tool will overcome this problem.

The CARL framework for structuring the reflections on learning continues to provide a good scaffold for students who do not naturally know how to reflect on experiences in ways that allow them to understand their learning and transfer it to other experiences. There is some evidence to show that in the context of using an assessed reflective ePortfolio throughout an undergraduate program it may be beneficial to provide more direction (such as mandating the CARL framework) for 1st year students, while providing 2nd and 3rd students with more flexibility in the way in which they reflect and store evidence of their learning. This may also be the focus of further research.
From the technology side of the trial it is clear that tools that do not have a familiar user interface and a simple way to link documents further hinder the takeup by students. Students require and value special orientation sessions as part of their classtime to explain the value of the ePortfolio as well as to explicitly teach how to use the new tool, including how to reflect on and structure the write up of learning experiences in useful ways. As students approach the latter part of their studies they are looking to the ePortfolio to provide additional tools such as C.V and job application generators to customize and shape the quantity of material in the. ePortfolio for particular job seeking purposes or to apply for further study.

Conclusions and recommendations

ePortfolios provide evidence of broad skills development, however these can seem like an ‘add on’ to discipline-based skills and knowledge that students are striving to achieve. In addition, evidence gathered in ePortfolios is most likely to be called on around graduating, which can seem a long way off. Therefore it continues to be difficult to motivate students to regularly use any kind of Portfolio tool, particularly in the face of pressures in the “here and now” to complete assignments. Therefore, while UoW may offer the ePortfolio to all students to use as an optional ‘add on’ to their learning, the current focus for a quality implementation and take-up by students is to look at integrating the ePortfolio tool into curriculum and assessment of student work.

For this to happen much more work needs to be done to change the culture and expectations of both teachers and learners to integrate ideas of generic graduate attributes and developing professional skills into curriculum so that they are seriously addressed. The author has developed a Consultative Framework to guide the academic integration of the ePortfolio into academic programs, and the outcomes of this framework (see Figure 4) is to know which subjects in the program are to use and assess the ePortfolio and which particular sets of skills criteria are to be used by students to reflect on and gather evidence for. Introducing the ePortfolio at the end of first year (when other university internet-based systems are better understood) and following up with use in assessed tasks in each year of their program of study is a model expected to balance the need to stimulate and re-inforce the importance of Graduate Attributes and reflection on learning with the particular discipline specific learning outcomes of the various subjects studied. As the ePortfolio is implemented in programs further research and evaluation will be undertaken to come up with the best take-up models to integrate the ePortfolio into the curriculum.
At the time of writing the Consultative Framework is already working well to engage a range of Faculty staff in meaningful conversations about Graduate Attributes and Professional Skills and how to best develop these in our students. As we demonstrate a range of concrete ePortfolio tools to staff and students – where Word documents, wikis, or the Blackboard Portfolio tool for Vista – the levels of awareness grow rapidly within both the student and staff communities. The implementation of an ePortfolio at the University of Wollongong is a key lever for positive change in the awareness of the importance of Graduate Attributes and Professional Skills to the quality of our teaching programs.

References

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STARTING WITH COMMUNITY EPORTEFOLIO TO BUILD AND MANAGE PERSONAL EPORTEFOLIO

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PercorsoArianna: a “complex learning” project for regional development

PercorsoArianna (pA) is an intervention of contextual engineering (1) aimed at starting up women-managed micro-enterprises that are considered an essential contributor to regional development.

The intent to promote culturally and economically homogenous Swiss areas of the Alpine arc from the point of view of the learning regions has triggered theoretical reflection and experimentation that has been going within movingAlps (mA), and in pA as a movingAlps strategy, for about ten years.

The reflection has focused on the following subjects: What methods and tools for an innovative approach to lifelong and life-wide learning? What target and what contents to promote medium and long-term empowerment both at individual and regional level? What strategic lines to boost regional development?

According to contextual engineering (1) developed within MA, regional promotion interventions are, first and foremost, based on individual empowerment of single citizens. Bringing into focus regional development projects according to the point of view and needs of the inhabitants is only possible starting from individual empowerment. Therefore, initiatives based on lifelong learning are of great importance since they promote empowerment through the combined acquisition of knowledge, competences, and skills, as well as an improvement of self-esteem and the broadening of personal and social networking.

The MA experience has indicated that female resources are of relevant importance from a regional development viewpoint (2). This is due to the features of the regions where MA operates. In these areas women are marginalised from the productive world due to problems connected with the conciliation between family/work/education and training. Geographical, economic, and cultural isolation simply exacerbate (3) this well-known problem.

PA offers a flexible, lifelong learning strategy lasting three years, while simultaneously endeavouring to accommodate the disparate needs of individual participants, according to the saying “each at her own pace”.

This compromise is made possible due to a blended setup combining both presence and distance learning, managed via CmC and a Virtual Learning Environment (VLE) designed specifically for this purpose.

According to Biorke and Ask (4), the extensive and preferential use of asynchronous communication modes has made it possible to optimise formative course features in such a way as to accommodate the needs of people burdened with other pressing commitments, as previously outlined.

In pA, the use of computers is not simply a necessary component of the course itself but also provides the participants with an opportunity to enhance their employability through the acquisition of new skills and competences. The same can be said for CmC; access to it guarantees not only formative skills, but also empowerment tools, which facilitate the access to knowledge and information and are beneficial in developing team-work and communication skills.

In order to enable women to implement micro enterprises, pA aims at the development of specific skills, and we refer here, especially, to the “tools for learning” as the first phase of the course (see below). Moreover, it aims to realise the development of complex achievements. What are these complex achievements? They can be summarised by the term “employability”: what is presently required in the workplace is a combination of teamwork, self-management skills, communication skills, time management, planning, coordination, and organization (5).

Fostering complex achievements is associated with certain self-theories of self-efficacy (6). It is also helped by metacognition awareness, that is “where learners have a sense of what they know, of where there may be
gaps, of the ways in which they learn and of strategies for filling gaps” (5). Moreover, fundamental to complex learning is the “real” transfer of knowledge, from a theoretically driven learning environment to reality. PercorsoArianna contents mark it out as a complex learning course.

PA is organized in four phases. In Vallemaggia they have developed according to the following time-table and contents:

1. October 2004 to April 2005. 1° phase named “the suitcase: learning tools”. These tools are considered essential to design and develop micro-entrepreneurial projects based on the use of virtual environment and CmC. The contents of this phase can be divided into technological on one side, and cognitive on the other. The first includes learning the management of computers and computer programmes according to the European Computer Driving Licence (EDCL – Core level programme) criteria, and understanding how to utilise the VLE and CmC. The cognitive tools include various concepts such as key-words, cognitive maps, conceptual networks, auto evaluation and competences balance, and metareflection

2. April 2005 to January 2006. 2° phase named “Competences professionalisation”. Transfer of household management competencies into micro-entrepreneurial projects. The competencies objective of this phase are:
   - Communication and presentation competencies
   - Interpersonal and teamwork competencies
   - Management, organizational and planning competencies
   - Cognitive and creative competencies,
   - Technological and CmC competencies

3. February to June 2006. 3° phase “Planning”. In this phase some items concerning the design and setup up of the micro enterprise has been analysed in depth: essential elements of a project and feasibility criteria (target, feasibility, financing, collaborations etc.); drafting project ideas; external communication management (press release and press conference); synergies and networking among projects; identification of personal characteristics and learning strategies. These items have all been considered in order to boost self-development, the project development, and team collaboration. In short it is action learning through the setup of feasible micro entrepreneurial projects.


The role and the times of the ePortfolio in Percorso Arianna

How do we assess learners’ acquisitions and growth during pA? What kind of assessment is most relevant to pA?

For evaluating the single specific skills’ acquisitions rubrics, a measurement method has been established (see paragraph “VLE workshops: the micro level”). For complex learning, however, an alternative form of assessment is required. Since the process of complex learning is a lifelong one, ePortfolio development seemed to offer the best structure for capturing an ongoing process through learning oriented assessment practices. Indeed, as Knight pointed out, assessment of complex learning is best carried out within a “formative assessment” perspective, that is, through “assessment practices that are designed to generate information about performance (feedback) and about ways of improving future performance on similar tasks (feedforward)” (5).

The construction of an ePortfolio contributes to the complex learning process as it requires metacognition practices and communication skills. Moreover, both processes of building and managing personal ePortfolios are an integral part of the individual participant and of the greater team empowerment course, since they encourage a process of self-awareness of competencies, metacognitive skills, and communication skills.

In pA, the acquisition of skills needed to build and manage a personal ePortfolio is one of the most relevant formative targets that have influenced the didactic planning.
As Vera–Conforti and Schuerch point out (7), personal e-Portfolio development is the essential tool with which to assure full metareflexive autonomy in managing the knowledge acquired throughout pA. In other words, it is a moment of cognitive synthesis of the formative activities developed throughout the course.

The didactic use of the VLE has been structured in such a way as to serve as a kind of “Gymnasium” preparatory to the phases specifically devoted to the building and management of the personal ePortfolio. Indeed, the use of the VLE has been structured so as to comprehend all the phases of the process of building a portfolio at a micro level (smaller, more specific considerations) of an individual task, and at a macro level (the process as a whole).

This has allowed the combination of the “portfolio as test” and the “portfolio as story” functions (8). That is:
- allowing trainers to monitor individual learning processes;
- allowing the ongoing self-evaluation of one’s own learning process by participants;
- fostering the development of competencies – technological skills, working methods, attitudes, metacognition, etc. - needed for building individual ePortfolios;
- facilitating the growth of a learning community whereby each participant takes responsibility for the learning processes of others.

Starting from the second phase of pA, the VLE has developed so as to play the role of the learning community ePortfolio. Indeed, participants were involved in several “real” public presentations of pA through their community ePortfolio. In October 2005 the same pA project has been transferred to another location with similar geographical, cultural, and economic features as those of Vallemaggia, the Val d’Annivier. In the transfer process participants to the Vallemaggia pA had the task of presenting pA itself as well as its objectives and methods. In this context, the VLE has been used by participants of the Vallemaggia pA community ePortfolio to those potentially interested in taking part in pA. Furthermore, observers from Val d’Anniviers have access to the VLE. Inside the VLE – according to a structure we could define as “nested” – participants have started, in a guided step-by-step way, to structure a personal ePortfolio from the end of the second phase. This task will be carried out over the third and fourth phase.

From the institution’s point of view, pA participants who manage to present an adequate personal ePortfolio at the end of the course will be able to progress to the second phase of a regionally recognised course (AP2), leading to a professional certificate named “Project Tutor”.

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Content</th>
<th>ePortfolio competences acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1° phase</td>
<td>“tools for learning”</td>
<td>Microlevel of each single task:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The workshops’ structure</td>
</tr>
<tr>
<td>2° phase</td>
<td>Integrating competences</td>
<td>Macro level of the entire learning process:</td>
</tr>
<tr>
<td>end 2° phase</td>
<td></td>
<td>VLE as community ePortfolio.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building a personal time-limited portfolio</td>
</tr>
<tr>
<td>3° - 4° phase</td>
<td>Project planning and “on the field” work</td>
<td>Building a personal ePortfolio:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How to create and manage a web-log</td>
</tr>
</tbody>
</table>

**ePortfolio competences acquisition: Micro level and macro level on the VLE**

VLE plays a fundamental role in percorsoArianna. This section will focus on those functional and structural aspects of the VLE that have been most important in the development of individual competences directed to ePortfolio. Moreover, the value of the VLE as a component within ePortfolio will be analysed.

VLE (see figure 1) adopts the visual metaphor of the village, of its changes and evolutions in relation to the contributions of its inhabitants, i.e. the participants in the project, and the e-learning team.
Around the main square are the participants’ individual houses, acting as preparatory sites for ePortfolio. In these houses, which can be personalized by the single participant, the results of her workshops will be kept. A house of workshop assignments stands in the main square, where workshop assignments are published and are retrievable. Further in the main square the area Val d’Annivier can be found. This is an example of the evolution of the VLE in time: infact it is an area that has become during the development of the project, one which offers the women of the Val d’Annivier a point of observation on the pA.

From the main square one takes the learning avenue, representing the formative path. To the left is the residential meetings building, where there are libraries of videos from each meeting, power points used and related didactic materials. For each residential meeting house in the VLE there is, to the right of learning avenue, a workshop house, where participants collect their workshops accomplished in the distance phase that follows every residential meeting.

At the end of the learning avenue there is the square of the micro-enterprises projects which is the final objective of the learning path.

Figure 1: the pA Virtual Learning Environment

Caption:
1: main square
2: individual houses
3: house of workshops assignments
4: learning avenue
5: residential meetings houses
6: workshops buildings
7: square of the microenterprise
8: Val d’Annivier’s neighbourhood

“The flexibility of VLE and of its design, as planned by Manca and Sarti (9), allows the virtual space to be modified and personalized according to the characteristics of the individual community. Each community that enrols in the learning process through the VLE is therefore able to contribute to the shaping of its own context. The visual shape that the PVA will take in the course of the learning process will become a testimony to the community’s own individual history”. (7)
**VLE workshops: the micro level**

Thematic workshops are of central importance for all the objectives of ePortfolio mentioned above.

The thematic workshop plays a central role in the process of assessment and self-assessment of individual learning. A workshop is actually designed to accommodate a definition of a precise criteria of assessment, or rubric. In general, every thematic unit develops in two distinct ways:

- A monthly residential meeting dedicated both to theoretical presentation and to individual or group work;
- One or more workshops are conducted remotely, following the “learning by doing” philosophy of the project.

For each thematic unit a rubric has been set: this provides the base for the unit’s progressive levels of learning. These levels have been used to structure the workshop (instruction) according to:

- “required” steps of accomplishment (usually the first). They represent the fair level; which is considered preparatory of successive phases in the course;
- “further” steps which allow a progressive set of levels of learning.

The structuring of the workshops in ‘steps’ offers the participants a method which to engage the task assigned; however it also offers the formative team an immediate measure (feedback) of the level of learning reached by the individual participant, as well as a measurement of their involvement, and their sharing in the aim of the project.

“‘step by step workshop’, a jolly trick indeed! Even when you want minimal personal investment, just to be able to say ‘I did my share’, you end up absorbed by the topic and, by the end, you have done an immense and gratifying amount of work without feeling the burden of it.” (Reber, D.)

Moreover it allows the participants to develop awareness about their own level of output.

**How does it work? An example.**

The participant enters the VLE and goes to the house of workshops assignments. She will find a set of instructions usually structured as in table 1:

**Table 1: Workshop structure and workshop 4 – 1st phase of the course**

<table>
<thead>
<tr>
<th>Fields</th>
<th>Example: Workshop 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPIC</td>
<td>Learning to use word in order to build graphics</td>
</tr>
<tr>
<td>TASK:</td>
<td>To build a conceptual map and convert it in a graphic using word</td>
</tr>
<tr>
<td>1 level task accomplishment:</td>
<td>Building a graph on a subject of your choice</td>
</tr>
<tr>
<td>2 level task accomplishment:</td>
<td>Building a graph on the steps done for level 1 (metacognition)</td>
</tr>
<tr>
<td>Resources:</td>
<td></td>
</tr>
<tr>
<td>- didactic material given on</td>
<td></td>
</tr>
<tr>
<td>previous residential</td>
<td></td>
</tr>
<tr>
<td>meetings;</td>
<td></td>
</tr>
<tr>
<td>- didactic material in the</td>
<td></td>
</tr>
<tr>
<td>platform</td>
<td></td>
</tr>
<tr>
<td>- On-line tutor</td>
<td></td>
</tr>
<tr>
<td>- Cd european “driving licence” for computer</td>
<td></td>
</tr>
<tr>
<td>- material on the conceptual mapping method (residential meeting + labors)</td>
<td></td>
</tr>
<tr>
<td>- material on using word for graphs (residential meeting)</td>
<td></td>
</tr>
</tbody>
</table>

The participant completes her workshop and then sends it via e-mail to her tutor. A dialogue between the participant and the tutor is therefore engaged (see figure 2). The tutor returns, via e-mail, personalized feedbacks and feedforwards with constructive advice and suggestions. The participant subsequently makes
the required changes and decides autonomously when the workshop should be published on the VLE. Learners are thus provided with a constructive audience that reviews and responds to their artefacts.

The interchange is maximised thanks to a strategy which bears a resemblance to the one reported by Martin-Kniep (10) as “the warm and cool feedback used by the Coalition of Essential schools”. Briefly, this strategy implies that, firstly, the reviewer provides students with warm feedback that include statements of appreciation of the work, and secondly, moves to cool feedback which poses questions and concerns that are grounded in the work.

In the context of pA, we prefer to avoid the qualitative connotations of ‘warm’ and ‘cold’ feedback and rely, instead, on varying between feedback and feedforward. This approach consists of highlighting the strong elements identified in the work of participants, while proposing appropriate amendments and further lines of research in order to improve the quality of the work. These forms of advice are framed within a long-life learning perspective in which any learning process must be considered as ‘work in progress’.

One of the women commented, in her portfolio, on this ‘dialogic’ approach to evaluation and assessment:

“(…) yet another little word for those who, this morning, asked about helping the others without generating a sense of inferiority.

Within pA I have received many gratifications (encouragements) and stimuli. I have been told many times ‘you have done a good job, and then I was asked to think back to the work I’d done and try to make a step further (…) I am now convinced that this is the right strategy to encourage us to improve our work constantly, to make us more self-assured, confident and able to dare to do new things (…)”. (Reber, D.)

Figure 2: Participant – tutor dialogue structure on workshop accomplishment

Once finished, the workshops are published in two different buildings of the VLE.

To begin, they are placed in the participant’s individual house. Therefore, from the beginning of the course, each participant routinely collects all her products in her individual house. She is also invited to add further elements in the aim of making that space more personal. The individual house then becomes the main instrument for the collection of personal materials such as workshops, feedback and feedforward. This corresponds neatly with the first stage in the construction of an individualized ePortfolio. When, later in the
project, the ePortfolio will eventually be presented to the learner, collecting relevant material will have already become a habit. However, the function of the individual house is not only that of collecting, but also a useful means of presenting oneself to the learning community. In fact, each workshop is coerced in the direction of collective fruition, an exercise of effective communication targeted to a specific audience.

In the first phase of pA, one of the participants, as she was describing the principal activities of the VLE, described the individual houses as follows:

“If I have a bit of time, I go in the houses of my colleagues, to look around their work and also to get to know them a little better.” (Graber, M.C.)

Moreover, the individual house allows us to visualize what has already been completed and, in this way, to monitor the individual’s learning progress by following the motto, “I look at what I’ve done to know how much of the road I’ve already walked”. During the first phase, another participant who was late with her task commented on her individual house in this way:

“then I always pass from “home” to check the few things I’ve managed to do, each time I commit to put myself together and make up for the lost ground”. (Caccia, E.)

Second, individual workshops are published into the workshop building. Thus, at the end of each single distance session, in the dedicated workshop building (there is a single building for every workshop), both the instruction page and all participants’ workshops will be collected.

Publicizing individual works in the workshops buildings has an important function within the learners’ community. It optimises:

- Exchange of thematic contents
- Comparison between individual learning strategies
- Feedback e feedforward at the peer level

The following is a description of workshop buildings given within a larger presentation of pA by another participant:

“Workshop buildings are very interesting, each of us publishes her own works and it is fantastic to discover how different they are in style and approach. Likely, somebody would be able to understand the personality of each single participant just by studying in depth her workshops.

In general I do not look into others’ workshops if I haven’t yet finished my task. I do this for fear I might become influenced by their style and approach to work.” (Coduri, E.)

How does ePortfolio connect with this structuring and use of the workshops in the VLE?

If one considers the various phases of constructing an ePortfolio according to the Danielsen-Abrutyn model (11) and also revised by Barrett (12), it is possible to point out that, at the micro level, within each workshop of the learning process all the constructive functions of an ePortfolio have been adopted or could potentially be activated. At this level, the assessment context and the targeted audience have been given by the structuring of assignments in steps and by the social context. This is constituted by the learners’ community itself which also functions as audience. Carrying-out an individual workshop with the aim of publishing it in the individual house and in the workshop building requires and generates a thoughtful process of collection and selection of material to be carried out according to criteria of assessment and self-presentation. An awareness of one’s own personal learning process and a metacognitive reflection on the best learning strategies is then promoted through the different steps of the workshop. This personal growth is accompanied with the dialogue with the tutor through to the phase of “connection” (12). “Connection” here denotes the presentation of work in the VLE, an activity which implies the comparison with the work of the other participants and the exchange of peers’ feedbacks and feedforwards.

The concept of the workshop in fact entails two functions of the ePortfolio as described by Barrett: “as a test” and “as a story” (8) (see figure 3).
Firstly, if we consider the eportfolio “as a test” useful for assessment, the different steps of accomplishment within a workshop (each workshop can be published according to the different steps of accomplishments, the first being the only one required) allows the team to assess the acquisition of the contents according to the pre-established rubric. Moreover, it allows the individual participant to be aware of her own accomplishments, on the base of the number of steps of the workshop published.

Secondly, the individual and collective reflection generated by each workshop has a fundamental role in the growing of a narrative of one’s self and of one’s own learning progress:

- Individual reflection occurs at the stage of assignment development with the tutor-participant email dialogue, in the phase preceding the publication on the VLE. In various workshops, a metarellection on the individual learning strategies is an integral part of the assignment itself.
- Collective reflection, achieved through sharing works and peer exchange. A transition from individual learning to what Siemens has called “connected” learning (13), is thus encouraged. Such connected learning is strictly dependent on the network, on the sharing of knowledge and experience, on the exchange of opinions and on putting together the informative resources with the other people within the network.

*Figure 3: workshop functions*

```
< PORTFOLIO AS TEST >

WORKSHOP IN THE VLE

< PORTFOLIO AS STORY >

INDIVIDUAL REFLECTION THROUGH:
- ACCOMPLISHMENT OF THE TASK
- TUTOR'S FEEDBACK

COLLECTIVE REFLECTION THROUGH:
- VISITING OTHERS' TASKS
- GIVING/RECEIVING FEEDBACK

ASSESSMENT ON EACH WORKSHOP'S CONTENT ACQUISITION THROUGH LEVELS OF ACCOMPLISHMENT
```

**The macro level. Telling the story of the pA community learning process**

In the second phase of the project, which focuses more on stimulating a professional use of competences, a series of activities are directed toward the development and use of VLE as shared eportfolio of the learning community.

In addition, participants are invited to widen their metarellection, from individual learning strategies to tackling single assignments of the entire pA learning process, its instruments, objectives, beneficiaries etc.

**VLE as community ePortfolio**

Thanks to the “geographical” structure of the VLE system concerning content management (learning avenue, assignments building, workshop buildings, and so on), and to the shaping of the VLE village space operated by the learning community, VLE becomes an historic respresentation of the community learning experience.
As an example of metaphoric content positioning, it has a symbolic value that shared objectives and projects developed by the community are placed in the House of Future Project situated at the end of the Learning Avenue.

As an example of historical shaping of the VLE, the new Val d’Anniver Neighborhood, established within the virtual village in the pA second phase, there is a virtual space representing the “real” growth and strength of the community network through collaboration with Val d’Annivier women, who were interested in implementing pA in their residential area.

Several communication tools (sms facilities, video conferencing, etc) have been added to the VLE on learners’ and/or team’s requests, that is on the basis of users’ specific needs.

Metarefection on the pA learning process was therefore started by looking at the VLE and making sense out of it. How could learners’ metarefection on the role and use of VLE as the main pA tool for learning be promoted? Which real context can be used to complement such a theoretical excercise? The tool proposed also in this case, was the workshop, namely, workshop n.6 (see Appendix 1). Learners are invited to design short didactic itineraries on the VLE aimed at presenting it and explaining its functionalities. Didactic itineraries had a “real” target group, i.e. participants to a mentoring project called Wisegirls, for university students (USI and SUPSI’s students). In the Wisegirls project the same VLE was adopted and participants made their “first steps” through VLE, based on the didactic itineraries pA learners had sent them via email. Exchanges of questions, answers and feedbacks among pA and Wisegirls participants was the natural consequence of this assignment. In this way, the learners’ metarefection on the role of the VLE and its functionalities within pA was oriented towards a real audience through a didactic presentation.

*How to metarefect on the entire learning process? A starting point*

The metarefection, which is developed and practiced within the first phase in the individual’s formative moments, is then directed towards the entire learning process accomplished in the second phase. This transition is carried out by placing a particular focus onto the “real” context of reflection, namely by presenting pA and the singular experience to an external public. In workshop 6, which targeted the participants of the wisegirls project, the focus was on VLE itself, as the main pA learning tool.

In a successive workshop - not included in the appendix- participants were required to prepare a presentation of pA, of its objectives, schedules, methods, beneficiaries. In order to accomplish this assignment, learners were divided in three groups. Each group had to prepare a presentation of pA aimed at a different target audience: a) women living in another valley and interested in the project. b) authorities within that same valley c) authorities and the population of their own valley, that is Vallemaggia.

Transferring and applying project pA in other areas constitutes the “real” context for this workshop. In fact the presentations of pA were used to illustrate the project to the women living in Val d’Anniver who subsequently showed interest in implementing the project in their area. Final works of this workshop were used by learners to illustrate the project in the context of WomenAlpNet, a European Union project, to which pA is affiliated.

Preparing a presentation about pA, targeted to an external and existing audience provided the individuals with an opportunity to put to use the metarefection about the progress of their learning community while directing the reflection towards the concrete aim of a didactic presentation for a specific target audience. The exchange between learners and the target audience, either via e-mail (wisegirls), or in face-to-face meetings (Val d’Anniver) gave an opportunity to assess the quality of the product in relation to the feedback received from the target group, from tutors and from peers.

*Establishing a “culture of evidence”: building a second pA phase personal portfolio*

At the end of pA second phase, learners were asked to change learning metarefections and evaluation perspective, namely from a learning community point of view to an individual one. Central to this perspective change is a special assignment (workshop 9, see Appendix 2) which is aimed at evaluating competence acquisition and learning processes during pA’s second phase at an individual level. This special assignment is given in the form of a workshop to be completed individually by building a time limited working portfolio.
The assignment is attached in Appendix 2. It is configured as a self-assessment workshop of the individual’s progress made in the second phase of pA. Hence the workshop is structured to address all the potential areas of improvement made during the second phase combining also potential competences acquired in the same period outside the project. This assignment is structured in three steps. The first step is about collecting materials within the given categories.

The second step requires the individual to index the set of materials. At this stage the suggested structure is similar to the construction of a paper based portfolio, even if the materials in effect must be digitalized in order to be published on the VLE. The acquisition of cognitive tools and learning methods through the use of key words and conceptual maps emerge from this stage of portfolio development, which constitutes a bridge towards the hypertextual construction of ePortfolio; focused upon during the fourth phase of pA. Indeed, among some of the participants’ second phase portfolios there is obvious recycling within and among the documents.

The third level of workshop 9 provides participants with a list of competences objectives of the second phase (see step 3). Learners had to select the material and the documents to provide evidence of the level of expertise acquired for each of the competence areas.

This activity was the first step towards establishing a “culture of evidence” as described by Barrett (8), essential for the building of meaningful ePortfolios. According to this author, “evidence in an electronic portfolio is not only the artefacts that a learner places there, but also the accompanying rationale that the learner provides: their arguments (discourses) about the reason why these artefacts constitute evidence of having achieved specific goals, outcomes or standards. (...) the evidence needs to be validated by a trained evaluator, using a well-developed rubric with identifiable and specific criteria. This process can be represented by a simple formula: Evidence = Artifacts + Reflection (Rationale) + Validation (Feedback).” (12, p. 7).

The learners’ second phase portfolios as well as reflections on personal portfolios encouraged the team to keep considering the portfolio as a congruent objective within pA. The building of personal portfolios potentially initially promises a contribution towards the individual’s empowerment process through self awareness, competences recognition and valorisation, and the acquisition of communication competences.

This is the result of a global reflection about what I have learned and put in practice “by doing it”

It has not been easy for me to analyse my capacities. My days are filled with domestic duties, everyday tasks, and a thousands of little things which absorbs me 100%. Rarely do I have a chance to stop and reflect on what and how I have done something, what I have learned and how I can put it in practice. And also how I could do it better. Etc.

It is as simple as that, the portfolio allowed me to achieve an overall vision and control of my situation, that is, in this ten month period, I learned to analyse and recognize my acquired competences and to give them value.

I am aware that I still have a lot to learn, and through this constant work I recognize my shortcomings and my desire to go beyond them. (One participant)

PA fourth phase: a blog as personal ePortfolios

The pA fourth phase requires participants to “go out” into the real world to carry out their experimental microenterprise or employment projects.

At the same time, participants are encouraged to continue with their ePortfolio conception. Up to the end of the third phase of pA they worked on their portfolios within a somehow “closed” and sheltered context: the learning community, its VLE and its social network. “External” presentations of pA learning experiences were made from the point of view of the learning community as a whole through the VLE as shared ePortfoio. Individual portfolios were shared within the learning community through publishing on the VLE.

In the fourth phase participants work on building a “longlife” and “widelife” individual ePortfolio. From an institutional point of view, by presenting the ePortfolio they will gain access to a second part of a training to become certified project manager. From a conceptual point of view, learners must change their working portfolios into professional ePortfolios.
The pA team proposes participants the web logging tool (blog) for building personal ePortfolio. As the fourth phase is still ongoing as we write, data on the efficacy of blogs as ePortfolios in complex learning experiences, oriented to regional development, are still to be collected and analysed.

There are two main goals expected by blog within the pA context. Firstly, blogs are effective tools of communication. It is expected that it will offer the learning community an effective way to keep in touch, engage in collaborative activities, share knowledge and debate, stay updated with progresses and changes of projects and personal plans. The store for collaborative activity offered by blogs might be precious for developing microenterprise projects, as those planned in pA, that optimize the family/work/learning balance thanks to internet and to part-time and job–sharing occupational strategies.

Secondly, blogging opens up to others that are outside the personal and community network of pA participants. Ease of blogs accessibility might favour connecting the network of all those directly or indirectly involved in the projects. Moreover, as learners will develop their blogs, it is expected that deeper and further learning will be promoted by learners’ effort to present their views and opinions to a wider audience, to consider and respond to others’ inputs.

Conclusions

This paper discusses the role ePortfolio plays in the context of a pilot “complex learning” course, pA, aimed at empowering women and promoting, developing and consolidating micro enterprises run by women as a strategy towards regional development.

Evaluation of the pA project requires taking into account several criteria. Obviously, one key criterion is the effective setting up of micro-enterprises experiences by learners, as well as participants’ occupational status changes. In Vallemaggia, at the beginning of the fourth phase, six of the micro enterprises projects are taking off, planned as to allow participants’ family/learning/work balance thanks to a job sharing work system. These will involve 14 out of the 21 women participating in pA, and this data is considered an open index of favourable accomplishment.

In this context, ePortfolio has been conceptualised mainly from a formative assessment perspective, as a framework for structuring and implementing learning oriented assessment practices. Indeed, tutoring learners to build and manage ePortfolio has been considered congruent with the empowering process towards employability, as it requires the development of competencies as mastery of technological skills, communication competencies, self-evaluation and metareflexion competencies, as well as offering a scope for professional acknowledgement of “longlife” and “widelife” competencies.

This paper discusses the experimental method adopted for tutoring learners towards ePortfolio building and management. It is argued that ePortfolio competencies are developed thanks to an “ad hoc” course structure which educates participants in the use of such competences at every level of the learning process. At the micro level: assignments (workshops) have been designed according to the “learning by doing” approach. Each workshop has been structured in a sequence of accomplishment “steps” on a rubric base, from the initial “fair” step to the final “metacognition” step. This has allowed explicit monitoring of the learning process by both learners and the team, as well as establishing the habit for metareflexion. Moreover, the publishing of learners’ assignments on the VLE has educated learners towards competent, target oriented, content communication and the development of “connected” knowledge. At the macro level: the use of the VLE has been planned to play different functions: as content management system, as learning community “connecting” area and as shared ePortfolio. Working on a learning community or shared ePortfolio allowed learners to further reflect on their learning experience as a community and on the didactic methods adopted. Through presentations of pA to external real targets, women worked on target-oriented communication competences. When women were required to build their individual first working ePortfolios, they demonstrated a high level of competences, congruous work method and adequate reflective abilities. Further evaluation of this method will be carried out and completed on the basis of the results from the process of the building of professional ePortfolios.
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Appendix 1

Phase 2- Workshop 6

Please… follow me … Proposing an instructive VLE itinerary

Context: Ariadne’s Thread

In the first phase, in one of the workshop you have narrated one of your walks across the VLE. On sept. 22nd you helped the guests from WomenAlpNet project to understand what is to be done when in VLE. (Very satisfied)

And now …. You should propose some short itinerary within the VLE to help our colleagues from Wisegirls understand why VLE is relevant (important, pivotal) in pA.

A little note:

You have possibly seen that on VLE there is a new neighbourhood, Wisegirls. There you can get information about the project (We will soon publish the concept of this project) and meet the team.

Assignment:

Design an itinerary which allows external people to find their way inside the VLE and understand how to move in it. In other words, why I might first go to the tatzebau and then .. (anywhere?) who knows where, according to my need?

Step 1

Take the map of VLE, mark in red the path which you would propose to a guest.

Help: below you find a photographic reproduction of the map as it is today (Nov. 14th). Are you able to access the VLE map when you are in the VLE? One clicks on the globe at the bottom left of your bar. When you want to revert to standard outlook click on the map and it will disappear.

Step 2

Following the marked path, (please) list and describe the various locations visited

Step 3

Now explain why you think useful and interesting to visit the choosed locations (areas)

Your itineraries will be proposed as formative moments to your colleagues particapating to wisegirls Project. You have met them at the meeting on sep 22nd.

Colleagues at wisegirls will be asked:

- To discover VLE through following your itineraries
- To make a written list with any question or doubt
- To write a short comment about VLE in general
- To publish these opinions in their houses on the VLE and announce it on the tatzebau.
Next January, we will probably organize a videoconference to answer the questions posed by Cecilia, Viviana Barbara and Danuscia.

Deadline for the workshop: Nov. 24th 2005

Send your answer to Giuliana and copy to Paola (Pepita as you know is absent and we cannot include her) and to Matteo for publishing on the learning avenue).

For HELP please contact Giuliana or others of your personal network.

Appendix 2

End Phase 2- Workshop 9: Portfolio of competences

Professionalizing competences needed to project management (handle, direct)

This work builds on what has been done on the closing of the first phase (see VLE , first step).

Period to be considered: from april 2005 to Feb. 2006-09-04

First Step

Collecting material of the following categories:

- Finished workshop ( printed or in digital version)
- Relevant email exchanges
- Formative stages
- Videoconferences
- Courses (computing and others)
- Relevant activities external to pA

Second step

Points 1 to 6: Give a title to materials and create a “table of contents” useful to retrieve documents

Third step

The pA team proposes a list of competences.

Short definition: competences denotes what we really are able to do: to think, to act in certain situations, (professional, non-professional). The problems we are called to face and solve in specific situations.

Reminder: Competences are not fixed, they can be transferred from one field to another.

Assignment

From your collection of material, pick up examples (instances) which illustrates (shows) how, where and when individual competences have been acquired.

How to do you work: Write your own observations in word .doc. Ask for assistance for anything obscure or anything that you do not understand.
**Table - Competencies list:**

<table>
<thead>
<tr>
<th>Communication and presentation competencies</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I am able to present pA to an external auditory</td>
<td></td>
</tr>
<tr>
<td>I am able to choose the right presentational and communication tools to give a presentation to a given audience</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interpersonal and team competences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I am able to listen to the other person in the team</td>
<td></td>
</tr>
<tr>
<td>I am able to express my opinion</td>
<td></td>
</tr>
<tr>
<td>I know how to negotiate a solution</td>
<td></td>
</tr>
<tr>
<td>If in need, I am able to ask for help</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Managing planning and organizing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I know how to plan my schedule in order to balance family, pA’s formative requirements, work, hobbies, …</td>
<td></td>
</tr>
<tr>
<td>I am able to organize a meeting, (contact, choose date, people etc)</td>
<td></td>
</tr>
<tr>
<td>I know how to plan an activity</td>
<td></td>
</tr>
<tr>
<td>I am able to handle a meeting</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cognitive and creative competences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>If I need to learn something I am able to identify the right tools or to get help from the right people.</td>
<td></td>
</tr>
<tr>
<td>I am aware of my own social network</td>
<td></td>
</tr>
<tr>
<td>I am able to describe my social network</td>
<td></td>
</tr>
<tr>
<td>I can see how a project evolves</td>
<td></td>
</tr>
<tr>
<td>I am able to describe the evolution of a project</td>
<td></td>
</tr>
<tr>
<td>I can provide creative solution for professional or formative setbacks.</td>
<td></td>
</tr>
</tbody>
</table>
A CASE STUDY ABOUT THE USE OF EPORTFOLIOS FROM THE UNIVERSITY STUDENTS PERSPECTIVE

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Abstract

In this communication it is presented part of an empirical research done in the University of Barcelona (Spain), in order to study how the use of an eportfolio for assessing university students is impacting its users. In Higher Education, digital portfolios are starting to be well known and used, being developed as technological devices for the own University. The literature has paid less attention to the study of the users; recently it is starting to be studied, because learners are who use this tool and methodology for learning and to be assessed. In this point, from the psychological perspective, it has been focused the study in the learner and the influence their learning styles in relationship with his or her success and satisfaction using eportfolios in the formal learning.

Key words

Electronic Portfolio, Higher Education, Alternative Assessment, Learning Style

Introduction

Digital Portfolios are showing good results as an alternative assessment method in Higher Education (HE), and it is being started to be present in educative organisations like Higher Education Funding Council for England/Quality Assurance Agency. This technological device and, above all from educative perspective, the process for implementing it are opening another way to understand and develop the learning and the assessment process for students and teachers in european universites, which are converging in the future European Space of Higher Education.

It is an educative innovation that is starting to be well known in our context but, as other new educative methodologies, requires to be studied from a concrete theoretical framework and to be researched from an empirical perspective. In this sense, from the constructivism perspective of learning, and in a blended learning context supported by ICT, it was developed an eportfolio with Moodle, in order to be used as an assessment virtual space for each student, in other words, a private eportfolio as a tool for learning and for developing the assessment, which promotes the learner autonomy. Our eportfolio was covering the main criteria as a pedagogical portfolio (López, 2004). Parallel to this innovation was developed an induction course in order to introduce the new instrument and system; the objective of it was to achieve that the students will assimilate in a comprehensive manner the new form of learning through an eportfolio with our characteristics. A tutor was managing the eportfolio platform (as an administrator) and was supporting the learner acquisitions (giving them feedback about their evidences). These forms of acting were addressed to reach the objective of this empirical research.

It will be described an eportfolio constructed with Moodle (López, 2005), a digital platform which provides a constructivism approach and, discussed the results obtained through this instrument with
the university students in relationship with their cognitive style, as an advanced to know how eportfolios are impacting in university students. In this work, eportfolios show to be pedagogical instruments for a generation students, who has grown with ICT and other technological devices and skills acquired, promoting their autonomy and satisfaction with the learning reach, in great part, thanks to this innovation.

Review of recent literature in ePortfolios from educative perspective

From around 2000 the literature of eportfolios has grown considerably, but above all thanks to international meeting like ePortfolio Conference (by EiFEL), Society for Information Technology and teacher education (by AACE)... and leaders in the field as Dr. Helen Barrett and her website (http://electronicportfolios.com/). However less publications has been extended by journals or books. In this sense it has been done a brief revision of the last publications done in 2005-2006. After searching in main data bases as ERIC, PSYINFO, MEDLINE… it has been found around 60 articles related with educative eportfolios.

In the greater part of these articles are described several experiences that are using eportfolios as assessment tools in order to promote active, independent and reflective learning in their students, implicating them in their process of learning and motivating them to achieve the goals of the courses.

Del Duca & Duque (2006) used eportfolios in medical education as a student-based evaluation that involves self-reflection and their level of change in skills and attitudes, and they developed also an innovative system called “McGill Electronic Evaluation Portfolio” (MEEP) that had proved to be a useful tool to motivate students' self-reflection and to induce them change in attitudes.

Robin (2006), in the framework of adult education, explores practically the same aspects with eportfolios (self-directed learning, reflection and learner choice; that are characteristic of learner autonomy) and he founds that although this technology is very successful for his students, adult learners who take an online programme are not typical of all adult learners.

Bonk and Zhang (2006) use the R2D2 method in distance education (based on method-read, reflect, display, and do) for promoting the online learning, and eportfolios are the main device used in the reflection phase, and they helps them to provide a framework for more engaging, dynamic, and responsive teaching and learning in online environments.

Orsini-Jones (2005) demonstrates that eportfolios with WebCT can promote reflection, encourage independence, and enhance the learning experience of undergraduate first-year students. In relationship with reflection,

Fralick (2005), from art education, defend that the reflective writing for creating an eportfolio helps students focus on: what they learned or made, how they learned or made it; and where their ideas came from.

Also advantages and disadvantages of eportfolios have been studied. Heath (2005) describe their main benefits: the teachers create and use almost all in electronic format, they use diverse technologies for explaining and facilitate learning, the eportfolios can support complex organization for effective documentation, in the present are much easier to reproduce, distribute and access, they are an effective way to demonstrate technological skills or learn new ones and are inexpensive. Also the main disadvantages are: eportfolio development takes time, it can be expensive, its development takes technology skills, it can be stressful, it should be a time of professional learning and growing and it might not meet the needs of their users.

In the line of the new form of implementing eportfolios in HE, a recent European example is the Vrije Universiteit Brussel in Belgium (Meeus, Questier & Derks, 2006), that has create also a generic and institutional-wide eportfolio for students. They use it as a natural complement to competences oriented
educational innovations. They selected an open source development environment too, for its advantages (to get a prototype rapidly, with availability of tools such as user management, security management, content management and plugging).

Spendlove & Hopper (2006) in the School of Education of the University of Manchester (UK), in the undergraduate curriculum initiative provided to their students the production of an eportfolio within and extended design and technology activity. It served as a developmental tool for promoting creative work, reflective, design practice within a structured educational design challenge, also provided a focus for the development of elearning skills as it facilitated the use of new technologies in the compilation of the portfolio, and finally provided trainees with a means by which they were able to demonstrate their capability to prospective employers. Then it was successful in facilitating engagement with a creative design and technology process.

Continuing in HE framework, some authors highlight the importance of the methodology in the process of implementing eportfolios as alternative assessment. Bridge & Eddy (2006) from the Faculty of Health and Wellbeing, Sheffield Hallam University (UK) has created a “virtual portfolio” that use electronic media to collate and present the evidence. They highlight that electronic media offer some useful tools to the portfolio developer, but ultimately it is the content and use of the portfolio rather than the format that is of importance. Also the authors confirm that one of the main advantages of eportfolios is its individuality and the reflection of the owner, also the possibility of collaboration by creating a “connected portfolio” as a peer review document and for sharing ideas and reflections.

In the line of the importance of the methodology of the eportfolio is a system of evaluation in HE, Duque et al. (2006) found that the introductory session before the implementation of the eportfolio had a significant effect on students’ portfolio marks as well as on their comfort using the system. Both tutors and students reported positive notions about the method. The MEEP showed a significant and positive effect on both students' self-evaluations and tutors' evaluations involving an important amount of self-reflection and feedback which may complement the more traditional evaluation methods.

Beck, Livne & Bear (2005), from teacher development field found formative portfolios were significantly higher than those of summative portfolio for understanding of backwards planning and the benefit of peer collaboration. No differences were found among the portfolios concerning the benefits of analyzing student work. The researchers concluded that formative portfolios that focused on teacher development better supported professional outcomes than did the summative accountability portfolio, then they should not be used for the summative accountability of teachers.

The eportfolios in HE are a phenomenon which is being extended quickly for its advantages as an educational device for assessing students and, above all, for its methodology, that follows the current educative philosophy centred in the student and his or her learning, as future professionals and life long and wide learners.

In this sense, Chou & Bagley (2006) from the University of St. Thomas (MN, USA) consider that eportfolios serve many purposes: demonstration of competency in technology and curriculum design, national board certification, and evidence of lifelong learning. They examine in-service teachers' attitudes toward eFolio (a free Rich Internet Application web-based authoring system). And conclude that the effective use of eportfolios cannot be isolated from the building of a learning community, one that encourages the use of electronic portfolios for lifelong learning, peer review, and group support.

Wetzel & Strudler (2005) from in teacher education field, have been adopting and implementing eportfolios during years (using context variables as: prior use of paper portfolios, pressures for standards-based assessment, and leadership and governance issues; they found variations in program implementation are also explored including the portfolio tools employed, artifact selection, evaluation of student work, and the role of reflection). After that, they start to publish next steps (streamlining requirements, addressing reliability of technology and access, and planning for data aggregation and program evaluation) and key recommendations (to involve a broad base of participants in the planning process, clarify the purposes for eportfolios, move forward incrementally, and provide sufficient technology access, training, and support).
Other works has been focused to the students’ perspective. As Hope (2005), we consider that a good eportfolio is like a mirror of the comprehension and performance of a student, for this reason is so important to design, implement and assessed carefully. It is a student tool, that has an impact in his or her process of learning.

Gouardères et al. (2005) from the IUT de Bayonne-Universite de Pau (France) present an approach to reduce cognitive overload and transactional distance for a virtual learning community with a device called "Grid-e-Card.", that bring users together to share collective intelligence in a social context. This methodology is based on a set of P2P-agents who handle users’ e-Portfolios as knowledge prosthesis and exploit e-Learning qualification.

Barak (2005), explored learning and thinking processes enhanced by integrating computers in secondary schools electronics projects, affirming that the students tend to adopt flexible strategies, such as creating new ideas, risk-taking, improvisation, using trial and error methods for problem solving, and rapid transition from one design to another. These devices promote the transfer of knowledge between students, and joint development of ideas. Also, they used the students prepared eportfolios to show what they developed in an orderly manner.

Sherry & Bartlett (2005) studied university students that provided perspectives about their eportfolios. They evaluating their process through survey data (framed within Kirkpatrick's Levels of Evaluation with worth expressed on four levels as attitudes, learning, planned job usage, and potential organization impact). Despite different technological capabilities and limited similarities in implementing the process, they viewed as worthwhile overall, being largely positive and technological ability was not a major factor.

Finally, ethical considerations also have been highlighted. McFadden & Saiki (2005) studied them related to the development and use of an eportfolio, and they are identified some of the issues addressed that include: (1) plagiarism; (2) intellectual property; (3) illegal downloading, file sharing, or distribution of music and unlicensed film and television files; (4) identity theft; (5) unreliable, biased, and out-of-date information; (6) the distraction of electronic technology; and (7) flaming.

**Review of learning styles from CHAEA perspective**

The learning styles are not static; they evolve with our chronological age and experience. Their improvement is possible through the self-knowledge and the practices adapted for it. While the great part of the authors in this theme agree that learning styles affect in the form of learning and each goals, except some recent works focused in other technological devices are not agree but we must highlight that are more complex that present ePortfolios (Chen et al., 2005 affirm this in the case of virtual reality).

However, Liegle & Janicki, (2006) try to improve end-user learning: learner control vs. system control. They remain as that it has been discussed if the amount of learning is dependent on the material presentation mode and the learning style of the users, affirming that more effective systems that adapt to this relationship could be developed. They do an exploratory experiment completed by 58 subjects and they measured their learning style preferences (using a version of the Kolb Learning Style Inventory Tool) and compared it to their actual visits of linked Web-pages. They found that learners classified as "Explorers" tended to "jump" more and created their own path of learning (learner control), while subjects classified as "Observers" tended to follow the suggested path by clicking on the "Next" button (system control).

In our case, the instrument in order to study the learning styles selected for this research was the well known Honey-Alonso Questionnaire of Learning Styles, called in our country and other countries with Spanish language “CHAEA” (“Cuestionario Honey-Alonso de Estilos de Aprendizaje”) created by Alonso, Gallego & Honey (1999). It was selected because is validated by international researchers and offers a guideline of comparison and direction about the styles of learning based in university
students, obtaining the main four preferences in their learning styles in a clear classification (active, reflexive, theoretic, and pragmatic).

The CHAEA is based on "Learning Styles Inventory" (L.S.I.) of Kolb (1984) that describes the circular process of the learning in four phases (concrete experience, reflexive observation, abstract reasoning, and active experimentation). Posterior, Honey and Mumford (1986) with their "Learning Styles Questionnaire" (L.S.Q.), where the subject responds if it agrees or not with eighty items which they describe an educative action to detect general tendencies of personal behaviour in learning situations. Finally, CHAEA has been applied to the theory and used as a tool of diagnosis of the styles of learning to the scope of the formal education, in general, and above all in HE.

In the university scope different studies focused in the academic yield and the styles from learning have demonstrated in most of cases that the students learn with more effectiveness when they are taught to them with his predominant styles. Then it is basic in a constructivism approach to include this premises in the design of an eportfolio what promotes learning and in the process of its implementation, and also try to know how are impacting the four preferences being an owner of an educative eportfolio.

- **Active**: learners who imply themselves in new experiences, innovators, open mind and value the experience. Also usually they are group and sociable. Some of the main characteristics of their personality are: entertainer, discoverer and spontaneous.

- **Reflective**: learners who tend to consider from different perspective the experiences, they have an analytical tendency, they reason before acting. They like to observe the others Some of the main characteristics of their personality are: conscientious, receptive and exhaustive.

- **Theoretical**: learners who reason with objectivity and in a hierarchic way, following the logics and clear explanations. They learn in a deductive way, because they prefer to have the rule and later to apply it. Some of the main characteristics of their personality are: methodical, objective and structured.

- **Pragmatic**: learners who apply directly their ideas, experiments. Before the resolution of problems they are practical and realistic, the most important is to do the assignments. They learn in an inductive way, by their capacity towards the generalization from the observation, analysis and contrasts of several examples. Some of the main characteristics of their personality are: experimenter, practitioner and effective.

In sum, the study of the learning styles of the users is one of the goals done by this research, in order to board from a pedagogical and psychological perspective the influence of eportfolios in learners.

**Objective**

The motivation of this research, firstly, has been to know the main advantages and disadvantages of this process of implementing this type of eportfolio in higher education form the students’ perspective. Secondly, from a psychological perspective, it has paid attention to the relationship among learning styles and success and satisfaction of using of an eportfolio design and used as an alternative assessment methodology in a formal educative context.
Methodology

Design

The methodology has basically consisted in a non experimental design for being an exploratory study about an educative innovation. It was followed an ex post facto design without manipulation of the variables studied (concerning to socio-demographical indicators, students opinions and their preferences in learning styles), because the objective was to obtain a descriptive study. Also it was selected a mixed analysis from quantitative and qualitative data that were recollected by different methods and techniques of research.

Subjects

The study was focused on the learners, the undergraduate students from the University of Barcelona, which were followed along one course. The ePortfolio (with Moodle platform) was applied to two samples: (A) with 33 students (from and (B) 28 students. Both groups have enough technological skills achieved before the experienced (we obtain these data from an ad hoc questionnaire).

Instruments

The instruments for obtaining the data were created, because limited empirical research has been developed and published about the impact of eportfolios in learners. From the beginning of the process until its final were passed four questionnaires for evaluating the eportfolio from the learner point of view, also the questionnaire of learning styles CHAEA (Alonso, Gallego & Honey, 1999).

Results

The preliminary results show that in both groups the styles were similar as we expected (see figure 1). In group A was predominant reflexive style, followed by active, theorist and finally pragmatic. In group B was predominant reflexive style too, followed by theorist and active and pragmatic at the same level. Spanish university students should obtain high scores in reflexive learning style.

Figure 1.- Graphics from the analysis of learning styles with CHAEA of both researched groups of students who used the first prototypes of eportfolios from UB.
Both groups have similar eportfolios based on the construction of evidences and its reflection for every artifact and an overall reflection, and although in the first moment of implementation they did not pay too much attention to reflection, during the middle part of the course students started to participate in this aspect of their eportfolios and finally they evaluate reflection as one of the most important aspects of the digital portfolio (as has been called in our context for its web-based nature) and their learning. It seems to be related too with the final level of satisfaction achieved in the course.

Students were really interested for knowing their own learning style and, the first session dedicated to the eportfolio in classroom for explaining the concept, the platform and the methodology (before having the personal access to it), they demand information about this theme because they consider that was an element of their learning. The research continues in this line in relationship of eportfolio.

In relationship with the information obtained for students they show that the first contact with an eportfolio as an idea is a complex experience to understand. After starting to use the digital platform and methodology of learning by tasks and reflections, at the second month approximately, they start to be sure about their success. Also, one of the elements that offer more satisfaction in this use is the usability of the interface and the feedback and continuous support of the teachers assessing the artifacts published in the eportfolio.

However, they have critics to the eportfolio, for example, as process of learning which promotes creativity, they explain that a platform constrains the possibility to create evidences not included in the design, also in a group they did digital storytellings and they could not to publish them in the eportfolio because the space for every artefact was limited (2Mb), in sum, they communicate some specifications for improving the eportfolios.

Finally, the results obtained by the formative and summative evaluation showed that the students were more implicated with the subject than other years, including their productivity increased obtaining, in general, better qualifications.

**Conclusion**

In conclusion, this study provides a basic research in the first part of the paper with the review of last literature in eportfolios and learning styles. Also, the steps done in an applied research that covers the main positive and negative aspects that we have started to detect in two samples of university students, which have used an eportfolio as a tool and process for learning and being assessed.

The results of these analyses offer a good example of an empirical research, which will increase the state of the art of the Portfolios. In the paper it is described and explained our first findings in this line. So this work continues the research on eportfolios, as an academic methodology, and like a previous step to lifelong learning and as a teaching innovation is related with the new forms of educating in XXI century in Europe, where all universities are converging towards to a new common European Space of Higher Education.

This paper has pretend to give the firsts answers about how ePortfolios in present universities can contribute to the develop eStrategies for learning, in order to empowered learners, providing them with greater control over their process of learning and assessment, giving them basic patterns for being more autonomous learners as a main step before continuing their professional life, and going on the lifelong and lifewide learning journey.
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THE TEACHER PORTFOLIO: EXPERIMENTATION IN AN ON LINE COMMUNITY

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The educational philosophy

As it has been highlighted in various discussions, educational philosophy (EF) plays a fundamental role in the architecture of the teacher’s portfolio. For this reason it is necessary to examine closely its significance and its role. According to various authors, EF should encompass: the ideas each teacher has conceived on learning and teaching; the explanation of the way his or her concept of professionalism has been created and its background (N. Chism OHIO 1999), the vision on the educational relationship and the way it has been managed in class (Goodyear and Allchin 1998), the explanation of the personal and educational values, which determine all educational choices and behaviours (A. Grasha and B.Fuhrmann 1983).

Creating an educational philosophy can be either an extremely difficult task or a work similar to many others, which are commonly carried out to explain the principles, the values, the methodologies used in a didactic project. In both cases, it is possible that what has been described does not represent in a concrete way which beliefs and knowledge the teacher has indeed elaborated within formal, non formal and informal frameworks. In these cases we often find texts with a number of theories, which are a little significant or with statements, which are supposed to satisfy the readers.

In the recent past, even before the establishment of the Faculty of Education Sciences, the apprenticeship and the attendance of practical laboratories have been the modalities used for the first teachers’ training. The beliefs, based on students’ and teachers’ experiences, have been progressively strengthened until they have constituted a real, deep-rooted professional culture (tacit and implicit culture).

These beliefs are mainstays to be used as guidelines in the complexity of this job and they are at the basis of teachers’ educational philosophy. Often the theoretical studies and investigations carried out by each teacher, duly interpreted and contextualized, entail changes in the foreseen activities and in the use of materials. They seldom entail changes of meaningful perspectives, which on the other hand provide for the conceptual instruments to “interpret and evaluate the meaning of the experience” (Mezirow 2003).

Two spaces for a learning path

The project aims to define our own EF according to a precise analytical work on our own practices. In this way we will come to a description of our own professionalism, which will be considered in three phases. The first phase, (“before”) consists in defining how beliefs, knowledge, perspectives, taken from various documents, have been created. The second phase, (“during”) is considered as the awareness moment and the realization of our own self, the third phase, (“collaboration”) is a result of the awareness meant not only as an intimate condition, but also as “a kind of activity, which gives concrete form to the quality of symbolic models like experience objects” (Mezirow 2003).

In order to give sense to these three different phases we have decided to set up a network community. This community plays a fundamental role to make clear its own implicit ideas (the first phase). In the network the teacher is compelled to explain his/her own thoughts and opinions through a personal language, which anyway becomes the collective language. There is no specific common sense in the online community supporting the comprehension, there is no tacit knowledge allowing to “communicate” also without words. On the contrary, there is an overall knowledge of common practices, whose sense is to be explained in order for others to understand it. The questions coming
from others, the requests for investigation and explanation help the teacher to reason, to explain also to himself/herself what he/she is stating.

If the “other” is an institution or another person, for instance an expert of teachers’ competences, who has dealt with problems that the community is debating, thus another point of view comes out allowing a different way of thinking. It is at this stage that the second phase is going to be elaborated on. In the end, there is the reification of various thoughts, a whole that encompasses a different logic if compared to the initial thoughts. Drawing from Eraut (2000), it turns out that, through different modalities of reflection, the future projection of the self is strictly connected with the practices (the “after” phase), and a teacher’s self-plan for the acquisition of professional skills (deliberate learning), which is the real aim of a teacher learning portfolio for the knowledge society.

From this viewpoint, after activating the network, the community has operated in parallel on different activities, the first two are in a collective space and the last one in an individual space:

- communicating, describing, and collecting documents, planning in network in order to capture materials to be examined as proof of our own professional activity;
- observing a profile of professional skills defined by some institutions and experts in order to understand it, to deal with it and to personalize it;
- creating a personal teacher portfolio.

It is impossible to define where a kind of activity ends and where another begins with the aim in fact to create a synergy among the various activities.

**Analysis of the portfolios**

From the analysis of the portfolio, interesting visions have come out in regards to the function it could have in the long run, to its training value and to its structure. With this paper, we quote only some specific aspects in relation to the educational philosophy and to the relative documents.

... *under the point of view of the educational philosophy*

With reference to the development of the educational philosophy, there are a few confirmations on its content and other discoveries.

As far as the personal values are concerned, it has been highlighted that, apart from constituting the more frequent elements in the texts, their explanation has allowed us to understand how these are the origin and the cause of the project choices and of the behaviour modalities.

My educational philosophy, the fact that I am a teacher, is based on a clear and unequivocal value: the responsibility. This statement can be taken for granted, but it’s not. (M.)

In all these school years, I have always tried to carry out my profession paying attention to some values, which I deem essential. I will sum them up with these words: main role of the pupil, equality, reception, respect. (S.)

I believe, in fact, that the teacher represents a model for his pupils, especially if these ones are in troubles: he is the repository not only of the knowledge, but also of moral values. A teacher’s glance, a gesture, an attitude could communicate more than a word. (L.)

The ideas regarding the learning process are conceived when we think how we have learned. We refer to our values and we trust in our capacities. Moreover, these ideas come out when we trust in the group as the instrument, which is useful to build up knowledge, when we observe that each new learning process is possible provided that it is included in a pre-existing framework and it contributes to its modifications. Only rarely, we enunciate theories on learning and models, which are useful to start-up a learning process.

Teaching, being based on deep beliefs that find their justifications in one’s own experience re-examined under a different point of view, the teacher’s one, is considered mainly as a way of being almost as a fusion between the professional and the personal life.
This means that the experimented models of practices are not modified either on the basis of a simple knowledge of theories, or on the basis of a detached vision of the profession. The results of the students’ learning process and the external recognition of effectiveness in teaching are important elements, leading to a change in the management of teaching.

When talking about one’s own personal development the teachers highlight the importance of the community either to learn relevant practices and to detach from pre-existing personal models. Participating to different communities in order to see and live their differences is deemed important for training.

The modalities adopted to look at one’s own training process are structured in the following way:

- explaining continuous training experiences. In this way the teacher shows how he/she has created his/her own personal model and the evolution of this model over time;
- showing of the comparison with positive professional models in different contexts;
- description of personal strategies that witness a continuous research as a continuous exploration tour;
- reading of significant texts, which have produced different visions on problems concerning the teacher’s profession.

How to manage the relation with the students is a shared vision: it is essential to determine a good climate in the classroom, to start from the analysis of factors which could be a good premise for a positive student environment. They include a common choice of values and a focus on collaboration.

Coherent problems come out when connecting the different texts on personal convictions, the planning processes and the records of the activity deriving from them. As Kelly pointed out, an individual can use a variety of processes, which are logically not compatible with one another, without being aware of it. We find out for instance, statements that are common among the teachers’ community like: “we can learn from our problems”, “we always need to challenge ourselves”, and “it is very important to listen to students”. On the other hand, in front of problems, usual and recognized simplification strategies are put into practice. Being challenged is mainly an action of participation to the working groups that do not change their personal perspectives and the listening is mainly emotional or tied to specific indicators of a disciplinary knowledge.

Lingering on coherences and contradictions is the first step in order to know one’s own thinking, professional activity and to start revising the relationship among actions’ framework and perspectives of meaning. It could be useful to work on writing the educational philosophy using some questions, which are not necessarily meant as an initial input. They can be useful “guidelines” or instruments for direction:

- Which are the values I draw inspiration from?
- How do I think the learning process happens? Which image could I use to represent the learning process? What do I think is difficult/easy for pupils/students to learn?
- Which practices do I think are more effective/successful and why?
- In which situations do I think I have a good/difficult relationship with students? How have I enhanced my social skills?
- Which situations have helped me improve my professional competence? What am I doing to enhance my skills?
- Which skills do I think I have acquired? What skills am I lacking?

The value of documents

Collecting documents is a fundamental stage to start significant reflexions. It is a matter of organising processes and results together with mediators and activities in a coherent unity. In this way theory and practice are interconnected: pedagogic models materialize, they become visible through the organisational structure and the chosen methodology. They become an instrument to sort out problems and to start a tailor-made research for improvement. The particular aspects are connected with other
wide-ranging aspects, they belong to the personal studies background or to the formal learning and they acquire a personalized meaning.

The documents requested for the teacher portfolio must have some characteristics that are connected to a particular project making it based on the choice of criteria, of objectives, on the organization and on the possible collaboration in the choice and comments of the artifacts. In order to think over the work done we can collect different kinds of documents:

- **Phase 1 (Before).** It is a reconstruction, based on the memories and on the materials, which allows one to take into account the phases we did not consider during the activity. It helps understanding the “gaps” in the process and sometimes highlights aspects, which were not previously foreseen;

- **Phase 2 (During).** It is a collection which can be supported by different instruments and criteria. We can assume to define the stages of the process and to collect the products for each stage, or we can collect materials according to teaching processes (i.e. specific activities for the definition of a competence), or those ones that are referred to a time sequence of a particular development of an activity. Each kind of document will lead to different modalities of thinking, but this process is not yet obvious and the teachers are not aware of it;

- **Phase 3 (Collaboration).** It is the result of a negotiation among colleagues or among teachers and students. It could be the case of documents for a particular project taken into account by teachers or the whole of teacher’s and students’ points of views related to a particular series of activities. Also, in this case, the effects and the forms of the reflexions will lead to a different awareness.

**Conclusions**

To think about the use of a teacher portfolio for training foresees the starting up of different spaces and times. They will allow the teacher to have many materials and points of views they can count on to acquire awareness. The attribution of sense to the portfolio shall be negotiated within the community, taking into account the personal interpretations and on the basis of the common practices and necessities. The stages involving different levels of reflexion shall consider individual and collective spaces and times. The documents will also need different instruments, spaces and times according to the modalities and objectives with which they have been written up.

The explanation of our own professional self demands a continuous examination of the community and of our personal dimension in order to understand;

- how we deal with other praxis,

- how the personal convictions modify while operating in two different communities (real and virtual) characterized by different cultures;

- how we build a personal modality of research, which is the result of the awareness of the outcomes we have reached and of the problems we have had to cope with.

The technology can help devising the image of a personal project of self training in a collaborative situation. Using instruments of shared selection (for example del.icio.us) together with other virtual spaces or an e-learning domain where we can share materials, as the results of personal researches, entails a different management of our processes and skills, as well as the representation of the awareness process. Technologies, personal and organizational objectives, and skills shall find an equilibrium for an effective communication meant as the possibility to use them, the chance to have access to them, and the organisation of the texts and their essentiality. The reflective process demands time which must be optimized and weight with reference to the delicate equilibrium established between the project and the activity, both aspects being present in the teacher’s profession.

A last reflection must be dedicated to the influence a teacher’s portfolio could exert on the significant perspectives, with the modalities foreseen by the experimentation, that has been carried out.

The teachers place the learning process in a context which encompasses the objectives and the pre-existing knowledge. Afterwards they create a structure based on different situations and problems, they check their work through a continuous monitoring and they issue a final evaluation. The didactic planning considers the same steps: definition of the objectives, checking of the prerequisites,
arrangement of activities, revision and new planning, and monitoring and evaluation. While observing the network community, we have noticed a different way of proceeding: at the beginning there has been an attribution of sense to the activity, then the research of elements for the artifact, and in the end the structure is born. The last phase is the one that you establish first in the learning design and it is very important to build a common structure for all the actions. The structure allows “to see” the personal reconstruction of one’s own professional identity and the importance bestowed to the different components (educational philosophy, didactic planning and documents, self evaluation and projection).

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THE EUROPEAN DIGITAL PORTFOLIO FOR EDUCATORS

Gregory Makrides, INTERCOLLEGE, Cyprus, and partners*

Introduction

This is the product of a European Funded Project under Comenius Action 2.1. The aim was the development of a new, dynamic, digital appraisal tool for the collection and presentation of portfolio evidence of an educator’s competencies, which can be used in the various educational and appraisal systems throughout the European Union. The EDIPED result addresses the self-improvement/self-evaluation of educators (such as teachers, educational administrators, inspectors, teacher trainers and trainees) and their objective and transparent evaluation with the help of new technologies.

The main products are, (1) The European Digital Portfolio in which personal documents of different types (texts, films/videos, tapes) can be stored and presented in a purposeful order, (2) The development of a training course on how to use the European Digital Portfolio.

The product is developed in five languages, English, German, Greek, Dutch and Spanish. This project helped to enhance the quality of portfolio assessment and by increasing its appeal and credibility increase its use through the European Union, so enabling greater mobility of recognised professional teachers while at the same time enhancing the self-awareness and professional development of educators.

Objectives

The development of teachers to support the growth of European youth as they face the post-modernity of the 21-century is a common problem throughout Europe. The profession itself recognises the challenges faced by its students as they engage in an evermore complex world where the skills of learning to learn throughout life are a critical aspect of formal education. This new world requires greater support to teachers in their practice in order that the higher standards required of their pedagogical skills can be developed, delivered and maintained. In this environment of high emotion and financial investment teachers and their managers need effective instruments to assist them in evaluating their own performance and based on individual and team assessment, have to progress in their careers.

However, many nations have found that reliance on personal development is not sufficient to ensure that quality of education provided to their most important assets – their youth. In the search for quality many evaluative measurements have been introduced including; school ranking, teacher incentives and opening schools to the market mechanism.

In many countries the processes involved in gathering information on teaching quality is based on appraisal systems used for assessment of teacher’s achievements but normally the appraisals are carried out not by the teachers themselves, but by the school head, the inspectorate or specially formed committees. Although these appraisers try to use appraisal tools objectively doubts are often raised specifically regarding this objectivity.

Portfolios, as a method of understanding and assessing teacher competence in professional practice are widely used in schools and universities. Adopted by many teacher training departments throughout Europe this method of assessment has gained a familiarity within the teaching profession. It is an essential evaluation tool for educators in a number of EU countries including the UK and The Netherlands.
If the teacher is viewed as a reflective practitioner, external evaluation of their achievements will not be adequate measures. Self-evaluation, using the reflections of a teacher on their work (among others) is more appropriate and will improve and strengthen of their self-esteem. If a teacher identifies areas in her/his professional work for improvement through self-evaluation, then she/he is highly motivated to set about making these improvements. Research results show that intrinsically motivated people achieve more and better than extrinsically motivated people.

The portfolio as a means of self-evaluation fits in the construct of “the reflective practitioner”. It takes seriously the fact that the teachers are responsible for their own work and achievements. The premise is that given feedback teachers will improve and develop further their own professional personality and competencies on the basis of their own reflections and assessments. Self-evaluation does not exclude feedback and assessments or appraisals coming from other persons, but it is a personal decision on how to use this data for the self-evaluation. However, consistency in the use of portfolios as an evaluative tool is yet to reach the same level as other methodologies. This project intends to help enhance the quality of portfolio assessment and by increasing its appeal and credibility increase its use through the EU so enabling greater mobility of recognised professional teachers.

**Historical Element: The use of portfolio among the EDIPED partner countries**

The following is an extract from the comparative study of the project and its content is based on information that was available in the years 2002-2003.

In **Austria**, portfolios are used only in pre-service education at the teacher training colleges as well as the universities and particular in the probation year after university. It is also important to note that after one-year experience mandatory introduction of portfolio was adopted during 1998/99 in the probation year of teacher training in Vorarlberg. In Austria, portfolio was partly used in probation year of teacher training. However, in no regions of Austria portfolio is used in a digital form. Despite the degree of use of the portfolio it is highlighted that the main purpose of using portfolio in Austria is suggesting self evaluation and self-reflection.

In **Cyprus**, teacher’s portfolio, in both primary and secondary education, is still dealt at an experimental stage, although pupils’ portfolio in secondary education is widely used since 2001.

In **Germany**, portfolios are only known as European language portfolios and are used only for pupils’ assessment. The only type of portfolio that is used for teachers is known as a personal file, which is not publicly accessible.

On the other hand, Portfolio assessment is appearing in the **Irish** educational system. For pre-service teachers (Primary), portfolios are used as Reflective Journals in some subject areas (Art and Crafts, Drama). For qualified teachers, though, portfolio is introduced only as a new assessment of pupils, which includes using a pupil portfolio combined with standardized tests as a means of assessing whole pupil development.
Nonetheless, portfolio is not widely used in post primary education, since only some Universities (i.e Cork) have introduced the portfolio (combined with other methods) in student teacher appraisal. St. Angela’s College, is another example that has introduced the teaching practice portfolio at pre-service level, as a means of appraising students (pilot scheme in it’s third year). According to the Professional Studies and Teaching Practice Programme the development of a Project Based Learning approach utilising Teaching Portfolios enables student-teachers to solve significant, conceptualised and real-world problems while being supported by resources, guidance and instruction from academic staff, fellow students and a range of educational professionals.

The Teaching Portfolio, as it is used in St. Angela’s College, builds upon the concept of the reflective practitioner by providing a framework, which

- enables students to develop a greater level of self-awareness about the nature and impact of their performance and affords opportunities for professional growth and development.
- acts as a self-assessment tool for development in theory or practice;
- highlights areas of interest that can be used to develop further learning;
- reflects upon and seeks solutions for real world problems;
- focuses the profiler’s attention on what actually happened, during the teaching/learning experience;
- enables reflection on the experience by preserving it in such a way that the profiler can return to it when further knowledge has been gained, which might help to interpret it more fully;
- enables the profiler, through reflective writing, to develop an archive which serves as an evolving database for gaining understanding and insights which inform and enrich professional judgement thus developing self-reliance in students;
- surfaces espoused theory and actual theory in a work-based context;
- recognises the importance of the practitioner as researcher and inquirer.

For pre-service teachers, though, portfolio is being introduced in Ireland as a mean to appraise their students in certain subject areas (Home Economics, Practical subjects). It should be mentioned that discussions are being held at present to investigate the use of Portfolios for the professional development/induction of new principals.

Nevertheless, portfolio (non-digital type) is used at pre-service level in Ireland, as an instrument for student teacher’s assessment, mainly because it provides the opportunity for reflection and self-evaluation, creates awareness and scope for professional development and provides a record of teaching experiences, successes and the progression of a teaching career.

In the UK, portfolio is the central mode of assessment and it is used for career development and for QTS assessment, mainly to show reflective practice and competence on standards.

The portfolio in Netherlands, is mainly used in teacher training. The use of a portfolio for tenured staff is still highly experimental and controversial. All teacher-training institutes use portfolios as part of the final-assessment after the teacher-training course, since it is believed that it is an instrument that promote self-directed learning, constructivist learning and it is able to prove that one is growing, and is willing to share the achieved knowledge. Therefore,
the assessment replaces several of the tests. However, mature holders of tertiary degrees are obliged to produce portfolios in order to be certified, in order to demonstrate the relation of the evidence with his/her competencies. The European language portfolio is also used broadly and it is most widely accepted in the primary and the vocational sector.

In Spain, portfolio is not used as a method of teacher assessment. Portfolio is not known by the greater part of teachers, in spite of the fact that there is some literature about it. However, the Educational Ministry has started the elaboration of a student teacher portfolio of Languages in July, 2001, which is now in the process for testing and revising. It is expected to be in use by 2004. The language portfolio has mainly three parts: linguistic passport (information about the skills referred to the European standards, Linguistic biography (reflection, analyses, self-evaluation and planning about the own learning process) and a Dossier (archive with pieces of evidence).

The use of portfolio beyond the EDIPED partner countries

The concept of portfolios has gained importance internationally over the last few years. With ever-increasing frequency, the professional portfolio is surfacing as a popular tool for documenting teacher preparation, in-service performance and professional development (Bradley 1997; Cooper 1997). Nevertheless, the bulk of the material concerning this alternative assessment tool origins from the United States. In addition, it should be noted that teachers’ portfolios are still mainly used in pre-service teacher education as part of teacher preparation programs, albeit it is expected that they will eventually acquire a bigger role in in-service education.

In the USA, teaching has begun to regain its lost status. According to Seldin (1995) pressure from diverse sources such as the Carnegie Foundation for the Advancement of Teaching, the American Association for Higher Education, state legislatures, faculty, and students have moved institutions to reconsider their commitment to teaching and exploring innovative ways to improve and reward it. A series of education studies during the 1980s encouraged the eventual use of professional portfolios. For example, the 1983 federal report “A Nation at Risk” stirred public concern about American education and called for increased teacher accountability and enhanced student learning. Another influential report, the 1986 Carnegie Corporation Report “A Nation Prepared: Teachers for the 21st Century” suggested a redefinition of the role of the teacher and defined the ideal teacher as “flexible, up-to-date, and able to lead children into deeper learning” (Martin, 1999, pp. 3-4).

Much of the concern about educational reform in the USA has found voice in the form of standards – requirements such as the Interstate New Teacher Assessment and Support Consortium (INTASC) standards, by which already several states are abiding and integrating into their Teacher Preparation Programs. The development or enhancement of a portfolio often accompanies these programs designed for pre-service educators (Martin p. 23). The 1998 winter issue of Teacher Education Quarterly featured studies on the use of portfolios in teacher education programs. In the editor’s preface, Jones (1998) states “portfolios have assumed a significant role in teacher education” (p.3). Darling-Hammond and Snyder (2000) also suggest that a growing number of pre-service teacher education programs such as programs at Alverno College at Milwaukee, WI, University of California at Berkeley, University of Virginia, etc, are using portfolios as a tool to support teacher learning (see pp. 523-6, 536-8).
For instance, educational institutions in Orange County, Florida have been experimenting with the portfolio process with success since 1993 (Dietz 1995). Another case of experimentation with the portfolio process is that of the University of Colorado at Denver, Colorado. The process began in 1994 when portfolios were incorporated as part of a professional seminar project for student teachers (Borko et al 1997). Lastly, experimentation with the portfolio process at the California State University took the form of a study of two different groups of student teachers in order to determine an effective method for portfolio construction (Stone 1998).

Portfolios, as alternative assessment tools, have been used in USA secondary education for some time and have also been implemented in few schools in the country (McLaughlin & Vogt 1996; Smyser 1994). Examples of such schools are the Mt. Edgecumbe High School in Sitka, Alaska, as well as schools of the Ithaca City School District, Ithaca, New York. However it should be mentioned that, from the review of the literature, it became obvious that the emphasis is placed almost exclusively on developing and/or enhancing students’ portfolios rather than teachers’. Regardless, more and more school officials are now requesting portfolios for educators as they find that “they provide important insight into a teacher’s individual talents and beliefs about education” (Jacobson, 1997, p.1).

According to Seldin (1997) the teacher’s portfolio has been used in Canada, where it is called a ‘teaching dossier’ (p. 2), for nearly twenty years, and he estimates that as many as 1,000 colleges and universities in the United States are now using or experimenting with portfolios; whereas in 1990 only ten universities were thought to be using such tools (pp. 2-3). Mura (in Seldin 1997) makes a detailed account of the “teaching portfolio momentum” at Susquehanna University, USA., which began in 1994 and gradually grew into a well-organized effort called “Teaching Cells”. Within the framework of this initiative, an institutional portfolio program was developed for all members of faculty at Susquehanna University (see pp. 32-36).

Van der Westhuizen and Smith (2000) report in their comparative study that the portfolio is emerging as a significant tool for professional development and assessment of competence in South Africa and Israel. According to the study, the teachers involved, from both countries, were familiar with portfolio as a learning and assessment tool used with students. However, they were unfamiliar with portfolios for educators, and it was evident from the interviews that the teachers’ portfolio was a new concept to them and that no official request for such a tool existed. In Israel, in particular, the teachers’ portfolio remains limited for use in pre-service teacher education as a requirement in specific courses, whereas the students’ portfolio is becoming an integrated part of teaching (Van der Westhuizen and Smith, 2000, p. 347).

Digital portfolios for educators are an innovation of the early 1990s and are still dealt with on a research level (Barrett 2001). At the University of Alaska Anchorage’s School of Education, Barrett trains educators on how to develop and make use of digital portfolios. In 1999 and 2000 the University of Alaska Anchorage received grants to restructure their teacher education programs and formed partnerships with K-12 (secondary) schools to develop and implement digital portfolios to support documentation of professional growth. Barrett has extended her action beyond the US and in October 2000 she developed the framework for a workshop in Singapore on digital portfolios, supported by the Singaporean Ministry of Education1.

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1 For more information see http://transition.alaska.edu/www/portfolios/singapore.html
Besides the University of Alaska Anchorage, other institutions such as the University of Vermont, the University of Texas at Austin and the Kalamazoo College have been experimenting with this assessment tool. The College of Education and Human Services of the University of Florida has also been active in the field and has been engaged in the development of digital portfolios through using cd-rom technology as part of a pilot project (Boulware et al 1997). Finally, digital portfolios in teacher education and secondary schools have been the focus of three conferences of the USA Society of Technology and Teacher Education (SITE), where at least 18 papers on this issue have been presented (Barrett 1998).

Overall, it becomes evident that the teacher’s portfolio is still limited to pre-service teacher education programs. On the other hand, the student’s portfolio is rapidly gaining ground and is becoming an essential part of the teaching process in secondary education, especially in the USA. With regard to the teacher’s portfolio for in-service educators, we find that it is a relatively new concept but one with potential for expansion.

**Content of portfolio**

To answer the question of what entries are to be included in a teacher’s portfolio, Van der Westhuizen and Smith (2000) conclude, after having conducted a comparative study in South Africa and Israel, “this is often a function of external factors, such as what is publicly rewarded and valued as good performance” (p.339). In the study, teachers were invited to indicate what items they would include in their portfolios and to report their reflections about what they see as evidence of professional growth. A comparative analysis drawn on interviews and portfolio entry data has indicated major differences of opinion related to external factors, such as facilities within the school, the degree of autonomy teachers have and the social-cultural context in which they teach. For example, teachers from Israel report that it is important for them to include in their portfolio evidence the leap they have taken into the age of technology, since computers are considered to be an integral part of the Israeli pupils’ life, at home as well as in school. On the other hand, teachers from Africa do not consider computer literacy as a first priority skill a teachers should have, since most of the schools involved in the study are still without electricity. It was clear from the study that what teachers choose to include in their portfolios could be expected to differ between groups of teachers. Moreover, Van der Westhuizen and Smith (2000) note that portfolio choices and reflections might also differ between individual teachers, thus justifying the view that portfolios are very personal. In this regard, Dzvimbo and Van der Westhuizewn (1997) expand on the idea of authenticity and support that teachers are true to themselves in authentic situations and develop a sense of control and identity.

A similar view is shared by Seldin (1997) who notes, “because portfolio is a highly personalized product, no two are exactly alike” (p.4). Seldin (1999) concludes that the items chosen for the teacher’s portfolio depend on the teaching style of the teacher, the purpose of the portfolio and any further requirements of the individual school and, therefore, it is expected that individual differences in portfolio content and organization should be encouraged among teachers.

Based on evidence provided from the literature (Wolf, 1991; Seldin, 1999; Van der Westhuizen & Smith, 2000; Darling-Hammond and Snyder, 2000), certain items clearly turn up in portfolios with much more frequency than others, falling into the following categories:
EVIDENCE FROM ONESELF

This category presents all selected information on teaching responsibilities and activities, along with solid evidence of their effectiveness, as well as any further information about the personality of the teacher, inside and outside the school:

Documents that derive directly from teaching

- A reflective statement by the teachers, describing his/her personal teaching philosophy, strategies, objectives, and methodologies
- Copies of lesson or unit plans
- Handouts given to students
- Assignments
- Photographs, videotapes, or audiotapes of classroom activities
- Instructional innovations and assessment of their effectiveness
- Worksheets, lesson plans and examples of long-term planning
- Document of the didactical skills of teachers.

Documents that require additional analysis on the part of the teacher

- Teacher journals
- Detailed descriptions of analyses of lessons
- Reflection on the outcomes of teaching activities
- A videotape of the teacher teaching a typical class
- A combination of a teacher’s own work
- Video and audio recordings of lessons in the portfolio
- Self-evaluation of teaching-related activities
- Reflections on the contents of the portfolio that describe what each entry represents and why it is included, what the teacher learned from the experience about teaching and learning, and why that is important (personal meaning of learning).

Documents about teacher’s personality

- Knowledge of teacher’s subject matter
- A reflective statement by the teacher, describing his/her personal teaching philosophy, strategies, objectives, and methodologies
- Participation in programs on sharpening instructional skill
- Participation in out-of-school activities
- Hard evidence in form of certificates from teacher education, pre- and in-service.

EVIDENCE FROM OTHERS

The other common finding across the literature is the emphasis on documents that derive from the evaluations of others. Candidates assemble a body of evidence to demonstrate what other people have to say about their teaching competence across different areas, such as:

- Tests and samples of student work (with or without teacher feedback)
- Feedback from others
- References to working with peers
- Notes from others and the sharing of ideas with colleagues
- Official reports from inspectors and letters of recommendations
- Notes by an observer of teaching, peer or administrator recommendations, student evaluations.

**Beneficiaries of the European Digital Portfolio for Educators**

The beneficiaries from this development are divided into three target groups.

**Target group 1: Teachers/Teacher trainers/Teacher trainees**

EDIPED allows the individual non-gender biased, reliable and valid self-evaluation tailored to the individual needs, comprehensive career planning, enhancement of their technological skills, facilitation of mobility and self-motivation by raising self-esteem.

**Target group 2: Educational administrators/Inspectors**

In addition to the above listed impacts this target group will become better appraisers, will offer a good model for teacher’s and other educator’s self-evaluation, raise the quality of their decision-making processes, improve their own quality assurance and gain an adaptable managerial tool.

**Target group 3: Educational Psychologists/Counsellors**

Nowadays, educational establishments involve educational psychologists and counsellors and therefore EDIPED has to provide for these educators as they play a very important role in the educational development of all types of pupils and students.

**The Software**

It is a software available on-line or a stand alone version. The structure is design on order to allow all possible work of an educator to be inserted in the Digital Portfolio in either private or public state. The main horizontal structure of the portfolio is divided into: General, Mission, Competencies, Feedback, Reflections and the choice of working languages. The Digital Portfolio menus support five languages such as: English, Greek, Spanish, German and Dutch. Basically, one may use the English menus and insert any European language in the structure of the portfolio without a problem. The vertical structure of the Portfolio is divided into 50 titles, allowing also in some cases the option of “other” for special cases or unpredicted factors. A sample completed portfolio can be viewed at [www.ediped.com](http://www.ediped.com).

**Output of EDIPED project**

The “Digital Portfolio” is an information system and a wizard that enables educators to collect, store, organize, manage, retrieve, and disseminate digital content representing their scientific background, scholarly work, professional experience, educational activity and achievements, coursework, student evaluations, references, etc. In particular, the Digital Portfolio organizes information such as:

- general information, curriculum vitae
- competencies/skills/qualifications
- publications/materials/lesson plans
- in-service courses/conferences
- self-reflection report (understanding him/herself, realizing weaknesses and strengths)
- personal development programme (setting goals and reaching them through self-monitoring)
• contacts and links(internet version-educational reference/library system, personal reference support)

Besides its information storage functionality, the Digital Portfolio system provides an advanced interactive and “intelligent” interface to facilitate the interaction with educators. To this end, the system is wrapped with an intelligent wizard providing continuous, adaptive user-support and guidance.

The Digital Portfolio has been tested through three European training courses of one week each and two more will run in 2007. Through the course evaluations of the three courses it is supported that the EDIPED software is friendly use software and has contributed to encourage the educators to self-reflect and organize their professional work. Educators who had almost no computer literacy were able to complete a good part and to manage their digital portfolio within 4 days.

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*The partnership*


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**Netherlands**
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E-PORTFOLIOS: REFLECTION, COLLABORATION AND SUSTAINABILITY IN EARLY TEACHER EDUCATION

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Introduction and Background

In this paper we examine how e-portfolios supported reflection and collaboration in the professional development of former Post Graduate Certificate in Education (PGCE) student teachers, during their first (Induction) year of teaching. The paper discusses how, having articulated their professional competence prior to qualification, they identified appropriate professional development pathways and continued to use the e-portfolio to maintain their progress. The support roles of their Induction tutors in their employing schools are also examined to determine how the e-portfolio was used to help identify specific needs and how those tutors provided appropriate support. The paper discusses how the relationships between students, teachers in schools, support personnel and tutors on courses of Initial Teacher Education (ITE) need to be better managed and integrated if they are to realise the full potential offered by a new climate of technology-enhanced professional development. It then outlines the implications for sustainability beyond the Initial year of teaching.

The arrival of e-portfolios has brought a new impetus to the debate on how professional development should be managed and promoted. Their ability to allow new forms of information to be presented to new audiences in new ways means that all involved in teacher development need to re-engage in the debate about the way teaching competence is demonstrated and presented. Opportunities afforded by the technical functionality of e-portfolios are likely to refocus old debates on how the “e” changes the portfolio landscape. A key question in the emerging debate is whether accounts of professional development that had been told when learners presented paper-based portfolios, can now be told more effectively, to a wider audience with clearer and better results. The traditional debate on the use of portfolios has been on educational purpose (Meyer and Tusin, 1999) the embedding of reflection (Borko et al., 1997) and the demonstration of evidence (Klenowski, 2000), or any combination of these three interests. Any new thinking on e-portfolios should augment the best of traditional practice with what new technology has to offer. However, consensus on the purpose, application, and hence definition of traditional portfolios has been elusive (Harrington, 1992; Barton and Collins, 1993; Hatton and Smith, 1995; Korthagen and Wubbels, 1995; Mokhtari, et al. 1996; Convery, 1998; Richardson, 1998; Meyer and Tusin, 1999; Klenowski, 2000). Indeed, where their use is established there is a danger that embedded practices may inhibit new opportunities (Borko et al., 1997, Ball et al., 2000). Similarly, with e-portfolios, definitions can be dangerously misleading. For example, metaphors for e-portfolios (http://electronicportfolios.com/metaphors.html) can provide an informative set of pictures and help clarify their purpose but distract from the complexity of learning and dialogue needed to support teachers in their learning. For teachers, the construction of an e-portfolio should mark the beginning of a process of dialogue that eventually leads to clear and purposeful professional directions. It is primarily with the concept of a professional community in mind that our working definition of an e-portfolio is as follows; “A teacher e-portfolio is evidence of competence development that has been collected, synthesized and selected for presentation to a professional audience for a specific purpose.” This view acknowledges that while the e-portfolio debate may focus initially on individual learning, progression and development, its role in promoting a sharing community is growing in importance (QAA, 2001: 5; Downes, 2004; Barrett, 2004; DfES, 2005: 10; Lorenzo and Litleson, 2005: 5; Grant, 2005). For teacher development, the ability of an e-portfolio to support collaboration and discussion over a sustained period for professional growth will have many benefits beyond the simple articulation of attainment. Rather, it will help give it direction, purpose and application.

Common themes in e-portfolio research tend to focus on either their content or the process by which it is generated and compiled. Ash (2000: 3), describes an e-portfolio in terms of content; “…a collection or display of artefacts that has been gathered systematically to demonstrate one’s skill level,”&]
growth over time ...”. Her emphasis on accumulated evidence is similar to that of Cambridge (2005) who describes it as a ‘digital compilation’ and Lorenzo and Ittleson’s (2005) “digitised collection of artefacts”. These suggest that outcomes, and their presentation dominate e-portfolio design, as audiences may be interested in content rather than the process of, for example, reflection by which that content has been selected and presented. Both the European Institute for E-Learning (ElieL, 2005) and the prominent American promoter of e-portfolios, EDUCAUSE (EDUCAUSE, 2006), focus strongly on demonstrating and presenting outcomes from learning activities. There is, of course a clear rational for presenting outcomes in the form of achievement, evidence of attainment and experience, particularly if the potential of multimedia to store and retrieve different forms of evidence is means a more divergent profile of attainment can be presented. However, McGrath et al. (2005) quoting Downes (2004) warns against the use of technology to simply present in multimedia format, what was previously presented on paper, and to use hypertext simply to manage information; “If your view of portfolios is just something akin to a content management system, don’t bother. But if it’s the student’s personal and continuing presence in an online community of discourse, then you are on to something.” This view has two striking features that are enabled by technology; content management and community. Content management refers to the ability of a database or Information Technology (IT) system to store, search, retrieve and present multiple information formats at any time and place. ‘Community’ in the new era of e-portfolios may include those who share an interest in its content but who may not be in geographical proximity or be viewing that information simultaneously. Downes’ (ibid.) warning urges us to harness this IT power to form communities in which knowledge is socially constructed through shared information and dialogue, and which leads to consensus. This sentiment is echoed by Lorenzo and Ittleson (2005) who promote the outcomes of compilation as being important but also cite them as valuable tools for “encouraging reflection, exchange of ideas and feedback”. Any understanding of what e-portfolios are should therefore build on the effective use of traditional portfolios but also incorporate the tools that e-portfolios can bring to teaching, learning and professional development. The unchartered ground between where our understanding of traditional portfolios ends, and where we would like e-portfolios to take us, is likely to form the area of research for the foreseeable future. Therefore, two strands to an e-portfolio emerge, that of how the individual constructs and presents an account of learning and how that account is shared and conceptualised within a community. The sequence is essentially a process of sharing dialogue in which concepts learned may be continuously re-assessed for their validity, accuracy and currency. This cycle of personal development is illustrated in Figure 1 below. Thus, reflection becomes a community-driven activity. In this paper, the process of dialogue has been initiated through an e-portfolio in which the application of the teaching concepts to the classroom have been recorded and presented to others. There are then two stages to its development and use. Individuals need to construct the content of their e-portfolio, based on their personal history, their achievements and potential for future learning and development. Second, that information needs to be shared so that its value may be assessed.
The Northern Ireland Context

The Northern Ireland Education Technology (ET) Strategy, launched in 1997, embedded the use of ICT in all schools and laid the foundation for the more ambitious ‘emPowering schools’ strategy, launched in January 2004 (DE, 2004). The new strategy capitalises on broadband connectivity for all schools (Anderson and Stewart, 2005: 90), the use of Virtual Learning Environments (VLEs) and New Opportunities Fund (NOF) training for all 23,000 teachers, completed in March 2003 (DE, 2004). EmPowering schools also provided a framework within which “e-confident teachers” could evaluate “...the impact of the use of online environments on the organisation of teaching and the provision of professional development” (ibid.; 22). This initiative ushered in the expectation that professional development can be resourced and supported by collaborative online communities of practice through activities that can be recorded, promoted and evaluated using e-portfolios. Continuously improving ICT practices in schools mean that professional support dialogue with student teachers can focus more on effective teaching and learning and on reflections about that teaching, than on the technology. The now ubiquitous use of ICT means that an emerging data-rich personal history can be summarized in ways that allow both the user and support personnel to identify salient professional development issues, to articulate the potential impact of those issues on teacher progression, and to plot pathways for future development and growth. Thus, the new expectations bring with them the challenge to Higher Education Institutions (HEIs), schools and teaching support personnel to provide a coherent and progressive support regime for teachers in their training and early years. A key question for this paper is whether the e-portfolio that we piloted did provide support for such coherence, and what challenges emerged that would assist us in plotting future directions for policy and practice in the use of e-portfolios in Northern Ireland.

For this pilot study, 36 of the 125 students on a PGCE Post-primary course (10 Art and Design, 15 Geography, and 11 Technology and Design students) developed e-portfolios with the aim of articulating their professional competence in the use of ICT in their teaching during the academic year 2002-2003. The cohorts were selected on the basis of the willingness of the HEI tutors and students to become involved in the pilot, with its additional requirements for evaluative data. The opportunity to use e-portfolios arose from the requirement to provide evidence of competence in the use of ICT in their teaching. Evidence consisted of selected examples of teaching and learning, pupils’ work and the students’ own recorded reflections. A typical layout is shown in Figure 2 below. The evidence required for other areas of competence such as classroom management, planning, teaching etc., was presented in traditional paper-based records of teaching, records of online and face-to-face dialogue with peers, tutors and teachers, and a summary statement provided in the mandatory Career Entry Profile, which provides the basis for support at Induction. The requirement to build an ICT e-portfolio has now been built into the course structure for all 125 students. The e-portfolios were designed to reflect both the requirements set out by the ET Strategy (DENI 1997) and the list of competences that were mandatory at the time. The process of e-portfolio construction, however, was designed to strengthen the reflective nature of the course and the need for students to engage in professional dialogue with peers, tutors, teachers and others.
This paper reports on the how the former PGCE students used their e-portfolios after six months of employment in schools. Six months was the optimum time to allow the newly qualified teachers to establish themselves, and to be able to reflect on their experiences with some meaning and hindsight. They were interviewed to probe whether their e-portfolio had been further used in their professional development and if it had, did it support dialogue in their school. Another important issue was to determine if the trajectories they had established in their initial year had been sustained through Induction. If the e-portfolio had not been used or had been underused, it was important to identify the barriers to dialogue and to determine what professional development strategies were needed to reverse this trend. Six of their teacher tutors in schools were also interviewed to ascertain how they viewed the newly appointed teachers’ use of ICT to support learning and teaching, and whether the e-portfolio had been a source of professional advancement. It was important therefore to identify the elements of sustainability so that those in ITE could more effectively provide students with the type of e-portfolio that would sustain their professional growth through the early years of their teaching.

Summary of Results

The first issue to arise from the data is a summary description of the process of compiling and using the e-portfolio. There were small variations in when, and in what order students built their e-portfolio and small variations in the competences they focused on. Taking account of these variations, we have developed an illustration of the general process of integrating the e-portfolio with the teaching (shown in Figure 3 below). The main characteristics of the compilation process were, therefore, common to all students. The first stage (starting at the bottom of the diagram) in e-portfolio construction is no different than that for traditional portfolios. As the participants engaged in work-based activity they reflected on those activities and identified emerging issues, themes and challenges. For student teachers, this is a well-established method of encouraging reflection. During and following their normal teaching activities, this ongoing reflection guided the selection of evidence of competence. As part of the study, students were given freedom to select evidence mainly on the basis of issues important to them; importance being derived from their interactions with the classes they taught, issues that were priorities for the school, and those issues that were part of the competence framework for all Northern Ireland teachers (NICLR 1999). In some cases, selection was undertaken in consultation with teachers and tutors. But for most students, it was a case of encouraging them to draw from discussions, issues, themes or challenges and build a body of evidence to support their claims for professional development. Informal discussion at this stage tended to be incidental, contemporaneous,
often short and mainly just before or after teaching. In contrast, synthesis (in all cases, a matter of personal choice) took place away from the classroom and was reflective and summative in nature as it often drew on one or more discussions. Another factor in making synthesis more formal was the requirement for students to justify the choice of evidence for the competence to which they referred. This requirement was outlined early in the year and was firmly embedded in all their teaching and learning activities. It was thought that this requirement would minimize the risk of ‘cherry picking’ evidence, a practice that might have ended in an inaccurate picture of professional development being presented and also avoided the risk of plagiarism, as students had to show how the evidence had arisen from their teaching. Once evidence and comment had been entered into the e-portfolio, students had a firm basis for engaging in professional dialogue with peers, tutors and teachers about their future development. Finally, students were expected to record, formalize and communicate these intentions.

The e-portfolio, during the process of complication, therefore, fostered development through the dialogue between the aspiring or beginning teacher and more experienced colleagues. We believe that this process itself also allows progressively clearer targeting of needs. Elsewhere, (McNair and Marshall, 2006) we have shown that participants reported increased confidence as a result of reflecting, compiling and reviewing their ICT-based teaching styles. The question we ask in this paper relates to how this confidence is can support the sustainability in its use, particularly as a catalyst for professional dialogue.

**Figure 3: A process of reflection and e-portfolio compilation**

The confidence gained by compiling an e-portfolio can have two sources. The first is the use of the e-portfolio as a product on which to base planning and the selection of teaching strategies, as one former geography student commented; “...it is good to have it all on disk and bring the information if and when you need it, it’s like having your own teaching file.” Viewing the e-portfolio as a teaching resource in this way can promote sustainability as those teaching actions that were the subject of reflection in their initial year and where successful, are more likely to be repeated or used as a basis for structuring new teaching tasks. For example, one technology and design student had constructed a short game to introduce mechanisms, and which had been presented as evidence of differentiated teaching. This game and its resources (lesson plans, worksheets and an introductory PowerPoint presentation) were then used in her Induction year. Planning choices were also based on e-portfolio evidence (such as parts of lessons, teaching strategies and resources) and therefore supported those competences that had been the focus of development. The main factor reported in using these examples was that they were, to use the former student’s words; “tried and tested”. Thus, embedding meant using resources that were trusted by the former students, removing the uncertainty they may have experienced at the start of their teaching career. One HEI tutor supported this view. When interviewed she noted that the student had developed; “...very well thought-out applications of ICT....” and another teacher tutor indicated that; “the beginning teacher knew enough to go beyond

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simple use of ICT but to integrate it into pupil learning.” While the value of the e-portfolio as a teaching resource was not the original intention of the project, this aspect suggests that developing a history of successful teaching and learning culminating in a bank of resources, is an important part of the professional learning cycle. None of the participants interviewed suggested that there were serious challenges in adapting the e-portfolio to the new context (all former students found employment in different schools from their PGCE placement). Sustainability may therefore be related to previous success and its potential for reduced anxiety. Clearly, the convenience of having work already completed is an attraction. However, we will argue below that this is only the start of a sustainable e-portfolio and suggest that a resource bank limits sustainability.

The second aspect of confidence related to the application and use of skills; “... when it comes to teaching a topic, you have the resources you need to recap on how it is done.” (our emphasis). In this case, the comment suggests that previous experiences were seen as a set of skills that could be transferred to the new context by re-examining and reinterpreting the e-portfolio contents. Other participants built on their confidence by engaging with teachers about their skills. For example, when seeking to validate their competence to more experienced colleagues; “Putting all of your skills, not just from the PGCE, into one file to prove [to yourself and others] you are ICT competent”. These comments suggest two stages in developing dialogue, namely, re-establishing and verifying competence to self, then communicating that competence to others. E-portfolio sustainability may need to be considered on these two levels of self and community. While it is possible that each could be used separately, the role of the e-portfolio in reflection and sharing that we have outlined in Figures 1 and 3 above, suggest that the use of content alone will soon render the e-portfolio redundant while the latter on its own will lead to increasingly marginalized dialogue, an issue we will return to in the discussion below.

It was also important to examine if beginning teachers’ induction experiences influenced their use of the e-portfolio. In our sample, the beginning teachers reported both positive and negative Induction experiences which, respectively, were seen as supports for and barriers to transition. Because the focus of this pilot was on the application of ICT in teaching, in some cases, the e-portfolio was used to demonstrate expertise the school could use, putting the beginning teacher at the forefront of developments. While this is not an uncommon finding (McNair & Galanouli, 2002, p. 193), our focus suggests that when dialogue between new and experienced teachers centred on the beginning teachers as “experts”, roles were reversed. An example of this was shown when one former geography student stated that the e-portfolio was; “...being used in the geography department...”. While this may indicate a possible emphasis on content rather than on any process of professional development, it nonetheless indicates a form of sustainability by adoption of practice into departmental policy. Other participants reported more strategic adoption; “…the Head [master] asked to see the [e-portfolio] work …and asked me to become involved in the whole school’s e-learning program.” For the most part, however, the use of the e-portfolio was intended for and applied to dialogue between the individual and one or more mentoring teachers; “I have been developing my e-portfolio as part of my induction... The actual practice of putting together the ePortfolio made me push myself further than I would have...” This aspect of the benefit of the portfolio was also highlighted by her teacher tutor who noted that; ‘[the beginning teacher] was very good at augmenting ICT into her teaching”. Other sustainability factors were seen through the comments of other experienced teachers; “I have shown [the e-portfolio] to my fellow teachers and my teacher tutor, they think it is a good idea to have a record of all that you know and can do in relation to ICT.” This comment again demonstrates how the e-portfolio can create dialogue beyond the department in question. Where there was a lack of professional dialogue with teachers, there was also limited sustainability, which, in turn, led to limitations on the development of teaching competence. There were, of course understandable reasons for this lack of dialogue, including workload, timetabling issues and, in some cases, the geography of the employing school. In these cases, students were more professionally isolated than those peers who had opportunities to use the e-portfolio, as the following comments indicate;

“I feel that if the schools [examined] it more they would realize that it is an untapped resource, that would be useful for the whole school, teachers and pupils.”

“[e-portfolios] will become more relevant when the schools learn how to use them properly.”
"I will discuss [the ICT e-portfolio] when I get established."

"I felt that the whole experience was new for everyone including the staff."

**Discussion**

In this paper we have linked sustainability to the **process** of compiling evidence of teaching competence and to the **evidence** as a product itself. We have discussed the personal potential for e-portfolios to be at the centre of the transition from their training year to their first year of teaching as it provides the basis for planning and resourcing teaching. In this sense the e-portfolio was used pragmatically. We have also explored the notion of professional dialogue and its importance in enabling the beginning teacher to plot his/her professional pathways. This we have called strategic application. For both strategic and pragmatic application the conditions for sustainability are focused on developing a history of competence and using it as needs arise. However, effective use of the e-portfolio is outlined in Figure 4 below, which illustrates our belief that while strategic and pragmatic applications are important, it is only when both are included that effective professional development ensues. It follows then that sustainability is more likely when the e-portfolio has broader professional currency. Whether students used the e-portfolio strategically (engaging in developmental dialogue with teachers), or pragmatically (using the e-portfolio to support personal development) we argue that both are required if the e-portfolio is to have sustainability beyond those lessons that are likely to draw on the e-portfolio as a resource.

![Pragmatic Application vs Strategic Application](image)

**Figure 4: Strategic and Pragmatic use of e-portfolios (McNair and Marshall, 2006)**

The study found that there was more widespread use of the e-portfolio as a practical recourse than as a catalyst for discussion. While each is important and has its place in the development of beginning teachers, there is a danger that once the practical application has been used, the e-portfolio will begin to loose its currency as the early years of teaching are likely to be resource-hungry. Teachers in this situation will, of course benefit from the start such a resource can provide but may, as the new demands of their increased teaching loads consume resources, need more tried-and-tested examples of work than the e-portfolio can provide. Conversely, where professional dialogue was developed, this tended to establish good working relationships with experienced teachers and fostered an understanding of the direction the beginning teacher should take in terms of professional development. The study did not investigate e-portfolio use beyond the six-months of employment in schools so it is possible that once dialogue had been established, the e-portfolio became redundant. For sustainability beyond the period of our research, there needs to be profession-wide commitment to the application of an e-portfolio beyond the Initial year of teaching and used as a basis for a continuing relationship. Sustainability is therefore bound up with collegiality, dialogue and professional interaction. This view has important implications for all concerned with supporting teachers. Primarily, there needs to be a move to understand the how evidence contained in an e-portfolio should be used to support development. Data presented in this paper suggest that while many students and beginning teachers will have their own pragmatic needs as an understandable priority; sustainability is about establishing principles of interaction with experienced teachers. Such principles need to have the unified understanding of those responsible for new teachers on each side of the Induction divide. At the time
of writing, there is a common approach to the reflective cycle outlined in Figure 1 above but there is little evidence of the application of that cycle in the development and construction of a range of evidence as suggested in Figure 3. We believe that the process we have outlined provides a basis for more intensive and focused collaboration between the Initial and Induction phases of teacher education and it promotes a common approach to the use of multimedia-based evidence of teaching competence. Furthermore, while the e-portfolio was used within the school, comment from peers and experts beyond the school is now a real possibility. No longer, therefore, should professional support be seen as taking place within the school, HEI or other location. Rather, we all need to recognize that students and beginning teachers now have access to a broader constituency of support.

While the many challenges to the implementation of e-portfolios in Northern Ireland include the procurement of appropriate technologies, the skills needed to work in a new multimedia environment and issues surrounding interoperability of systems, the pressing need is that of a common understanding of how to build habits of engaging in dialogue and using the process of compilation itself as a means of development and interaction. The body of literature relating to e-portfolios has developed sufficiently to allow us to understand that the “e” can distract from the main issue, that of integrating professional communities through a commonly understood process of generating, presenting and evaluating evidence of professional growth.

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How can ePortfolios contribute to academic development of students?

**Theme:** Learning and learners  
**Issue:** Learning models  
**Mode of presentation:** Work in progress with 15 minute presentation

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**Background**  
Since the implementation of the Bachelor-Master structure, there is a growing need to stimulate critical reflective thinking in order to distinguish academic programs from professional - oriented bachelor and master programs. Portfolios in universities are considered as a suitable way to structure and support these reflective thinking processes.

First pilots with the use of ePortfolios for academic growth show that the added pedagogical value of portfolios is not always optimized. The purpose and educational benefit has to be clear in order to motivate students to use their portfolio.

**Research objectives**  
Since May 2006 (- May 2007) a small research project is subsidized by SURF\(^1\) in which the central question is: "**in which ways can academic development of students be stimulated by ePortfolios in traditional curricula**".

Research questions of the project are:
1. What are the objectives of academic development? (professional, intellectual, research)  
2. What is seen as evidence of academic growth? (standards)  
3. Which student outcomes/learning objectives are reached?  
4. Which elements/features of the learning environment enhance the outcomes?  
5. What is the added value of ePortfolio to the outcomes?

**Method**  
A generic framework for academic goals and appropriate didactics will be discussed by a review group of experts in academic development and ePortfolio. This will result in a list of goals and requirements for the learning environment in which the portfolio is used. Examples of criteria are: consistency of the learning environment (between learning objective, learning activity, task, guidance and feedback), explicit learning paths which are well communicated to the students.

A questionnaire will be constructed and distributed in September 2006 among portfolio users and policy makers of 7 academic universities in the Netherlands. The aim of the questionnaire is to address the above research questions on the basis of the developed framework. Based on the results, several examples of good practice on portfolio usage from these universities will be selected. The different parties involved will be interviewed in order to get better insight in crucial factors for success.

**Presentation of results**  
At the conference the first results will be presented and an overview will be given of ePortfolio practice at the Vrije Universiteit Amsterdam.

\(^1\) SURF is the higher education and research partnership organisation in the Netherlands for network services and information and communications technology (ICT).
“IS ANYBODY OUT THERE?” DEVELOPING THE SKILLS FOR LIFELONG LEARNING: TOWARDS A MODEL OF ENGAGEMENT IN THE E-PORTFOLIO PROCESS.

Christopher Murray, The University of Leeds

Introduction

Sections of the academic world declare that the use of e-portfolios has “a potential to alter education at its very core.” (Batson, 2003) There are claims that e-portfolio use promotes learner-centred development, enables the reflective process and supports lifelong and, the newer notion of, life-wide learning. But do the users and potential users of e-portfolios feel the same?

Recent papers reports and presentations on user engagement (Tosh et al, 2005; Epistle project report 2006; Murray 2006) have attempted to analyse and delineate these factors and there are common themes which emerge through all of this research: Relevance, Technology, Organisational Culture/Support. These issues fall into the categories of internal and external factors and impact not only on initial use of the use of the e-portfolio but also on the ‘type’ of usage experienced by the learner.

This paper will attempt to build on this research ask and answer the following questions: What makes an individual delve in to the learning world of e-portfolios? Which environments and individual learner traits support engagement? What type of engagement is needed and are there factors which affect the ‘type’ of engagement experienced? It will also attempt to revise and expand an earlier model of learner engagement in the e-portfolio process (Figure 1)

![Figure 1: Model of E-portfolio Engagement (Murray, 2006)](image)

The revised model of engagement adds in to the equation the type of engagement as the main focus not the stage of engagement as illustrated above. Ultimately it is individuals who populate the use of the e-portfolios. Individuals with different needs and ingrained approaches to their own learning.
The Enhancing Learner Progression Project (ELP)

The ELP project is a partnership project involving the University of Bradford, The University of Leeds and Leeds Metropolitan University. The project commenced in July 2005 and will finish in Dec 2006.

The main purpose of the Leeds project is to explore the use of e-portfolios at key transition phases; From College/6th Form to university and from university to work. To pilot the project 3 broad cohorts of students/trainees were selected: Students from local colleges and 6th forms who wished to apply to university to study healthcare courses or medicine; post and undergraduate nurses undertaking clinical placements and a group of newly graduated medical students embarking on their first position as Pre-Registration House Officers (PRHOs) and undertaking the newly developed two-year ‘NHS Foundation Years Training for Doctors’.

Initially the project planned to (ELP Project Report 2005):

- Enhance the capacity building of individuals and groups through the effective use of technology to assist learners to access, piece together and manage their learning in a range of institutional, informal and work-based settings.
- Facilitate wider participation in HE through raising aspirations and attainment by providing learners with:
  - a more seamless learning experience,
  - better learning tools,
  - easier access to personal learning planning and portfolios.
- Support and develop staff by providing guidance on how to mentor and guide students using these e-Learning systems and resources.
- Share materials and resources common to Compact Schemes, including study/learning skills and mentoring.
- Engender a sense of students belonging to a wider community of learners and promote greater interaction amongst learners at different partner institutions.
- Support greater communication, collaboration and information interchange across the consortium.
- Implement e-portfolios – personal development planning, recording of achievement, tutor, peer and self-assessment tools to support progression from higher education into work.
- Provide electronic evidence of achievement that can raise aspirations
- Facilitate student progression into work by enhancing the student experience in work based placements
- Support and develop work based teaching staff by providing guidance and training on e-portfolio systems.
- Establish good practice guidelines in e-support of students prior to entry and after graduation – in particular access to content and services.

The three strands operated in 3 different environments Further Education, Higher Education and the work place.

Purpose of The E-Portfolios

All of the e-portfolios were created within the University of Leeds Bodington VLE system. The system allows learners to create entries, upload files and determine who they would like to share their work and entries with. The students can access the e-portfolio directly from a hyperlink and have all been assigned usernames and passwords. All learners were introduced to the e-portfolio system and how to use it, in addition they were provided with a users manual, access to a website with instruction on use and given both telephone and e-mail details of staff who could offer assistance if they experienced problems. All of the e-portfolios are developmental and are for learning purposes.
PRHOs

The impetus for the inception of the Foundation Year e-portfolio arose from the nationwide ‘Modernising NHS’ agenda. Previously the training of PRHOs was conducted on a local basis with each local deanery setting guidelines and outcomes. These local arrangements were replaced in July 2005 with a nationwide portfolio approach through the publication of the ‘Foundation Years Curriculum for PRHOs’. Each PRHO would spend blocks of time in different departments and be assigned an educational supervisor who would oversee each placement, providing feedback on assessments and progress. Using this feedback each PRHO was required to formulation regular personal development plans highlighting their own training needs and discuss any areas for improvement. The portfolio also required PRHOs to reflect on their experiences and learning and share these, if they wished, with their supervisor. The practical assessments themselves took place on wards and in discussions with clinical and educational supervisors.

The paper-based version of the portfolio was converted into an e-version in conjunction with a manager at the hospital. Assessments would be scanned into the e-portfolio and the formation of PDPs, self assessments, reflective comments and provision of feedback would be provided within the main body of the e-portfolio tool. In order to continue on to the second phase of their training PRHOs will need to have completed a required number of assessments and have successfully signed off various compulsory forms such as ‘Personal Development Plan’, ‘Initial Learning Agreement’ and ‘End of Placement Review’. There were also voluntary sections of the portfolio which are not required to move on to the next stage of the process but which were designed to facilitate learning these included ‘Careers Management’, End of Placement Self Evaluation’ and ‘Mid-point Review’.

The e-portfolio was launched to 33 PRHOs through a presentation in July 2005 and through an additional training session in Oct 2005. Additionally 33 educational supervisor accounts were created. No training was provided for the supervisors due to their workload and commitments. It was assumed by hospital staff that the supervisors would intuitively be able to use the e-portfolio.

Nurses

The School of Healthcare was attracted to the use of e-portfolios as a means to communicate remotely with students whilst they were on clinical placements. As part of their training requirements students were required to complete a ‘Practice Evidence Record’ which enabled them to illustrate learning on placement. This was shared with their clinical supervisor on the ward and with their tutors when they returned to university. The e-portfolio enabled this feedback to be provided by all of these parties whilst the student was still on placement and speeded up the provision of development as students were able to implement any necessary changes whilst still actively on placement. The e-portfolio also provided students with the facility to reflect on their experiences and learning and cross reference their learning and evidence with the required learning outcomes.

Fifteen nurses attended an introductory session in June 2005 7 agreed to use the e-portfolio. A second cohort of students attended an introductory session in Oct 2005, 23 signed up to use the e-portfolio.

FE/6th Forms

Widening participation to Higher Education is a major cornerstone of the governments economic and inclusion agenda. Medicine and healthcare courses are traditionally extremely competitive areas and approximately 1 in 10 people who apply to these courses will be successful (Heap, 2006). Medicine in particular is heavily composed of individuals from families with professional and managerial backgrounds (UCAS, 2006) An on-line careers education programme was developed within the e-portfolio tool containing exercises designed to raise awareness of these careers, the types of skills the students would be expected to demonstrate and develop, formulating applications and a personal statement to apply to university, putting together a back-up plan and preparing for a university interview. Each student receives feedback on their entries from the project officer and an undergraduate medical student.

Not only is the use of the e-portfolio designed to improve students chances of gaining a place on their chosen course, it is also designed to introduce them to critical reflection and the use of an e-portfolio, both of which are used on medical and healthcare courses and in post-graduate training.
The pilot was launched with 4 colleges in July 2005 with a total of 49 e-portfolio logs being created. A second cohort of students from 2 colleges and 3 sixth forms was identified between February and May 2006.

The numbers involved and the nature of their e-portfolio is listed below in table 1 below:

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Type of Learner</th>
<th>Assessed/Voluntary</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Yorkshire NHS Deanery</td>
<td>PRHO</td>
<td>Contains a record of assessments. E-portfolio must be verified before trainee can move onto Yr2.</td>
<td>33 (trainees) 33 (Educational Supervisors)</td>
</tr>
<tr>
<td>Large inner-city hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Leeds School of Healthcare</td>
<td>Under and Post graduate nurses</td>
<td>Voluntary use of e-portfolio but work assessed</td>
<td>7 (June 2005) (first cohort) 23 (October 2006) (second cohort) 4 (Nursing Supervisors)</td>
</tr>
</tbody>
</table>

Table 1: Breakdown of ELP Project participants.

Methodology

Qualitative evaluation of the project has taken place at various points throughout the pilot through a combination of online questionnaires, focus groups and interviews. Quantitative data has also been collected by analysing user patterns from e-portfolio management reports.

Data was collected through the use of a questionnaire at different stages of the e-portfolio pilot.

Formative evaluation focusing on the use of the e-portfolio, the technology, training and perceived benefits of using the tool has taken place with the PRHOs (n=33), Nurses (n=7), Nursing Supervisors (n=4), FE students (first cohort) (n=7), FE students (second cohort) (n=92). Formative evaluation response rate was 53%.

Summative evaluation focusing on the reasons for use/non-use and impact on learning has so far been completed with the Nurses (n=31) and FE students (first cohort) (n=7). Questionnaires have also been sent to PRHOs (n=33) and Educational Supervisors(n=33). Summative evaluation response rate to date is 21%.

In addition structured focus groups have taken place with the FE students (first cohort) (n=4) and semi structured interviews with careers adviser supporting the students in colleges (n=3), NHS Deanery staff (n=1) and the head of nursing at the university of Leeds (n=1).

The evaluation of the project has also been supplemented by comments collected throughout the pilot with a range of users through informal and unstructured conversations.

Defining Types of Engagement

Over the last 14 Months 204 learners have attended e-portfolio induction sessions. Approximately 60% (n=204) of these learners accessed the e-portfolio and read some, or all of the contents. 55% (n=124) of those who accessed the e-portfolio progressed to make a post in their respective logs.
None of the users had used an e-portfolio before. Once users had started posting to their logs definite patterns of usage were displayed.

From the research conducted 4 categories of users were identified.

<table>
<thead>
<tr>
<th>Type of Engagement</th>
<th>Characteristics</th>
<th>Percentage (n=124)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reader</td>
<td>Makes no entries in the e-portfolio. May access once or on multiple occasions just to read the content.</td>
<td>45%</td>
</tr>
<tr>
<td>Tentative</td>
<td>Makes 1 or 2 entries then stops.</td>
<td>13%</td>
</tr>
<tr>
<td>Selective</td>
<td>Makes entries but only in sections they feel they can benefit from. May proceed to output stage</td>
<td>21%</td>
</tr>
<tr>
<td>Continuous</td>
<td>Makes continuous entries and proceeds to output stage.</td>
<td>21%</td>
</tr>
</tbody>
</table>

**Table 2: Percentage of Users by Relationship Type**

The main focus of this paper will be the ‘type’ of relationship formed by the learner with the e-portfolio and the factors which have impacted on this. Factors which impacted on the 40% of learners who did not access the e-portfolio will be carried out at a later date before the project completion in Dec.

From an analysis of the feedback provided two main types of factors impact on individual use of the e-portfolio: Internal and external. Within these factors distinct themes can be identified:

- Internal Factors
  - Learners Attitude to Technology
  - Relevance
  - Gender
- External Factors
  - Feedback Provision
  - Organisation Attitude to Technology
  - Design of E-portfolio Content

**Internal Factors**

*Learners Attitude To Technology*

Many have spoken about the barrier that technology itself can present to people (Dublin.L ,2004). If the technology is deemed not to work or to be complicated then this can lead to disengagement in the e-portfolio journey before it has begun. Technological confidence is especially important to move into and then use the e-portfolio tool.

The first cohort of FE students consisted of 49 students from 4 colleges. In 2 of these colleges problems with caching and firewalls prevented the system from being demonstrated thoroughly and as students logged on to their own portfolio areas they were presented with the ‘confidential’ e-portfolio logs of others. As a result of this the 2 colleges withdrew from the project. On the face of this evidence it would appear that lack of confidence in the technology led to the disengagement of 27 students but a closer look at the available data, illustrates a different view. 15 of these students
independently logged onto the system after this initial training session indicating that a sizable percentage of the students still displayed some interest in the e-portfolio.

**Ease of Use**

In response to the question, how easy did you find the e-portfolio to use? The following responses were noted from learners: (n=66)

![Figure 2: How Easy Is The E-portfolio To use (Learners)?](image)

All of those who found the e-portfolio difficult to use were PRHOs. These results however do not correlate with actual use. All of those who experienced difficulties have continued to use the tool to varying degrees. Only 42% (n=52) of those who stated the e-portfolio was easy to use have uploaded or made any entries into their respective logs. It would appear that even if users experience problems using the e-portfolio they are still prepared to work through them, especially when assessment is involved and conversely if they find the tool easy to use this does not guarantee they will load entries or access the e-portfolio.

Of the learners who have completed summative evaluation to date 19% (n=16) stated they have a blog or their own website. None of those users have used the e-portfolio. Prior use of ICT does not preclude usage of the e-portfolio.

**Relevance**

An important factor in engagement and type of use is the relevance of the e-portfolio tool. Assessment is extremely relevant and exerts a large influence over usage and the type of usage displayed. If the contents of the e-portfolio are deemed irrelevant to the user no progress is made from induction to the e-portfolio tool nor from the reader to the “posting” stage.

**Assessment**

The PRHOs were the only group of learners for which use of the e-portfolio was deemed compulsory, of these 87% (n=33) accessed their e-portfolio log. Taking this into account indicates that only 23% (n=171) of users who were given the choice of using the e-portfolio, accessed and posted to the system of their own free will.

An analysis of usage of each cohort of the e-portfolio can be found below:

<table>
<thead>
<tr>
<th>Type of user</th>
<th>Attended Training</th>
<th>Accessed E-portfolio</th>
<th>Posted to e-portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary User</td>
<td>171</td>
<td>95 (55%)</td>
<td>39 (23%)</td>
</tr>
<tr>
<td>Assessed users</td>
<td>33</td>
<td>29 (88%)</td>
<td>29 (88%)</td>
</tr>
</tbody>
</table>

**Table 3: Differences in usage between assessed and voluntary tools.**

The relevance of assessment has clearly impacted on the use of the e-portfolio with over three times as many learners making entries to their e-portfolio spaces. Assessment also impacted on the type of engagement displayed by users: 55% of the assessed users only submitted entries to the sections of the e-portfolio they needed to complete this phase of training compared to 41% of the PRHOs who used the e-portfolio continuously and 3% who used the e-portfolio tentatively. The PRHOs recorded the lowest percentage of non-use (did not access) with 12% not accessing the e-portfolio tool at all compared to 59% of the voluntary users who did not log on to the system after the initial induction.
Voluntary Use

After attending the initial training session 55% (N=171) of the voluntary users accessed the e-portfolio independently. Surveys highlight individual relevance as one of the major factors which influence the move from induction to reading and from reading to posting. Technology itself does not factor heavily in to this relevance. 88% (n=66) of the learners felt that the training they received was adequate. What is contained in and the purpose of the e-portfolio tool itself exerts the greatest influence.

All of the FE users were asked what they believed they could gain from using the e-portfolio, 93% (n=62) stated that they believed it would help them to put together an application for university, only 40% thought it would have any affect on their learning or introduce them to a new way of learning. 26% (n=39) of this group who posted to the e-portfolio, have used the e-portfolio selectively and 36% have used the tool continuously. When the first group of FE users were asked what was the biggest source of assistance in making their university application. The e-portfolio did not factor. Human interaction with their careers adviser or tutor emerged as the largest source of help, the e-portfolio contents served as a stimulus to their conversations with these staff members.

Further research needs to be carried out into this area of relevance as it appears that the majority of users who were inducted on the use of the e-portfolio have decided to find this assistance elsewhere with 78% (n=171) choosing not to post to the e-portfolio, but, as previously mentioned, only 10% (n=66) of this group experienced difficulty in using the tool.

Some comments from non-users also back up this line of thinking,

“I can receive this type of support in college and do not want to repeat any work I had already done”

Similarly one of the careers advisers in one of the colleges which withdrew from the project stated,

“They have done a lot of this work already”

Others who did not post to the e-portfolio questioned their need to access and post to the e-portfolio as it would not be assessed, would not help them to gain a qualification and they would not receive any UCAS points towards their university application. As one student noted,

“Why should I do this? It's not for educational purposes/qualifications”

Some of the main reasons stated by non-users relate to lifestyle, time and lack of “added value”. As noted by 2 non-users

“It was just something extra on a long list of work that needed to be done and wasn't a priority”

“...was easier just to use the methods I was used to.”

To some the e-portfolio process is not viewed as an integral part of learning but as an addition to pre-existing work. It is not perceived as a tool in which to carry out or improve the standard of this work.

Some have stated that e-portfolio users do not utilise all of the functions available to them and will only use the sections or functions that they identify as being of most use (Greenberg, G. 2004) This pattern is certainly illustrated through the nurses use of the e-portfolio. The majority, 67% (n=6) of nursing students (first cohort) believed that using the e-portfolio would help them to reflect but all of the nursing students felt that using the e-portfolio to present their ‘Practice Evidence Records’ would enable them to receive feedback from multiple sources and much more quickly than normal. This was the ‘added value’ and the relevance for using the e-portfolio. All of these users were ‘selective’ in the use of the e-portfolio. They all only made entries in the ‘Practice Evidence Record’ and ‘Reflective’ sections, representing 4% of the entire e-portfolio tool available for recording.

After the second cohort of nurses began using the tool the need to complete ‘Practice Evidence Records’ for assessment purposes disappeared removing the main impetus of use which the first cohort of nurses had utilised.
**Gender**

Gender has often been a contested issue in learning. Many have put forward theories for the differences in the way males and females learn (Belenkey et al 1986, Sadler-Smith 1999). In the case of e-portfolio usage there is a distinction between the usage patterns of females and of males. This concept does need to be explored further but the emerging trends can be seen below.

54 males and 150 females attended the initial induction to the e-portfolio tool of these 55% of all males and 64% of all females accessed the e-portfolio. Once the e-portfolio was accessed 30% of all males remained readers compared to 51% of females. A greater percentage of males moved from reading the e-portfolio to making posts. Once this step had been taken the engagement type by gender is illustrated below:

<table>
<thead>
<tr>
<th>Usage</th>
<th>Male (% of all males posting)</th>
<th>Female(% of all females posting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective</td>
<td>52% (n=21)</td>
<td>32% (n=47)</td>
</tr>
<tr>
<td>Tentative</td>
<td>24%(n=21)</td>
<td>23% (n=47)</td>
</tr>
<tr>
<td>Continuous</td>
<td>24%(n=21)</td>
<td>45% (n=47)</td>
</tr>
</tbody>
</table>

**Table 4: Type of Engagement by Gender**

Males are more likely to post to the e-portfolio but they are more likely to be tentative or selective about their usage, females however are more likely to access the tool after induction but are reluctant to take the next step to posting. When they do engage in usage they are more likely to engage with the process continuously and are more likely to note the pedagogical benefits derived from this use. These comments are all from females on the use of the e-portfolio. No males have made comments on the pedagogical use of the tool.

“Good to have all your evidence in one place so you don’t lose it and it looks far more presentable.”

“Makes me think about things I have done that I wouldn't normally think about.”

“So far when using the e-portfolio I have thought about decisions more and I question more things”.

“Very helpful introduces to new ways of thinking”

“It makes you more motivated and you look forward to applying to the course you want, so you feel more confident!”

**External Influences**

**Organisational Attitude To Technology**

As noted above the learners attitude to technology had little impact on the use of the e-portfolio. It is the attitude of those working in the organisations who provided support to the e-portfolio users and those who provided feedback which impacted to a larger extent on the use of the e-portfolio.

In the colleges where the caching and firewall problems existed it was the lack of support from those in daily contact with the learners which impacted on the numbers moving in to the posting phase. Both of the colleges were offered additional training to rectify the problem. The link staff in these colleges did not respond to the offer. One of the students who was particularly interested in the project had contacted the university independently and was informed about the additional training session, which they alone attended. He confirmed to staff that no other students had been informed of the additional training session. The lack of confidence in the technology had not led to the disengagement of these students, the staff supporting these students had disengaged and in turn did not support or promote the use of the e-portfolio: Comments from 2 staff from these institutions included:
“It doesn’t seem like a good idea. It doesn’t seem to work very well”

“I wouldn’t recommend it to anyone. The students could see there were problems with it”

Organisational support is paramount to the successful implementation of an e-portfoli o tool, even if this tool is being offered by a third-party and involves no additional work for staff involved.

In the remaining colleges the initial training was successful and staff supported the students and the e-portfolio process. These colleges had a higher proportion of students who initially engaged in the e-portfolio journey. 55% (n=20) of the students in these remaining colleges engaged with the e-portfolio and posted entries for feedback.

**Ease Of Use**

The results on figure 3 illustrate that those who provide feedback to the learners experience the most difficulty when using the e-portfolio. Only the project officer providing feedback to the FE students found the tool easy to use. All of those who found the e-portfolio hard to use were Educational Supervisors supporting the PRHOs. Out of this group 60% (n=33) signed on to the system during the pilot. No supervisor signed on more than 5 times with the majority signing on an average of 2.05 (n=20). Only 2 of the supervisors placed feedback into the PRHOs log directly, the majority who provided feedback 88% (n=17) did so under the PRHOs log-in whilst sat next to them. Those who provided feedback to the nurses experienced some problems but were prepared to work through these and ask for advice.

![Figure 3: Ease Of Use of E-portfolio Tool (Feedback Providers)](image)

**Design**

The design of the e-portfolio tool is of paramount importance in encouraging access and confidence in users. It is of importance to learners who need to be able to find information quickly and to know what is expected of them in the learning process. A tool that is not intuitive to use can lead to frustration and ultimately disengagement.

When feedback providers have been involved in the design of the contents and structure of the e-portfolio tool engagement by these groups of feedback providers has been high. Within this project only the educational supervisors supporting the PRHOs were not involved in the design or content of the tool. The original paper-based portfolio was copied into the system with areas for input and the uploading of assessment forms.

This lack of control of the contents is mirrored by the feedback providers lack of ownership over the material and by the number of those logging on and providing feedback as Table 6 illustrates:
<table>
<thead>
<tr>
<th></th>
<th>Ownership</th>
<th>% providing feedback in the e-portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>FE Portfolio  (n=1)</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Nurses Portfolio  (n=4)</td>
<td>50%</td>
<td>75%</td>
</tr>
<tr>
<td>PRHO Portfolio  (n=6)</td>
<td>0%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

Table 6: Feedback Providers Feelings of Ownership Over The Contents of the E-portfolio

This lack of ownership over the design of the contents has affected the number of educational supervisors who provided feedback within the e-portfolio tool itself. The e-portfolio and the foundation years curriculum was enforced on to them. It did not develop from them.

**Feedback Provision**

Once users had posted to the e-portfolio tool the provision of feedback has impacted on the type of engagement demonstrated by users. Knowing that there is an audience out there receiving and reading their work has a major impact on the type of use demonstrated by the learner. Feedback was also seen by some as the ‘Added Value’ of using the e-portfolio tool. When asked which features of the e-portfolio they liked the following responses were noted:

“... it’s a great idea especially as you are able to get feedback from tutors as well as mentors.”

“I really liked the mentor support. They were really good at making useful comments and suggestions”

During a focus group session one of the FE students (cohort 1) noted,

*Being able to present entries and work to somebody who knew what they were taking about was a great it made me feel more confident about what I was doing*”

68 learners posted to the e-portfolio of these, 46 received feedback and 22 did not. Where feedback is provided a clear pattern of engagement emerges.

<table>
<thead>
<tr>
<th></th>
<th>Tentative</th>
<th>Selective</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback (n=46)</td>
<td>17%</td>
<td>26%</td>
<td>57%</td>
</tr>
<tr>
<td>No Feedback (n=22)</td>
<td>36%</td>
<td>66%</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 7: Type of Engagement Related to Feedback Provision

Once engaged in the e-portfolio process feedback fuels the journey from tentative to continuous user.

The provision of feedback encouraged users to post into the reflective sections of their logs. Where feedback has been provided 86% (n=46) of users have posted public reflections.

Another pattern which emerged during the analysis of the assessed e-portfolio was the extent to which those receiving feedback in their log utilised the voluntary (non-assessed) sections of the PRHO e-portfolio.

All of the trainees receiving feedback in their e-portfolio made an entry into one or more of the voluntary sections, but only 68% of those not receiving feedback made entries into at least one of these sections.

It is only through this feedback that learners are encouraged to continue with the process and give relevance to their work and through feedback learners are encouraged further to reflect and ask questions. One of the students from the second FE group noted,

“*Why would I bother using the e-portfolio if no one is going to look at it!*”

As part of the summative evaluation learners were asked what they felt was the main purpose of an e-portfolio, 80% (n=16) felt it was a tool to share with others only 12.5% felt it was a tool to develop their own learning.
Conclusions

A revised model of engagement (see figure 4 below) needs to take into account the types of engagement demonstrated by learners. The stages of ‘Initial Engagement’, ‘Sustained Engagement’ and ‘Continuous Engagement’ are too broad to define the characteristics of the individuals who inhabit the e-portfolio journey. To move to a continuous and deep learner of the e-portfolio relevance and feedback are required.

![Figure 4: Revised Model of Engagement by User Type](image)

The majority of learners did not find the e-portfolio difficult to use. Where problems were noted the assessment nature of the process ensured users found ways to overcome these difficulties. Gender has impacted on the manner in which learners have interacted with the tool. Females are less likely to post to the e-portfolio but once engaged they are more likely to use the e-portfolio continuously than males who prefer a selective approach. From this data it would appear that males need more support in developing the concept of critical reflection and females more support and encouragement in using the tool.

Relevance of the e-portfolio tool is the most important factor impacting on initial engagement and impacts on the move from the induction to reading and from reading to tentative use. If entries and work are being assessed or are needed to move onto the next learning stage, usage is high and the number of selective users is high. If there is no assessment a perception of personal benefit drives the learner. If the purpose of the e-portfolio does not meet their learning needs or if learners perceive this knowledge can be gained elsewhere then usage falls. Some studies (Entwistle, 1998) have stated that if users have a choice over how they learn they are more inclined to learn at a deeper level, voluntary users may have exercised this choice and looked elsewhere for the knowledge they require. The e-portfolio represents just one choice of many, one with which learners have had no prior relationship.

The technological aspects involved in e-portfolios exert an influence over those providing feedback to the users, both in terms of use of the technology and the design of the learning tool within the e-portfolio space. If feedback providers encounter problems with the tool, do not possess the correct level of ICT competency and if they have no ownership over the learning materials they are less likely to provide feedback to learners and subsequently learners are less likely to engage or move from the tentative stage to the selective or continuous stage. Training to develop ICT confidence and consultation on the design of the tool is vital. Somebody has to be ‘out there’ to facilitate this learner movement once the learner has engaged with the relevance of what is on offer.
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INDIVIDUALISED JOB COACHING AT FOLKUNIVERSITETET
SWEDEN

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Folkuniversitetet

Folkuniversitetet is an adult education association that offers a wide range of adult education throughout Sweden and in several European countries. The organisation consists of five regional offices attached to the Universities of Stockholm, Uppsala, Göteborg, Lund and Umeå. Each region has a board of directors appointed by the local university.

A large part of the training offered by Folkuniversitetet targets people who need to acquire and apply new knowledge and skills to apply in professional and/or labour market contexts. The aims, contents and methodology of Folkuniversitetet’s training and development activities are always adapted to individual needs. Government services, public authorities and the business sector turn to Folkuniversitetet for assistance with specialized training courses.

Job coaching at Folkuniversitetet

A recent trend in Swedish employment market programmes is job coaching. On behalf of labour bureaus all over Sweden Folkuniversitetet runs job coaching programmes for the unemployed. Most programmes address all vocational and professional categories in general, while others will target specific groups like artists or immigrant academics. One current project (ISA) running at Folkuniversitetet in Göteborg has received EFS-funding and a number of regional and local programmes are financed by the Swedish state (SAGA).

The coaching programmes run for a period of ten to twenty weeks and have the following, chief aims

- To lead directly to employment
  or, where that is not realistic,
- To lead to work placement or a traineeship or to identify and initiate any necessary further training or courses of studies
- To support clients in building up a network of contacts
- To enable individuals to hold their own in a changing, less secure and less predictable employment market. This often means coaching clients to help them shift their perception of themselves from one of being dependent on decisions and measures taken by others, to one which empowers them to see themselves in the the role of an active entrepreneur who takes on responsibility for his/her own future career.

For a number of years now, Folkuniversitetet’s speciality has been the offer of a structured, yet flexible, coaching process supported by an electronic tool, placed in a VLE.

Folkuniversitetet’s coaching programmes adopt a blend of working modes: f2f group meetings with or without a coach, one-to-one coaching dialogues f2f or via electronic communication, virtual meetings, workplace practice with distance coach support, etc. The VLE is the meeting point and pool of resources for clients and coaches alike, and links all activities. Clients are equipped with personal laptops during the entire programme to ensure constant access to and contact with the coaches and the group.
An electronic tool for structure and flexibility

The tool was designed in response to two major needs experienced by coaches, clients and employment centres:

1. The need to identify and make visible clients’ potential, to the the clients themselves as well as to employment centre staff and (potential) employers.

2. The challenge of helping clients persevere throughout the whole process, leading them from a perception that they have poor job prospects to insights about their own potential to clarify and define perspectives and identify viable, specific actions and strategies which will help them in their search for employment.

Folkuniversitetet refers to the tool as ‘metodstöd’ which may be translated as ‘coaching method aid’, rather than ‘e-portfoli’ in a strict sense. The approach reflects in many ways elements of the classical portfolio.

1. Management and monitoring of the client’s development process

The tool contains a number of content modules with interactive questionnaires, reflection tasks, practical tasks, discussion tasks as well as information and links for further reading.

Individual clients are guided through the modules and tackle specific tasks in order to enable them to

- become aware of their own current strengths and weaknesses at the time, taking into account both formal qualifications and informally acquired skills and knowledge
- analyse the job market that is currently open to them
- widen their perspectives, realise opportunities and become aware of their development potential
- set up a plan of action
- take concrete measures to enhance their chances, e.g. by taking further training, preparing a showcase, planning a personal marketing strategy
- approach employers
- follow up actions and results

The process involves clients in guided self-reflections and dialogues with their coach(es) and fellow clients. They verbalise their reflections and results and document them in written form in their personal (portfolio) area within the tool, as a record of their individual development.

The coaching process is at the same time collaborative and self-directed. This generates the desired side-effect that clients become competent in some of the ‘new literacies’, i.e. they develop their digital, social, critical and linguistic abilities.

2. Showcase

Work samples are selected and presented in a professional and individual way and compiled on a CD or website or the personal area within the tool. Folkuniversitetet provides the technology and the training required for the clients to produce the desired electronic content. The coaches encourage and guide the clients in the selection and presentation of the material.

The showcase makes visible the client’s abilities both to him-/herself and potential employers.

3. Basis for dialogue

The tool documents an individual’s development and thus provides a basis for an on-going dialogue between coaches and the client. The documentation of reflective activities, coaching dialogues, agreements and action plans serve as a ‘contract’ or incentive to persevere.

The basic structure of the VLE foresees a situation where each individual client has access to several coaches and/or specialist trainers at a time. A ‘coach pool’ serves as a meeting area for
coaches/trainers. Clients meet their coaches in ‘private rooms’. A recent development of the platform, however, enables clients to set up rooms of their own, and invite other users of the platform in, e.g. for peer exchange. Also, clients can choose to give external persons access to parts of their portfolios.

**Development over the past few years:**

The coaching process, the tool and the VLE are continually being developed in order to meet new requirements and adapt to ever changing situations and client groups. From the outset up to the time present, the following needs have been identified, and corresponding, major changes have been made, step by step:

- A need for a structured process and making visible of clients’ potential was met by the design of an electronic coaching tool (Aventus/Flexus).
- A need for increased individual flexibility has led to improved authoring and administration facilities allowing for quick adjustments of the tool.
- A demand for customisation for shifting target groups resulted in specialised coaching processes for various categories of unemployed, e.g. artists.
- When the involvement of other (external) players had to be facilitated a new VLE was set up, based on open source technology (Plone).
- A demand for training courses, such as health coaching, business studies, Swedish for unemployed migrant academics, has resulted in the development of tailor-made courses within the VLE as well as the integration of existing courses in other VLEs.

**New challenges and work in progress**

Clients’ testimonies as well as facts and figures bear witness to the success of Folkuniversitetet’s job coaching. Clients experience personal empowerment with respect to their situation and become aware of their ability and the possibility to influence it. Within six months of completing the coaching programme a large number of participants have found new jobs or have started work as freelancers.

The main challenges for the near future, as perceived by Folkuniversitetet’s coach coordinators, are:

**Involving all players in the game**

The pathways from unemployment to employment involve a number of players: The coaching client him-/herself, labour bureau staff, prospective/potential employers and in Folkuniversitetet’s case the job coaches. Ultimately, the success of the programme depends on how smoothly and efficiently communication and cooperation progresses between them all. Using the electronic tool as an interface between players seems to promise considerable improvement. Multi-channel and multi-modal exchange between all players (coach to client, client to client, labour bureau clerk to coach/client, potential employer to client, etc.) should simplify and speed up processes.

**Labour bureaus**

Labour bureaus are required to set up and follow up individual plans of action with their clients. These plans are to include feasible labour market measures, such as traineeships and further training or studies. In parts these are consistent with the plans of action coaching clients compile during Folkuniversitetet’s coaching process and which are documented in their portfolios. Action plans developed during the coaching process are much more elaborate and realistic, being products of long individual processes. Labour bureau staff appreciate this and readily build on them. The technical issue that is being looked at is how labour bureau staff can easily access selected parts of the clients’ documentation. In what way could and should they be interacting partners on the platform?
Matching employers’ demands and coaching clients’ resources

- Work placement: Companies often experience a need for extra, temporary staff. They will have a clear picture of the job and the person they are looking for. The electronic tool could help them match their needs with coaching clients’/prospective trainees’ profiles.

- Project employment: it is far more interesting for Folkuniversitetet’s coaching clients to have an opportunity of project employment. Although project work normally will be time-limited, too, it is ‘employment’ rather than a ‘labour market measure’ and it allows the project employee to use and prove his/her specific professional expertise. The chances of obtaining a regular position are considered higher for project employees than for trainees in work placement. The challenge for Folkuniversitetet’s job coaching departments lies in approaching companies and guiding them in identifying areas where external competence would be beneficial for their development and, in a second step, defining the competencies required. Again, the electronic tool is a valuable help to find the best person for the job.

- Permanent positions: Employers seeking to fill permanent positions may find the showcase function of the tool interesting, as it allows them to view samples of work produced by a potential future employee.

New questions that arise are: How can employers access the electronic tool? Which areas should/could be open and who grants access to clients’ details and work? How can employers be attracted to the site in the first place? What kind of interaction - technical and/or human – should take place via the platform? What new technical requirements will have to be met?

European standards

When Folkuniversitetet’s job coaching started, both the labour market and the individuals’ perspectives were rather Sweden-bound. Since then we have experienced a change, and a strong interest in the European perspective has emerged both with labour market authorities and individuals. European standards such as Europass or the Common European Framework for languages (CEFR) are gaining ground and ways of aligning the coaching tool with those are being explored.

Continued training of Folkuniversitetet’s staff

The VLE and the electronic coaching tool have developed rapidly and have become more and more flexible. This has created a demand for extensive initial training and constant up-dating of coaches. How is this best accomplished alongside a heavy workload and coaches’ irregular schedules?

Future training of coaches will comprise of initial pre-service training, on-the-job follow-up modules, semi-formal training and development opportunities using the platform functionalities, as well as regular f2f meetings with distinct pedagogical and technical objectives.

The optimal balance

Experience has shown that the electronic tool is not used to the same extent in all programmes and by all coaches. What is the optimal balance of structure and flexibility? How obligatory is the use of the tool? How should responsible coach coordinators react if a client strongly rejects the tool and a coach feels that an individual would benefit from a completely flexible and individualised process? Can the quality of the coaching process be safeguarded without the structure, communication and documentation provided through the tool? Is the reason for not using the tool to be found with individual coaches’ attitudes rather than their clients’? Can improved coach training bring about change in attitudes?

Active ownership

Given the present labour market climate, employees cannot expect to remain in the same type of employment all their working lives. During the coaching process they are trained to adopt an entrepreneurial attitude and acquire an entrepreneur’s skills. The objective is to ensure that they will be able to keep these up and employ them in their future working life and, we believe that their
portfolios will support them in this. This calls for perceived and actual active ownership where today’s coaching clients take along their portfolios when they move on to jobs or courses of studies and continue to maintain them. For Folkuniversitetet’s coaches and technicians this raises new questions about technical requirements. Where will portfolios be hosted after the end of the programme? What are the (technical) standards portfolios need to conform to? How can individuals access and edit them in the future?

**Folkuniversitetet as a learning organisation**

After years of experience from working with the electronic tool we can observe the mutual influence of ‘traditional’ training and teaching and digitally aided training. Folkuniversitetet’s ‘traditional’ values and view of adult learning laid the basis for the characteristic coaching process that is both collaborative and individual-driven. The development of distance training concepts and electronically aided learning processes offer a new range of pedagogical tools and resources to all areas of Folkuniversitetet’s activities. The demands on organisation and staff development posed by the new working modes require ‘lifelong learning’ within the organisation and by the organisation itself, thus creating ways of working which will provide added value.

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THE CHALLENGE OF IMPLEMENTING E-PDP AT THE UNIVERSITY OF ABERTAY DUNDEE AND Partner INSTITUTIONS.

Oduyemi, Kehinde and Ogston, Richard; University Of Abertay Dundee

Summary

This paper discusses some of the challenges that arose during the implementation of the pilot study of an ePDP/ePortfolio, together with some of the steps that are being put in place to make the future implementation more effective.

The account given in this paper is related to the experiences of staff members involved in the pilot. Data collection was undertaken in two ways: through a survey of the staff who took part in the pilot study; and through semi-structured interviews with majority of these fifteen staff members. The data collected from staff included information on students’ views. Majority of the challenges and the success of the steps that are being taken to overcome these challenges are linked to institutional culture. The culture is slowly changing in the partner institutions and PDP supported by ePortfolios plays a part in that change. The challenge in the longer term is to ensure that the change is fully embedded and the resulting transformation is demonstrable.

KEYWORDS: ePDP; ePortfolio, PDP, Learning, SELF, Tool, Challenges, Implementation, Transformation, ELF

Introduction

Background and Context

The UK government has accepted the fact that ePortfolios, through facilitating PDP (Department for Education and Skills, 2003) and meeting the requirements of HE Progress Files (QAA, 2001), can support the quality of teaching and learning and has a whole range of initiatives to cover this area, including the adoption of a student learning space for all learners. However, the term ePortfolio is currently being used to represent various concepts and systems of support. Personal Development Planning (PDP) as described in this paper promotes the development of ePortfolio collections, which include reflective commentaries relating to experiences on extra-curricula activities and university work.

The PDP process encourages all students to become actively involved in planning, and more responsible for their learning and for achieving their goals. Students also benefit by identifying and reflecting on knowledge and skills gained outside the classroom, and translating learning needs into realistic and measurable action plans. As a result of reflecting upon and articulating their current achievements and their goals for the future, students will be able to collect evidence to demonstrate what they know, what they can do and what they value. Various techniques have been drawn upon in order to ensure the PDP process is robust for its intended users (e.g. Buzan, 2003; Cottrell, 2003; Manktelow, 2005). The electronic format provides many benefits, including being able to add a wide variety of information, having a “24/7” access to the tool, and the ability to easily network and share the information.

The Individualised Support for Learning through ePortfolios (ISLE) project is a multi-faceted project that is funded by the Scottish Funding Council. One of the facets of the project is the development and implementation of PDP for Further Education (FE) and Higher Education (HE) purposes. The project is aimed at prompting students to take more responsibility for their learning and helping university and college staff members to better understand individual students and support the broader process of learning.
The PDP process and supporting system, SELF (ePDP), in this paper are designed to help students connect academic, career and personal goals and experiences by using the Effective Learning Framework (ELF) model (QAA, 2006). It is also designed to develop students’ ability to think more holistically about themselves and their own development and learning (Endacott et al., 2004). Moreover, it is designed with the student, not the tutor/programme, at the centre of the learning process. This ensures that each individual’s separate and distinct experience is recognised and valued, and students are encouraged to take ownership of the process. The process is designed to be flexible and accessible in order to fit into any student’s circumstances.

In 2005/06 academic year, the SELF (ePDP) system was piloted at the University of Abertay Dundee, and two further education (FE) colleges. These two colleges are The Adam Smith College, Fife, and Angus College. Fifteen staff members from across the three institutions took part in a year long testing process. This has provided significant information and insight for the ISLE project partners as a whole. Members of the pilot project embedded PDP in their curriculum, reported on their experiences, and helped the project staff revise and adapt the PDP process, in preparation for the expansion of the process in the 2006/07 academic year.

**Objectives**

This paper presents some of the challenges that arose during the implementation of the pilot study, together with some of the steps that are being put in place to make the future implementation more effective.

**Method**

The account given in this paper is related to the experiences of staff members involved in the pilot. Data collection was undertaken in two ways: through a survey of the staff who took part in the pilot study; and through semi-structured interviews with majority of these fifteen staff members. The data collected from staff included information on students’ views.

**Discussion**

The challenges are similar for all the members that took part in the pilot and they include the following broad areas:

- Selling the benefits of PDP to reticent staff and students
- Pitching the training of staff and students for PDP processes at the right level and accommodating the multiple student competence levels (FE / HE) in the application of the SELF tool
- Interoperability, permission rights, role of institutional strategies, and various other lessons that have been learned during the pilot process
- Evaluation of the ePDP environment and process
- The future and the effect of ePDP on resources.

**Selling the Benefits of PDP to Staff and Students**

It is not enough to tell individuals that a PDP will be good for them and help them focus on their needs, particularly when one is trying to positively influence the culture of the institutions taking part in this initiative. It is therefore important that any benefits will have to match the contexts of the partner institutions and the language the individual students understand at the present moment. This is the reason why the QAA (QAA, 2001) gives considerable latitude to institutions at the local level to work out how they wish to implement PDP. There is however an agreement within the project team on an underpinning pedagogic model based upon the ELF approach (QAA, 2006).
It is important that programme teams, and staff in general, involved with students in delivering PDP are actively engaged in the PDP process. A lack of enthusiasm and commitment from staff is likely to adversely affect student engagement with the PDP process. Likewise, the converse is also true. Convincing both staff and students of the benefits of PDP is important.

During the pilot implementation phase of this initiative, we explored with staff the analogy between student ‘marketability’ and competitiveness of a product. In addition, we involved staff in the important decisions concerning how PDP is implemented. These include:

- Timing of the PDP – at induction, end of programme, etc
- Relationship of the PDP to curriculum – fully embedded or not
- Assessment of the PDP activity – should PDP be formally assessed or informally reviewed?

The involvement of staff in important discussions helps staff to market the benefits of PDP to students at their induction. In turn, the use of the concept of PDP should allow us to assist individual students to:

- Adopt an effective way to identify and analyse their strengths and development requirements
- Articulate their strengths and development requirements to their tutors in a way that would ensure that they get exposure to their required future learning activities
- Keep an effective record of their achievements against learning outcomes, as evidence of their performance
- Identify the skills, knowledge, and values they have and map them against those essential for their future career development.

The pilot has since indicated the critical need for a student training guide book, as part of selling the benefits of the PDP process. The student training guide book (McGuinness et al., 2006) has subsequently been written and is being introduced in September 2006 as part of the implementation of the PDP process.

**Training of Staff and Students**

There is a wide variety of forms that ePortfolio can take and the activities in our ePDP give baseline examples, particularly those activities that can help individual students to:

- Reflect on their education
- Make connections between where they are, where they want to be, and how they are going to get to where they plan to be
- Connect their educational goals to their personal experiences
- Create CVs to send to employers.

Within the current ePDP tool, there is a wide variety of activities that can suit the different learning styles of the students that are using the tool. Some of these activities (e.g. Open reflective questions, action planning, skills matrix) will be more familiar to some students than others. There is still an issue about how strictly relevant some of the terminologies used in the tool are to further education students. This is currently a subject of evaluation and could result in some adaptations to the tool. We believe that giving the students a choice of relevant activities forces them to think in what form to approach the activities personally and it encourages creativity and allows the students to have fun with activities. This point is emphasised in the training of students and staff and included in the student guide document.

Irrespective of the institutional contexts, the Scottish Credit Qualification Framework (SCQF) level, etc., the message at any of the training events is that the PDP consists of:
• Reflection about aspirations and whether they have been met. This offers the opportunity of getting to know students as individuals, right from the beginning of the programme of study
• Review of knowledge, skills and values developed
• Action planning for the future
• Putting the action plan into practice and recording development/achievements.

Central to the training philosophy is the recognition that different parts of the partner institutions may want to deliver the process using slightly different approaches. We have accommodated this by listening carefully and responding to the views of staff and students in the pilot study. We have used their views to tailor the ePDP tool to their needs, as it is important that the users own the process. The extra flexibility built into the tool, in terms of allowing users to start with any of the activities, should also assist individual students not wanting to follow the ‘logical’ order set out by the designers of the tool.

At the training/workshop events and in the student guide, it is emphasised that the PDP is owned by the individual students. This is important, because it is personal to students and supported and valued by the institution and its staff. The ePDP tool, for us, needed to be simple, as we do not want students to perceive the use of the tool as a burden. The examples given in the tool and in the student guide are practical examples and they are based on everyday student experiences. This characteristic of the ePDP tool, to the designers of the tool, is very important and will continue to be the subject of future evaluations.

Lessons Learnt and Issues for the Future

The initiative that we have engaged upon spans three institutions, with slightly different cultures. To lessen the challenge of designing a tool that might not be effective for some partners, the designers met with representatives of all the institutions on a regular basis and built in some flexibilities (see the section on Training of staff and students above). Irrespective of these measures, there are still issues with the terminology used in the ePDP tool and whether this favours one institution more than the others. These issues are subject of ongoing evaluation and any resulting evidence will be acted upon.

As students move between institutions, there is an issue about how their records are transferred. This is an issue that requires co-operation between institutions. In addition, it requires negotiation of IPR rights and takes a long time to resolve. One lesson that we have learned is that the interoperability issue is one that needs to be tackled from the beginning of a project, as resolution of such an issue does take time. One of the advantages we have had in the implementation of the ePDP tool is one of being more aware of the issues relating to interoperability and their resolution, as a result of benefiting from expert advice on the issue.

The ISLE project view is that the content of an ePDP/ePortfolio system is personal. Individual students have the right to their records. However, tutors’ role as supporting and advising students is critical. Therefore, individual students would be encouraged to discuss and share their records with their tutors as part of the PDP process. Where the record is to be formally assessed, the tutors have to inform students at the outset what aspects of the record they have to share with their tutors. This clear definition of roles and responsibilities, we believe, is important. The issue of sharing output from the ePDP/ePortfolio came up several times at training. Students wanted to be assured that their personal records are not the property of others, whilst staff members want to be re-assured that there is a mechanism for discharging their responsibilities. The approach that we have adopted is a balanced and sensible approach, as it addresses the positions of staff and students on this issue.

Evaluation of the PDP process

We have developed an evaluation strategy to assess what progress we have made and identify what improvement measures that might be needed. These include:
• Attitude questionnaire surveys
Interviews
Audits on use

We recognise that much of the evidence we will obtain will be qualitative. All of the evidence will be analysed to ascertain the direction of our travel and what development we need to implement in the future. One of the ways of evaluating progress could include featuring good examples of those students who wish to share their experiences on institutional intranet and/or in institutional magazines. This approach could ensure that we have one of the most meaningful measures of success of the PDP process, by asking students to write their own account of the effectiveness and helpfulness of the process and tool.

The Future

Some students who participated in the pilot implementation have written positive feedback about the process. However, some students still see the process as an extra layer of burden. Questionnaire survey returns from staff members who participated in the pilot study generally show positive outcomes.

However, the results of our evaluation of the pilot study leads to the conclusion that there is still more nurturing left to be done. We still need more workshops to help people to better understand the PDP process. This can be achieved through continued improvement in central co-ordination at each of the partner institutions, but ownership should rest with the individual students through supportive academic tutors.

Preliminary Conclusions

The central aims of this paper were to present: some of the challenges that arose during the implementation of the pilot study of an ePDP tool; and some of the steps that are being put in place to make the future implementation more effective. The majority of the challenges and the success of the steps that are being taken to overcome these challenges are linked to institutional culture. The culture is slowly changing in the partner institutions and PDP supported by ePortfolios plays a part in that change. The challenge in the longer term is to ensure that the change is fully embedded and the resulting transformation is demonstrable.

Acknowledgements

The study is part of the ISLE project, funded by the Scottish Funding Council. The authors gratefully acknowledge this funding and the match funding provided by the University of Abertay Dundee, The Adam Smith College, Fife, and Angus College, to support the work discussed in this paper. The authors also wish to extend their gratitude to all the tutors who contributed to the pilot study. The views expressed in this paper are those of the authors and do not necessarily reflect the opinions of the Funding Council or any other organisation.

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IMPLEMENTING A MULTIMEDIA E-PORTFOLIO TO SUPPORT LEARNING, ACHIEVEMENT AND PROGRESSION.

John Pallister  Wolsingham School and Community College

Wolsingham is an 11 – 18 School and Community College set in rural Weardale in Co Durham (UK). The school has a record of successful curriculum development and innovation in many areas including Key Skills, Employability Skills and E-portfolios. The school has developed and successfully trialled, a video-rich, multimedia E-portfolio [E-Me] that it is using with Year 7, 8 and sixth form students. The approach is unique in that students are taught how to use multimedia authoring software, are provided with a template, a structured collection of linked pages, and then supported as they collect and integrate digital evidence of their learning and achievement.

The project began with a small-scale pilot in February 2004 that demonstrated that students could use the software and digital recording equipment. During the academic years 2004/5 and 2005/6 all year 12 students compiled E-portfolios and currently all Year 8, 9 and 12 students have E-portfolios.

Early project work focussed on establishing the structure of the multimedia E-portfolio and addressed technical and support issues. As the project progressed the focus moved towards the integration of the portfolio building process into the curriculum and an investigation into how an E-portfolio might be used in an interview situation.

The Process

Students are encouraged to take responsibility for the development, content and format of their own E-portfolio. They are provided with a basic structure or ‘template’ and are taught how to use Mediator 8, a multimedia authoring package. The template includes links for CV, contact details, Key Skills, employability skills, career plans, exhibition of work etc (see Appendix A). The authoring language allows students to customise their E-portfolio. Having been introduced to the language, they can add or delete items from the basic template and create something that uses the most appropriate multimedia evidence to describe their individual learning and achievements. As well as being able to customise the content and structure they can also select their preferred font, backgrounds, button styles, transitions etc. The process of customising the appearance of the E-portfolio was identified as a motivational factor and encouraged students to take ‘ownership’ of their portfolio.

As students use the ICT tools to develop their portfolio, they practise and develop their ICT and multimedia skills.

A Year 12 E-portfolio starts life in September when the student enters their basic details and records a video commentary on their choice of courses, together with their expectations and aspirations. Opportunities to develop the E-portfolio are integrated into the Year 12 Tutorial programme.

- Following their target-setting interviews in October, January and May students record a commentary where they review their progress against previous action plans and identify new targets and plans.
- They complete a self-assessment of their employability skills, and record a commentary that identifies their strengths and weaknesses and highlights actions that they intend to take.
• Having researched their career options, students prepare and deliver a formal PowerPoint presentation to an external audience; they will include this and a video of the actual presentation in their E-portfolio. They include the feedback given by the audience and their tutor, along with a self-evaluation.

• Throughout the year, and after the formal reporting sessions, students are encouraged to review their progress and integrate the reviews into their E-portfolio.

• As they plan investigations or experiments, students are encouraged to arrange for recordings to be made. These recordings can be included in their E-portfolio as evidence both for the subject and for Key Skills (Improving Own Learning and Performance and/or Working With Others). Some work has been done with vocational students, encouraging them to use video evidence to support subject specific assessments.

• Students can at any stage, write their E-portfolio as an executable program onto a CD or DVD.

Findings

We found that students, aged 10-18 years old, were able to develop the ICT skills that they needed to create and maintain a multimedia E-portfolio and that they ‘valued’ both the product and the process (see Appendix C). They also enjoyed the opportunity to be creative with multimedia evidence.

There must be a sound educational ‘reasons’ for introducing student E-portfolios. Students will question why they need a collection of multimedia evidence recording their achievements, learning experiences, thoughts, plans and aspirations. Simply to encourage and cajole students to compile E-portfolios is not enough. They will need to have opportunities to ‘use’ their E-portfolio to help them in some way, or have the E-portfolio itself assessed to reward their efforts or recognise their competence. They will need to be convinced that an E-portfolio has ‘value’ or will help them.

Using a Presentational E-portfolio

For the past two years, all Year 12 students compiled an E-portfolio and had the opportunity to use it to support them in their End of Year Review Interview, a formal interview situation. The first time that students used E-portfolios in the interviews, we found that an E-Portfolio could enable a student, in an interview situation, to quickly find and present evidence of their achievements and competency. It became clear that, if an E-portfolio is to be used in an interview situation both the interviewee and interviewer must be clear about the skills/competencies that should/could be evidenced in the E-portfolio.

The End of Year 12 Review Interview gave students a reason to compile an E-portfolio. There was an expectation that they would use their E-portfolio in the half-hour interview. To ‘expect’ a student, or indeed anyone, ‘to use’ an E-portfolio in an interview introduces its own set of challenges. Research into the interview/recruitment process revealed very little evidence of E-portfolios being used in the interview situation. It did, however, identify that increasing use was being made of competency based interview techniques. We took the view that a multimedia E-portfolio would enable the student to ‘evidence’ their competency and therefore would be useful in the End of Year 12 Interview.

We adopted competency based procedures for the interviews and then ‘marketed’ the E-portfolio as the ‘thing’ that would help the student prepare for, and ‘perform’ in the interview. To support students we devised a range of support sheets (see Appendix A and B for examples).

Many employers use a competency-based interview, in which the questions are based entirely on gathering evidence of your competencies. Competency Based interviewing is
based on the belief that past behaviour is the best predictor of future behaviour. The employer produces lists of competencies required for each job. The interview consists of a set of questions designed to find out whether you have the set of competencies required for the job. The set of competencies will be made up of ‘core’ competencies [Key Skills/Employability skills] AND some skills specific to the job.

You will be asked to give an example of a situation or task that led you to take a certain course of action. Probing questions will then be used to determine the course of action you took and what changes were created by those actions and the effects of those actions on others.

As part of their careers programme, Year 12 students research their career options and then prepare and deliver a formal PowerPoint presentation to an external audience. They include the PowerPoint presentation and a video of the actual presentation in their E-portfolio. Students work on this careers module in January and February.

This module was updated in 2005/06. Students were asked to identify a ‘job’ and research the skills, qualifications, experience and competencies required. They then completed a self-audit and devised an action plan that would ensure that they developed the required skills qualifications, experience and competencies. They were encouraged to build this audit and action plan into their E-portfolio. They were told that it would be this set of competencies that the panel would focus on in their End of Year Review Interview in July.

Checklist

□ You have identified the job/career that you want

□ You have found out, and listed, the:
  ○ key competencies
  ○ qualifications
  ○ experiences

  *You will need to update your CV so that it provides details of the ‘key competencies’, qualifications and experiences required by your chosen job. This is best placed towards the top of the CV in the Personal Profile section. A statement such as ‘……….., seeking employment in retail management’. You will need to hand in a copy of your CV prior to your End of Year review meeting. The panel will select questions appropriate to the job/employment area that you have identified.

The school developed a bank of competency based questions that focused on employability competencies. Developing the competency based focus of the End of Year Review meeting meant that the school had to review and update its year plan and student support materials. This led to a more coherent programme and provided a real application for the E-portfolio.

You need to prepare for your End of Year review meeting. It will be a competency based interview. The panel will ask for examples that demonstrate you have specific competencies. You will be able to use your E-me in the interview. The key is to prepare for the interview. To do this you need to find out what the key competencies are for your chosen job. Then make sure that your E-me contains evidence that you have, or have an action plan that will ensure that you will develop, the required competencies. Your evidence/examples must stand up to detailed challenging questions, including about whether there was anything that you learned from the experience.

When answering competency style questions it is best to adopt the STAR model, which will allow you to structure your answer in a logical and concise manner.

**Situation** – Describe the situation/problem you were faced with – use recent examples
Feedback from members of the interview panel confirmed that opportunities for students to use an E-portfolio in recruitment interviews do not currently exist. However, they recognised that pressure from students with E-portfolios, coupled with the move towards competency based interviews would encourage recruitment professionals to review their position with regard to the use of E-portfolios. The project identified the need for further research and development work in this area.

The increasing emphasis on E-portfolios in the assessment process reinforces the need to investigate the potential of multimedia evidence to evidence skills [Key Skills, Employability Skills and Enterprise Skills].

While there was evidence that students had found the E-portfolio process useful, providing them with an opportunity to reflect on what they had done, achieved and felt, it was recognised that the project had not capitalised on the potential of E-portfolio to encourage and support reflective learning. This will also need to be a focus for further development.

To simply provide students with access to software that enables them to create an E-portfolio will have very little impact on teaching and learning and will do little to support student development. To harness the potential of the E-portfolio process, the process must be fully integrated into all aspect of the students work. Implementation will require a major curriculum review and a whole school training programme.

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Appendix A - E-Me supporting you

ICT and multimedia technology have developed so that it is now possible to produce a video rich, multimedia, ‘CV’ or e-portfolio. A multimedia e-portfolio [E-Me] will let you store evidence of what you have done and what you can do. You will be able to use it to help you reflect on what you have learnt as well as being able to customise it so that it supports you preparation for interviews. As many application forms now ask for evidence of competency, your E-Me will help you to fill in application forms. If you apply to university it will help you to write your personal statement.

For Key Skills, employability skills, citizenship and some of your A Level courses you will need to be able to demonstrate that you ‘can do’ things i.e. have developed a competency. Multimedia evidence can help you. E-me will let you store, structure, retrieve and present multimedia evidence.

By reflecting on what you have done, learnt or achieved you will be better able to plan and set targets for your future learning and development.

You will have the majority of ICT skills that you need to create and maintain a multimedia CV. We will show you how to use Mediator, a multimedia authoring package; we will give you a ‘template’ that you can use to help you to structure your evidence; we will support you as you develop your E-Me; we will provide you with an opportunity to practice using your E-Me in a formal interview situation.

Your E-Me should include:

☐ Curriculum Vitae
☐ Personal Statement
☐ Career Plan

☐ You have identified the job/career that you want

☐ You have found out, and listed, the:
  o key competencies
  o qualifications
  o experiences

  that you will need to get/do the job

☐ You have looked at the competencies, qualifications and experiences required by the job and have:
  o identified the key competencies etc that I already have
  o explained what I am doing to make sure that I develop the competencies that I need, but currently do not have

☐ You have included evidence, in an appropriate format (written; video, photographic etc) of the competencies, qualifications and experience that the job requires.
☐ The video of your careers presentation along with feedback sheets

☐ evidence of competency with employability Skills:
  ▪ Punctual and able to manage own time
  ▪ Respect for the views and contributions of others
  ▪ Effective written Communication
  ▪ Adaptable – ready to learn new skills
  ▪ Clean and dressed appropriately
  ▪ Honest, trustworthy, and reliable
  ▪ Effective face to face communication
- Able to work effectively as part of a team
- Ask for help when not sure
- Have a lifestyle which does not conflict with work/school
- Able to think creatively and solve problems
- Prepared to take more responsibility and to use initiative

☐ Target Setting interview notes and Action Plans
☐ Copies of Interim Reports -
☐ End of Year Reports - all Subjects
☐ Tutor Report
☐ Examination and Skills Certificates

☐ One piece of coursework, from each subject area.
☐ Evidence of your preparation and contribution to a formal discussion. (eg Ethics)
☐ Evidence that you have used Action Planning to help with two pieces of coursework.
☐ evidence of at least one extra curricular activity in which you have participated (eg science project, school production, work experience, sports team, mock trial, debating society etc)
☐ completed ‘Preferred Learning Style’ assessment
Appendix B - E-Me helping you - the Recruitment process

An e-portfolio is a collection of evidence, in a digital format that you can use to record your learning, achievement and competencies. Many schools and colleges are beginning to recognise the value of e-portfolios and are encouraging their students to compile them.

Why maintain a portfolio? It will encourage you to recognise and reflect on your learning and achievements. You will become more involved in your own learning, more aware of how you learn and will help you to plan what you need to do to move forward. This process will help you to prepare for job/HE interviews.

A multimedia portfolio, E-Me, will let you store evidence of what you have done and what you can do. You will be able to structure it to help you reflect on what you have learnt as well as being able to customise it so that it supports you in an interview for employment or progression into training or Higher Education. By reflecting on what you have done, learnt or achieved you will be better able to plan and set targets for your future learning and development. It also means that it is easy to select and ‘package’ specific evidence that you might need for an interview or learning review meeting.

ICT and multimedia technology have developed so that it is now possible to produce a video rich, multimedia, ‘CV’ - an E-Me.

**Competency-based interviewing**

You have developed a ‘competency’ when you can consistently apply your skills and knowledge to complete a particular task. It is the ability to use your skills and knowledge to ‘do something’.

Many employers use a competency-based interview, in which the questions are based entirely on gathering evidence of your competencies. Competency Based interviewing is based on the belief that past behaviour is the best predictor of future behaviour. The employer produces lists of competencies required for each job. The interview consists of a set of questions designed to find out whether you have the set of competencies required for the job. The set of competencies will be made up of ‘core’ competencies [Key Skills/Employability skills] AND some skills specific to the job.

You will be asked to give an example of a situation or task that led you to take a certain course of action. Probing questions will then be used to determine the course of action you took and what changes were created by those actions and the effects of those actions on others.

**The End of Year review meeting**

You need to prepare for your End of Year review meeting. It will be a competency based interview. The panel will ask for examples that demonstrate you have specific competencies. You will be able to use your E-me in the interview. The key is to prepare for the interview. To do this you need to find out what the key competencies are for your chosen job. Then make sure that your E-me contains evidence that you have, or have an action plan that will ensure that you will develop, the required competencies. Your evidence/examples must stand up to detailed challenging questions, including about whether there was anything that you learned from the experience.

When answering competency style questions it is best to adopt the STAR model, which will allow you to structure your answer in a logical and concise manner.

**Situation** – Describe the situation/problem you were faced with – use recent examples

**Task** – what did you have to do?

**Action** – what action did you take and why. Were there any challenges/obstacles and how did you overcome them?

**Results** – highlight the outcome
Please read each of the statements below and then put a tick in the box that best describes your agreement/disagreement with the statement.

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Statement</th>
<th>Strongly agree</th>
<th>agree</th>
<th>disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>65%</td>
<td>35%</td>
<td>1 I am proud of my E-Me</td>
<td>9%</td>
<td>56%</td>
<td>29%</td>
<td>5%</td>
</tr>
<tr>
<td>16%</td>
<td>85%</td>
<td>2 I have wasted too much time on my E-me – I could have used the time to do other things</td>
<td>4%</td>
<td>13%</td>
<td>73%</td>
<td>13%</td>
</tr>
<tr>
<td>75%</td>
<td>27%</td>
<td>3 By working on my E-Me I have developed useful multimedia skills</td>
<td>13%</td>
<td>62%</td>
<td>22%</td>
<td>5%</td>
</tr>
<tr>
<td>58%</td>
<td>44%</td>
<td>4 My E-Me has helped me to record what I have learnt and done during the last 10 weeks</td>
<td>0%</td>
<td>58%</td>
<td>33%</td>
<td>11%</td>
</tr>
<tr>
<td>84%</td>
<td>18%</td>
<td>5 I understand why the school wants me to develop an E-Me</td>
<td>35%</td>
<td>49%</td>
<td>15%</td>
<td>4%</td>
</tr>
<tr>
<td>80%</td>
<td>22%</td>
<td>6 I have had been given enough support to help me to develop my E-Me</td>
<td>20%</td>
<td>60%</td>
<td>18%</td>
<td>4%</td>
</tr>
<tr>
<td>35%</td>
<td>67%</td>
<td>7 The E-Me is too complicated for me to use</td>
<td>7%</td>
<td>27%</td>
<td>47%</td>
<td>20%</td>
</tr>
<tr>
<td>29%</td>
<td>73%</td>
<td>8 I have talked to my parents about my E-Me</td>
<td>0%</td>
<td>29%</td>
<td>35%</td>
<td>38%</td>
</tr>
<tr>
<td>75%</td>
<td>27%</td>
<td>9 I will continue to develop my E-Me even if the school stopped ‘nagging’ me.</td>
<td>5%</td>
<td>69%</td>
<td>24%</td>
<td>4%</td>
</tr>
<tr>
<td>69%</td>
<td>33%</td>
<td>10 I have enjoyed working on my E-Me</td>
<td>11%</td>
<td>58%</td>
<td>24%</td>
<td>9%</td>
</tr>
</tbody>
</table>

11. Please explain how your E-Me has helped you.

12. How can we improve the E-Me

13. How else can we help you with your E-Me
Appendix D - Student Questionnaire 2006 - E- Me and Me

Please read each of the statements below and then put a tick in the box that best describes your agreement/disagreement with the statement.

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly agree</th>
<th>agree</th>
<th>disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>93%</td>
<td>7%</td>
<td>1 I am proud of my E- Me</td>
<td>12%</td>
<td>81%</td>
<td>7%</td>
</tr>
<tr>
<td>48%</td>
<td>52%</td>
<td>2 I have wasted too much time on my E-me – I could have used the time to do other things</td>
<td>14%</td>
<td>33%</td>
<td>52%</td>
</tr>
<tr>
<td>90%</td>
<td>10%</td>
<td>3 By working on my E-Me I have developed useful multimedia skills</td>
<td>33%</td>
<td>57%</td>
<td>7%</td>
</tr>
<tr>
<td>81%</td>
<td>19%</td>
<td>4 My E-Me has helped me to record what I have learnt and done during the last 10 weeks</td>
<td>29%</td>
<td>52%</td>
<td>19%</td>
</tr>
<tr>
<td>83%</td>
<td>17%</td>
<td>5 I understand why the school wants me to develop an E-Me</td>
<td>17%</td>
<td>67%</td>
<td>14%</td>
</tr>
<tr>
<td>86%</td>
<td>14%</td>
<td>6 I have had been given enough support to help me to develop my E-Me</td>
<td>17%</td>
<td>69%</td>
<td>12%</td>
</tr>
<tr>
<td>12%</td>
<td>88%</td>
<td>7 The E-Me is too complicated for me to use</td>
<td>2%</td>
<td>10%</td>
<td>62%</td>
</tr>
<tr>
<td>79%</td>
<td>19%</td>
<td>8 I have talked to my parents about my E-Me</td>
<td>19%</td>
<td>60%</td>
<td>19%</td>
</tr>
<tr>
<td>67%</td>
<td>33%</td>
<td>9 I will continue to develop my E-Me even if the school stopped ‘nagging’ me.</td>
<td>14%</td>
<td>52%</td>
<td>26%</td>
</tr>
<tr>
<td>64%</td>
<td>33%</td>
<td>1 I have enjoyed working on my E-Me</td>
<td>5%</td>
<td>60%</td>
<td>21%</td>
</tr>
</tbody>
</table>

13. Please explain how your E-Me has helped you.

14. How can we improve the E-Me

13. How else can we help you with your E-Me
1. Learning and Learners: Learning Models and Assessment


3. Peet, Melissa R, MSW, PhD, Principal Investigator, ePortfolio Initiative, the University of Michigan, Ann Arbor.

4. Abstract

   **Background and context**

   A fundamental goal of higher education in the United States is to prepare students to participate in an increasingly interconnected, complex, unequal and changing world, and to instill within them the ability to live and work effectively amid diverse peoples, cultures, and institutional contexts. This goal requires scholars, educators and academic leaders to understand how institutions of higher education can educate workers and professionals who are capable of enhancing the present and enriching the future of communities, institutions, and nations through their commitment to ethical, democratic and socially-just endeavors (Schoem & Hurtado, 2000). At minimum, this goal requires US higher education to identify and invest in the pedagogies, resources, and technologies that are necessary for developing thoughtful and reflective people who are empowered to improve the lives of others. This presentation of on-going research will illustrate how the University of Michigan, one of the largest research universities in the US, is beginning to use ePortfolios to successfully address these goals. The presentation will present results from a multi-year research and development process that generated a model of learning that captures how ePortfolios can be used to facilitate students’ development as socially-just leaders and change agents.

This four-year action-research study took place within the nation’s top-ranked graduate School of Social Work (SSW) within the Masters of Social Work (MSW) program. Since 2001, the SSW has been undergoing a comprehensive curriculum change process focused on social-justice, diversity, and social-change goals. The purpose of the curriculum change is to educate critically-conscious leaders and professionals who are able to achieve the following: identity the social and institutional mechanisms that support and recreate patterns of social inequality in peoples’ lives; envision socially-just alternatives to these mechanisms; and, collaborate with others to take the actions necessary for creating new institutions and social systems that are more equitable and socially-just. This curriculum change affects more than 400 graduate students and 80 faculty members a year, and involves 50% of the required graduate masters-level curriculum; it encompasses research, policy, and methods courses as well as students’ professional internship experiences (which they engage in 25 hrs/week for 12 months) in one of 400 community agencies.

**Objectives**
This four-year action research study addressed the following questions:

- How do graduate students develop as ethical, effective, and engaged professionals and leaders who are committed and able to work toward positive social change?
- How can integrative portfolio-based learning and ePortfolios facilitate the development of students as effective leaders and social change agents?
- What types of actions and professional practices do students engage in as a result of their development?
- How can ePortfolios be used to identify and demonstrate the positive personal and social impact that occurs as a result of students’ learning.

This in-depth qualitative study (n=136) incorporated several sources of data collection and methods of analyses in order to account for the diversity of perspectives represented in students’ experiences, and to capture learning and development over time. In 2002, 19 focus groups (n=111 students) generated data regarding how students’ academic courses field experiences and peers groups, as well as cultural norms and technologies in the school were influencing students’ learning, including their capacity to engage in social change efforts. Additionally, from 2003 through 2005, another 25 students were closely followed for nearly two years as they entered and progressed through the masters program. This additional data included 50 individual (pre/post) interviews and 168 additional documents that included students’ self-reflection papers and portfolio artifacts, as well as the researchers’ own observations and process notes. This data focused on how students’ social and academic backgrounds as well as their current course and field learning were influencing their development. Data collection also generated specific examples of students’ actions and professional practices that resulted from their learning.

Results

The action-research methods of this study allowed the researcher to work closely with student participants over several years to design and test a series of integrative portfolio-based learning methods that facilitated their development as leaders and change agents. This research process informed the development of an ePortfolio system that is dedicated to facilitating students’ progress through the following pedagogical methods:

1. reflecting on and documenting their underlying values, principles, assumptions and sources of strength, inspiration and meaning
2. identifying and documenting their most insightful and useful academic, field, and informal learning experiences
3. surfacing and documenting tacit knowledge that has been generated from lived experience. (Although this knowledge exists outside of the formal curriculum, it was found to be absolutely essential to students’ development as change agents)
4. demonstrating the value and impact of students’ learning through the construction of portfolio artifacts.

Overwhelmingly, students reported that these learning methods facilitated a learning that was transformative in nature. At the beginning of the MSW program, most students did not identify themselves as activists or change agents. Yet, by their last semester (18-22
months later), these same students not only identified themselves as “leaders” and “change agents,” but they were also able to discuss specific actions they were taking (or had already taken) that exemplified this role (e.g. starting new non-profit organizations; obtaining large grants for new programs; updating and refining business processes for large social service institutions). Analysis of individual interviews, portfolio reflections and portfolio artifacts showed that portfolio-based learning in the context of a social-justice curriculum helped students develop the mental models and professional skills necessary for becoming change agents. These mental models included the following:

1. An awareness of how their own history and social position - This includes an understanding of how these currently influence their perceptions and actions;
2. Skills with addressing tension and conflict - A capacity to recognize and work effectively with the emotional struggles (e.g. ambiguity, tension, confusion and frustration) that emerge within themselves and in interactions with others as they work toward change;
3. Critical-structural Thinking - Recognizing how social systems shape peoples’ “everyday” experiences, and learning to question traditional and accepted forms of knowledge and practice;
4. A sense of personal power and agency - Seeing oneself as a leader and change agent, as someone who possess the knowledge and skills necessary to respond strategically and innovatively to the challenges that emerge within specific professional roles and contexts.

As students progressed on these dimensions, they were much more adept at working toward social change goals. For example, by the end of the masters program, one student was able to clearly identify her personal power as an ability to, “fight for, design, and implement a strategic plan to update a state agency’s IT infrastructure” (a project that saved the agency millions of dollars in much-needed revenue and won the student a national social worker of the year award). Yet, less than a year earlier, this same student reported not having any ability to influence social structures, and attributed her lack of personal power to the fact that she did not like to “upset people” by trying to change things. Reflecting on this difference, this student reported that her transformation came as a result of “using the portfolio process - the reflection exercises and feedback from her peers - to deal with the fact that frustration and conflict were always going to be part of doing good work...it is not supposed to be easy…”

Students realized that the OSP ePortfolio system provided a flexible and robust set of prompts, activities and tools that could help them to reflect on, connect, integrate, and capture their learning in such a way that would allow them to continue in this process even after they had completed their MSW education. Thus, the students viewed the ePortfolios as a means to engage in life-long learning and professional development

Conclusions and Recommendations

This project revealed that ePortfolios can facilitate the acquisition of skills necessary for leadership, social change and social justice practice. It did so by building upon existing social work educational practices (the classroom and the field experience) and connecting
these with the principles of integrative portfolio-based learning. (Specific examples of these will be presented at the conference)

Effective ePortfolio adoption for social-justice practices requires a database structure organized around social work roles (clinician, evaluator, project manager, advocate, therapist, etc.) as opposed to academic subject areas (e.g., children and youth, mental health, aging, etc). This type of ePortfolio requires prompts and exercises that help students identify and integrate their tacit knowledge with formal learning experiences.

The use of ePortfolios for social-change pedagogies requires faculty members to link course objectives with social-justice principles and themes as well as specific practice competencies. Additionally, the ePortfolio system needs to include peer-facilitation and dialogue prompts and templates and students need to be given the time and space necessary within the formal curriculum to first learn the functionality and norms of the ePortfolio system. Students need to have additional opportunities (in the context of required courses and capstone experiences) to continue to surface, identify, document and integrate their formal and informal learning and connect these to their tacit knowledge.

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EUROPASS-CV PLUGIN FOR BLOGS: BUILDING ONLINE PROFESSIONAL PROFILES AND IMPROVING ONLINE JOB SEARCH
Margarita Pérez-Garcia, MENON Network EEIG

To be submitted under Theme #2: Employability

1. **Seeking employment** - how do employment agencies, public and private currently use ePortfolios? How can ePortfolios provide the information required to match the provision of competencies with the demand? How do individuals use ePortfolios to improve their online job search

Work in progress with presentation

Context

The KITE project was established in the context of the creation and dissemination of the electronic version of Europass, the European Community Framework for the transparency of qualifications and competencies. The contribution of the KITE project to this strategic initiative is to put an emphasis on the person, the control over personal data, and the use of mass-endorsed publication tools as vectors of the Europass-CV. To do so, KITE is offering an implementation of the Europass-CV, as a plugin of three open source existing weblogs: WordPress, ELGG and Dotclear. With KITE, everybody will be entitled to add to his personal weblog page (blog) a smart extension, based on open standards, to make his own professional profile more accessible, more browsable, searchable through the web and improve his online job search. Above all, KITE will make everybody's profile compliant with today's HR standards (HR XML) for easy, fast and convenient European-scale comparison and inclusion in public databases, employment sites such as Job boards and co-optation sites. If transparency is the collective challenge, versatility is the individual commitment: using a controlled personal and professional profile for lifelong learning purposes.

The electronic version or Europass could be implemented in several ways i.e. with several technologies allowing to have a Europass plugged into several platforms. The key is the interoperability of the Europass documents. One of the possibilities is the use of blogs as a support for the two personal documents of Europass i.e. the CV and the European Language Portfolio. The other three instruments of the Europass Portfolio, i.e. Mobilipass, Diploma Supplement and Certificate Supplement could be digital keys or electronic certificates stored in institutional databases. The core element of the Europass, i.e. the CV, will be open standard compliant (HR-XML and FOAF) and interoperable. So that the data interchange between the instruments will be possible and the storage of data will be independent. Allowing to this approach, the job seeker will have total control of his personal data: Europass-CV and ELP (storage, access, manipulation and transmission). On the basis of this unique CV, controlled by the owner, job seekers can build their online professional profile and exchange data with eLearning, Employment and HR services according to a human resource lifelong perspective.

Objectives

The KITE project aims to evaluate the potential impact of the use of blogs on the adoption process of the Europass-CV and empower job seekers with a tool to facilitate electronic exchanges with eLearning, Employment and HR services.
After a overview of today's employment transactions, tools and services and the three major strategies that job seekers adopt to search for a job on the Internet, the author will present the KITE framework for interoperability with employment and HR services. Subsequently, the author will present several scenarios of the use of the Europass-CV plugin for blogs to support online professional profiles and online job search.

Summary of results:
- KITE Key principles of online professional profiles,
- KITE Interoperability framework with employment and HR online services,
- Europass-CV for Blogs plugin for ELGG, DotClear 2.0 and WordPress 2.0
- Report: *Internet Job Search today: uses, services and needs*

Conclusions and recommendations

This paper will finally gives some recommendations:
- To take into account the individuals perspective and interests while designing eLearning, employment and HR services,
- To build online professional profiles compliant with Europass requirements and HR-XML standards that job seekers control and can move from any site to any site,
- To enhance job seekers strategies for effective online job search,
- To encourage the use of open standards by eLearning, employment and HR services,
- To promote the exchange and cooperation between the European Union, CEDEFOP, eLearning and Recruitment industry and standardization bodies,
- To complete the digital identity management tools that allow to verify the user identity in the field of electronic exchanges, claim user related information and control digital reputation,
- To improve online identity transactions and promote ownership and total control of digital identities by individuals: user centric management of digital identity.

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AN ePORTFOLIO FOR WRITING, EDITING, & PUBLISHING STUDENTS: COMPENDIUM FOR A CAREER?
Roslyn Petelin, The University of Queensland, Australia

Background
Portfolios for advancement in academe have been in place for many years. At The University of Queensland (UQ), it is mandatory for all teaching staff to maintain a portfolio that is submitted annually to their supervisor for the purposes of appraisal and promotion. The University provides a template that staff must conform to, with sections covering teaching, research, and service. Having to present a substantial portfolio each year requires one to remain vigilant in recording and reflecting on one’s achievements. The dedication, discipline, and reflection required epitomise the qualities that the postgraduate Writing, Editing, and Publishing (WEP) students whom I teach need to demonstrate to achieve their academic and professional goals.

In my role as coordinator of the Writing, Editing, and Publishing postgraduate program that I initiated at The University of Queensland in 2001, I prepare students for international, national, and local careers. Several graduates have already entered into the publishing profession in London; one graduate is working in the Museum of Fine Arts, Boston; while another has the position of assistant to a high-profile literary agent in San Francisco. Other graduates have enhanced their career paths in corporate writing and editing or have set themselves up as freelance writers and editors.

All of the students submit a paper-based portfolio of workplace documents as part of one of their courses, Professional Communication. Documents represented include reports, proposals, manuals, job application packages, web pages, articles for trade magazines, and so on. In another course, Issues in Contemporary Publishing, they prepare a book proposal and review recently published books. In another course, they write a literature review and an academic paper; edit academic papers submitted to the scholarly journal that I edit, the Australian Journal of Communication; and prepare a personal and professional style sheet. The exemplars that they base their style sheet on are those that I use for the journal and for the catalogue of the Brisbane International Film Festival, which I edit every year with the help of several students and which garners international accolades for the quality of its design and editing. In yet another course, Writing about the Arts, they prepare an annotated bibliography, write film, book, and restaurant reviews; and present a column pitch to a magazine or newspaper.

An integral feature of all my courses is the Blackboard site. Prior to the commencement of each semester, on the site for each course, I place the course outline, lecture readings, extensive annotated resources, assessment guidance, and exemplars of students’ assignments that have ranked highly in previous semesters. Students use this material intensively, but, once the course starts, they also post enthusiastically to the discussion forums.

Some of the posts are mandatory, such as the ones that I request them to place after each guest lecture. However, I am consistently delighted to find their posting of questions that they want answers to, articles they have read that they know their classmates will be interested in, drafts of documents to receive feedback from me and other students, etc. What is particularly interesting is how they respond to posts from other students by congratulating them for a clever and/or witty post and also by generating even more clever/witty/creative genre-breaking contributions. In semester 1 of this year, posts in my three courses totalled well over 500. One student has, since
the end of the semester on June 1, set up a site for ongoing dialogue for these students. The Blackboard sites remain accessible to all students for a couple of semesters after they have finished a course, but the student obviously felt that a dedicated one for those in the class in that particular semester would be crucial for an ongoing, online community of discourse.

This student’s initiative (and the response from his classmates) demonstrates how central the Blackboard site has been to the value and enjoyment they have gained from the course. During the semester, I check and contribute to the site seven days a week—interaction that the students greatly appreciate. The program is a full-fee paying one, and many students go heavily into debt by taking up a government loan. Their building of a portfolio is a crucial function for their career aspirations. Certainly, those who have moved from Australia to take up jobs in the UK and USA have been commended on their portfolios. The student who works for the literary agent in California sent me the following message recently:

The other week, in the depths of jobless despair, I was thinking back on all the success stories you would share in classes about graduates who went on to fabulous writing and publishing jobs, and thinking, ‘I never should have left Australia’. I was doubting the power of the UQ WEP degree.

Lo and behold, interviews poured in a week later, and I wound up landing a job as the executive assistant to California’s top literary agent—New York Times bestsellers, clients regularly on Oprah, seven-figure advances, the works. During my second interview, she let slip that she wasn’t even going to call me back (despite a meticulously produced portfolio), but was curious to find out about my degree, and had her secretary give me a ring. When I explained to her what exactly I had learned from the classes at UQ—which I heard speak, what assignments I completed, how detailed the courses got about the book publishing process—she decided that I had just as much relevant experience for the job as someone who had worked in publishing for two to five years, and put me in the running.

I was hoping to achieve my goal of working in acquisitions (with a publisher or an agent) within ten years. It now appears that I could have that goal within a year or two. Your program opened the door, and all I had to do was walk through.

The evidence points strongly to the worth of portfolios in the disciplinary field in which I work—writing, editing, and publishing. Indeed, as a longterm writing educator, I have incorporated paper-based portfolios in my courses since the mid-1980s. Research Higher Degree students at UQ are encouraged to create and maintain a Professional Development Portfolio to assess how well they are acquiring the graduate attributes advocated by the university, but where do ePortfolios fit in? Have any disciplinary areas in The University of Queensland initiated ePortfolios? Not that I have been able to ascertain. Blackboard is used extensively within the university, Blackboard is used extensively within the university, when I asked whether the Portfolio Creation Wizard function was available at UQ, I was told by a technician that ‘there is a project currently underway evaluating an ePortfolio in Blackboard. I could not say when this would be completed nor if it is successful, when it would be implemented but I cant [sic] imagine it would be in the near future’.

Shouldn’t the university be assessing the potential value of ePortfolios for all students, particularly since the Queensland University of Technology, located in the same city, pioneered research on ePortfolios several years ago? The University of Queensland is aware of the Bologna
agreement. There has been a great deal of discussion about its potential implications for the large contingent of European Union students who enrol here for part of their degree. It seemed to me that ePortfolios, with their ability to represent students’ accomplishments, could be a valuable addition to many, if not all, programs at UQ.

Listening to the students

Intrigued by Kathleen Yancey’s observations that she doesn’t hear ‘questions about reflection’ and ‘Perhaps most telling, I don’t hear students—at all’, I set out to listen to my students by surveying their responses to the potential of ePortfolios. I did this by placing two papers about ePortfolios on my Blackboard sites and asking the students to post a comment on a key aspect of interest to them. I received 42 responses to this optional task from current students (out of a possible 48); I also elicited a response and an exemplar ePortfolio from a graduate who now tutors in the program. One paper was ‘ePortfolios for Graduate Students: A Discussion Paper’ by Kerrie-Lee Krause, which was commissioned by the School of Graduate Studies, University of Melbourne; the other paper was Kathleen Yancey’s ‘An Exercise in Absence . . . Notes on the Past and Future of Digital Portfolios and Student Learning’.

The responses to the concept of ePortfolios ranged from the overwhelmingly positive (‘To me, using a résumé now fades into insignificance’) through the nicely balanced to the politely negative (‘I don’t believe that all students will feel comfortable ‘conducting their education in public’.’). I will address the students’ concerns in turn. First, the concerns expressed by Yancey in the following quote:

More and more I see calls for portfolio systems; more and more institutions talk in terms of gathering and reviewing student work; more and more career centers see portfolios as a perfect vehicle to facilitate a transition to employment. None of these is a bad thing, you understand, but to me, they seem to compose a perfect storm of non-learning-related portfolio activity’.

One student responded to this as follows:

I read both articles early this week but haven't replied until now because, to be honest, I couldn't think of anything worthwhile to say on the subject. After wondering at my own indifference to the whole ePortfolio idea, I realised that I had already assumed ePortfolios would inevitably be introduced and made compulsory in the near future, and felt fatalistic about the prospect of 'another hoop to jump through'. I think what troubles me most is the question of whether ePortfolios should be mandatory (or 20% of a course requirement, or similar), or an optional exercise. As an option, they would be a useful tool for people who make the effort, but I'm worried about a) people with little or no access to online services, who have a hard enough time as it is at uni these days, and b) the idea of academic work becoming future-career-based rather than learning-based.

I've had experience in the past in school environments (both in Queensland and in Japan) where the whole push of the coursework is designed to help you pass the exam (the 'this will be on the exam, so ignore everything else' style of teaching), which will then get you into a better uni/job/future. This kind of backwards approach (as opposed to an approach where exams are designed to test how much you've learned) can result in a situation where something that was initially a useful tool like ePortfolios can become a requirement that all later academic courses or jobs will expect, and everyone must spend
large amounts of time (which could be better spent actually learning) to produce them
and jump through the hoops even if their individual abilities can be better showcased in
other areas (you might be hopeless at academic articles but an enthusiastic contributor to
Blackboard and classroom discussion, for instance). I definitely think the option to store
an electronic portfolio on a centralised database for others to look at would be useful,
though.

While none of the other students expressed the ‘fatalistic’ attitude that ePortfolios would be made
compulsory, many of them echoed his closing comment that they would be happy to have an
ePortfolio on their memory stick, for example, so that they could send it to an interested
employer, but they doubted whether employers would have the time to take applicants’
‘reflective’ comments into consideration:

‘Do employers have time to sift through five years of a prospective employee’s learning?
Do employers care about how they got there, or is it more important just to know they
have arrived?’

‘I find it difficult to justify writing self-reflective pieces to show to potential employers.
Would they really want to know what I think about me? And with that in mind, wouldn’t
my writing be influenced and biased anyway? It seems like dangerously subjective
ground to tread if I am applying for the job and potentially downright boring if I am the
employer and have to read through a portfolio of work that someone has written about
themselves’.

‘For learning purposes, students would wish to use the portfolio to highlight not only
triomphs, but mistakes. I do not think it would be wise to document such mistakes to
employers. I would not want an employer to see the assessment that I did not do so well
on, or the highly personal aspirations I have had during the course’.

One student, who is also an employer, commented that ‘having recently read through over 60
résumés, I can say that from an employer’s point of view I would be looking at a portfolio of
work only if the candidate progresses to the final interview and then I would certainly not be
interested in reading their critical reflections on their learning and skill development’. Another
student commented: ‘And as for future employers, surely they know that there is so much more to
a prospective employee than their eP’.

As I sifted through the responses to drop out the above quotes, it occurred to me that the
postgraduate students in this group are unrepresentative of Australian postgraduate students in
other disciplines. They are enrolled in a prestigious and very successful Writing, Editing, and
Publishing program. They are intensely motivated. They are paying very high fees. They write
very well (the program has a portfolio requirement for entry). They have opinions that they can
express articulately. They already post prolifically on the Blackboard sites. They network with
each other online and in person. Most of them already have jobs—some in high positions in the
corporate sphere. Their comments on the value of portfolios reflect the issues that have arisen in
the literature: assessment, security and privacy, ownership and control, longevity, etc. One
student, who posted towards the end of the time that I had given them to respond, succinctly
stated her reservations:

Like many others who have posted before me, I believe that having an electronic
portfolio of the work I have completed to date in the WEP program would benefit me in a
number of ways, but primarily in finding work. (Think: myspace success stories). However, I would argue that creating an e-portfolio through a university would be more trouble than it is worth. Why not create your own website containing this information? The costs are minimal, and the skills gained through such a process are sure to be of use further down the track. This option would also eliminate some of the debates over ownership and the life-span of a portfolio.

Perhaps I am looking at this from the wrong perspective, but I see e-portfolios as a kind of self-advertisement, as opposed to a learning/reflecting experience.

Conclusion

Although the students whom I have quoted to date provide insights of substance about the issues, the most substantial comments came from the graduate who came into the program from industry and is now back in industry on a part-time basis:

The key statement in Krause’s paper on e-portfolios is as follows: ‘a fundamental aspect of learning is the ability to transform tacit knowledge into codified knowledge and then to translate this back into practice where new kinds of tacit knowledge are developed’.

In the workplace, a knowledge worker needs to be able to work collaboratively, distil their own thoughts and the thoughts of others, seek feedback and incorporate it, share knowledge, create new ideas or knowledge, and, ultimately, deliver a beneficial result for their organisation. Students carry out these tasks when reflecting upon their learning and knowledge to create an e-portfolio. The e-portfolio thus demonstrates, to potential employers/colleagues, the students’ commitment to, and experience of, what Krause calls ‘learning-by-doing’. The knowledge acquired at university will contribute to career success, but continued success requires a ‘lifelong approach to learning’. The e-portfolio encapsulates this ethos, because it is a dynamic medium that grows with the student. It allows users to continually add thoughts and reflect upon their knowledge throughout their career.

The electronic format of e-portfolios (as opposed to the traditional paper format of the résumé) allows for broader distribution (and ease of distribution), which in turn can lead to increased sharing of knowledge, which, as Krause and others suggest, leads to the development of new knowledge. E-portfolios also seem to be a more contemporary/relevant format because the student can display their technological savvy, especially in an age where employers demand the latest technological skills from their employees. A point worthy of discussion, which if clarified may help to improve the profile of e-portfolios, is the lack of differentiation between e-portfolios, blogs, and personal websites.

Along with these insights, this graduate prepared a prototype ePortfolio, which I have included below. It unarguably demonstrates that students of this calibre can prepare
material that will enhance their career prospects by emphasising how very competent they are.

Résumé

**Academic:**
- Tutorial assistant, The University of Queensland
  (Courses: Professional Writing, Issues in Contemporary Publishing, Research to Text)
- Research assistant, The University of Queensland
- Master of Philosophy candidate, The University of Queensland

**Awards:**
- Postgraduate Diploma Writing, Editing, and Publishing
- Dean’s Commendation for High Achievement

**Professional:**
- Business owner just make inc, writing and editing for corporate clients, writing and editing training, website advice and writing, feature articles
- Marketing and Communications Coordinator, Mondial Assistance Australia
- Network Coordinator (manager of 3000 maintenance companies nationally), Worldcare (now Mondial Assistance)
- Marketing and Communication roles with the Queensland Museum and the Queensland Philharmonic Orchestra
- Mary Ryan’s Bookshops (Bookseller)
I enrolled in the Writing, Editing, and Publishing (WEP) program at The University of Queensland in 2004. Although I have significant experience in communication, public relations, and marketing in the corporate context, I had wanted, for a long time, to develop my knowledge of my work by returning to university to complete some postgraduate study.

Good, constructive feedback in the workplace is rare, especially in the fields of writing and editing. While I had spent much of my time giving feedback to colleagues and superiors, I found that there were few people who gave feedback to me. I took a huge risk and resigned from my job to enrol full time in the WEP program, comforting myself with the maxim "you have to go backwards to go forwards." I need not have been so dramatic. The teachers in the WEP program gave me the feedback I needed and they allowed me to incorporate it into my work and re-submit.

I learned how the English language works, spent time with real editors every day, wrote in many different genres (from creative to business) and was taught how to edit my own work (a real gift). I now share my knowledge with my students as a tutor in the WEP program (I never imagined I would be teaching!). I have also started my own writing and editing business called just make inc. My clients include multinational companies, arts companies, universities and academics, and graphic designers. I also work one-on-one with corporate employees as a writing trainer. My other writing interests include writing about the arts—food, wine, travel, art, fashion, and literature. And I have started research on written communication in a global company for my Master of Philosophy.

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CAMPUS-WIDE EPORFOLIO INITIATIVE: A CATALYST FOR IMPORTANT CHANGES & INSTITUTIONAL IMPROVEMENT

Sheri E. Rogers, University of Nebraska at Omaha, Neal W. Topp, University of Nebraska at Omaha and Jay Noren, University of Nebraska Medical Center

Introduction

Development and implementation of ePortfolios is increasing in many higher education institutions in many countries. The potential of this technological innovation is being evaluated and researched, but the implementation seems to be limited at this time. This document discusses a campus-wide ePortfolio effort which is designed to not only measure learning, but also provide a process for communicating student, faculty, staff, and institutional accomplishments, and focus attention on learning outcomes across the campus. The ePortfolio initiative is beginning to change the culture of the institution.

Campus-Wide ePortfolio Initiative

The University of Nebraska at Omaha (UNO), a U. S. metropolitan university of about 15,000 students, is focusing on implementing a campus-wide ePortfolio initiative. This initiative is being spearheaded by faculty, staff, and administration, and includes all colleges, the office of the Vice Chancellor for Academic Affairs, and the division of Information Technology Services. Currently, over 2000 students populate several types of student ePortfolios and the faculty ePortfolio system (myMAPP/faculty) has over 400 faculty involved in the ePortfolio process which is used in the annual review process. The goal is to have all faculty use the system for annual review in 2007. The faculty ePortfolio implementation will give faculty members valuable first-hand ePortfolio experience and will help them in the understanding of the potential of ePortfolios. Demo versions of the myMAPP ePortfolios are available at http://myMAPP.unomaha.edu/demo.php.

The next step is the development of the campus-wide coordinated student ePortfolio (myMAPP/student) targeted to be in the alpha stage by December of 2006. This ePortfolio system will allow programs or departments to customize the student ePortfolio to meet their needs while including campus-wide objectives such as general education objectives. In addition to improving student assessment methods and to better communicate with our constituents, another of the goals of this project is to improve the curriculum, course instruction, and student learning. This project will encourage all programs and/or departments on campus to utilize ePortfolios as one method of assessment for UNO’s 15,000 students.

Many U.S. colleges and universities are utilizing ePortfolios, but most have implemented the process with only a relatively few students or an isolated program, department, or course. Few institutions have implemented a coordinated campus-wide project to utilize ePortfolios for students and faculty. It is UNO’s belief that creating an “ePortfolio culture” will help meet the goals of the institution’s strategic plan which include students at the center of its enterprise, academic excellence, and engaging in our communities.

Key reasons ePortfolios are important now

Why focus so much attention and so many resources on this large ePortfolio project? The initiative’s leaders believes that a convergence of several factors make implementing ePortfolios possible, even important at this time. Seven of these factors are listed below.
1) The advancement of technology now facilitates ePortfolio use. Computers are generally available, most students have the necessary skills, the campus has excellent connectivity, wireless is available campus-wide, digital storage is cheap, and the current data base technologies makes ePortfolio implementation possible.

2) The Ernest Boyer and Mary Huber work, along with many others, on the scholarship of teaching and learning has helped higher education to sharpen its focus on the value of improving student learning (Boyer, 1990; Huber & Hutchings, 2005). With this sharpening of the academy’s focus, the need for assessing and evaluating student learning with direct measures has been discussed and debated. Obviously, an ePortfolio is one excellent method to document student learning and excellent teaching.

3) The national work of the Partnership of 21st Century Skills has received much acceptance from the U.S. P-20 educational community (http://www.21stcenturyskills.org/). The focus on what skills people will need to be successful includes the “Learning Skills” of information and communication skills, thinking and problem solving skills, and interpersonal and self directed skills. Measuring and documenting these types of skills is difficult with many assessment methods, but can be addressed with a robust and comprehensive ePortfolio process.

4) Most of the future students are technologically advanced and expect technology to be used in their education (Oblinger, & Oblinger, 2005; Windham, 2006). With the rapid growth of computer and Internet use by students, higher education institutions must adapt the processes to include technology as an integral part of their learning. The use of ePortfolios is an excellent way to show students that institutions are looking forward and understand the power of the technology.

5) Many of our future students will be first generation college students (Thayer, 2000; Vargas, 2004). One of the characteristics of this type of student is that they do not have a general understanding of a college degree, what it will take to complete a college program, what are the expectations of the institution, or what is the value of a college education. Presentation of an ePortfolio is one way of showing students the overall process, the steps necessary to be successful in this process, and the value of gaining these skills and knowledge.

6) The changing focus of accreditation or governmental requirements whether at the program level or at the campus level (Eaton, J.S., 2003). Most U.S. accreditation agencies now require more attention to identifying outcomes and less emphasis on reporting inputs and many governments across Europe, Canada, and Australia are focusing attention on accountability efforts in their higher education institutions. Also, many accreditation processes focus on documenting student learning. Use of an ePortfolio is one excellent method of meeting these accreditation requirements.

7) The concept of accountability has been brought to the forefront in U.S. and international education, with specific examples being the No Child Left Behind in U.S. P12 and the national higher education accountability efforts in several European countries. These efforts have swung the educational pendulum toward accountability. The use of ePortfolios is one way for institutions to be on the offensive on this issue, showing constituents and policy makers that higher education is eager to document our student and faculty contributions and growth.

**Researching ePortfolio’s impact**

While much of the current primary focus is on the challenge of development and implementation of ePortfolios, researching this process is very important. Documenting the impact on students, faculty, and the institution, as well as identifying ePortfolio best practices are required for this initiative to be successful. UNO’s long-term research questions include the following: How does the learning process change as a result of embedding learning activities into the ePortfolio? Can
embedding learning activities in a ePortfolio change the quality of reflection or contribute to deep learning? Do instructional methods and the curriculum change when an ePortfolio is used? Do students better understand the skills and knowledge necessary to be successful in their major when they are involved in the ePortfolio process?

While UNO is conducting several ePortfolio research projects and has an evaluation plan in place to help answer these questions, our membership in the National Coalition of ePortfolio Research is highly valued. This consortium currently consists of thirty-eight higher education institutions who are focusing on different types of research on ePortfolios. This sharing of research results will help all to better understand the impact of ePortfolios processes.

**Summary**

As higher education institutions adapt to current and future expectations, implementing robust and comprehensive ePortfolios is one way of increasing effectiveness, measuring impact, and documenting value to students, to communities, and to society. It is important to be proactive to help show policy makers that institutions are adapting to a changing world and are truly committed to excellence, both for students and the institution.

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Consortium Development of EPortfolios – Meeting of Minds or Parting of the Ways?

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Background and Context

The Individualised Support for Learning through ePortfolios (ISLE) Project is funded by the Scottish Funding Council as one of 6 national projects funded under the e-Learning Transformation initiative. The programme is managed by the JISC programme team.

The project consists of 10 institutions covering a wide spread of missions, student type, staff experience and technological systems across Scotland in both Further Education (FE) and Higher Education (HE) sectors.

The generic aim of the project is to build foundations for transforming staff perceptions of Personal Development Planning (PDP) and build a sustainable future for a culture of ’strong staff commitment combined with a genuine conviction that it is a worthwhile process for students to take part in’. Additionally, the project aims to develop and embed a shared concept of PDP flexibly supported through integrated blended learning strategies and utilise an e-portfolio model of recording and delivery.

The project aims to develop a learning environment in which to build learner confidence, aspirations and achievement by providing better quality feedback and appropriate and timely further support.

At the heart of the project are three core problems to be addressed:

- Under-performance of learners - improving learner progression, retention and achievement, and enhance employability.
- Meeting the diverse needs and rising expectations of learners (and lifelong learning) within the context of continued pressure to reduce costs.
- Realising a seamless transition model that meets stakeholder expectations for efficiency, quality, sustainability and transferability to different institutional contexts.

The partners have come together from a wide range of strategic backgrounds but with a shared perception that traditional approaches to teaching, assessment and facilitation of learning are labour-intensive, duplicate support and are often poorly co-ordinated, resulting in both reduced effectiveness and considerably increased direct and indirect costs to the sector and the wider economy. They are also not flexible enough to cope with the changing and diverse needs of students with respect to their learning behaviours.

The concept of the ISLE pedagogical model is based on the model developed by the Effective Learning Project team (ELF, 2006) which produced a model designed to make the implementation of PDP a more relevant and achievable prospect in Scottish tertiary education. This model drew on the work of a number of others (Biggs, 2003; Knight, 2003) in developing the overall concept. The model encourages institutions to consider the holistic aspects of the student learning experience and how these should be linked, in terms of (a) the institution directly supporting the student’s learning experience, e.g. by encouraging academic staff to work more closely with careers staff and (b) how the student integrates their internal learning experience, e.g. by being able to relate what they have learned to their range of employability and transferable skills, through a series of Focused Learner Questions (FLQs). This model is the starting point for the strategic development of the ISLE concept in the partner institutions.

The partners also believed from the start that an ePortfolio delivery and recording model (e.g. Siemens, 2004) for PDP integrated in the Effective Learning Framework, would greatly
enhance the learning environment for all students and lead to them developing empowered strategies for their own self-development in the future.

This paper examines the initial policies and strategies outlined by each partner at the start of the project as being their definitive approaches to effective learning development, particularly in empowering learners towards self-directed learning strategies of their own. Variables which will be addressed include policies in place, how individual institutions plan for effective learning across a wide spectrum of cultural identities in its staff and students and how this in turn affects opportunities to broaden learning experiences of students from a range of social environments. This work in progress paper will examine how the initial strategies have progressed so far and where they are liable to end up as part of sustainable strategies after the project has finished.

Of particular interest to the project team is how these initial strategies develop over the lifetime of the project with respect to:

- embedding of the integrative pedagogical framework developed for the project
- development of e-portfolio solutions towards self-directed learning
- staff and student development issues
- emerging good practice
- development of dissemination strategies.

All the partners adopted the shared concept of PDP as defined by Dearing (1997) as “a structured and supported process undertaken by an individual to reflect upon their own learning, performance and/or achievement to plan for their personal, educational and career development”

**Evaluation of Initial Strategies**

All the partners started from a different set of strategic priorities and policies for establishing effective learning practices, particularly with respect to PDP and ePortfolios. This is unsurprising given the significant diversity in institution mission, strategic objectives and stage of development overall. The partner institutions cover a wide spectrum of cultures, diversity of students and staff experience, ranging from a large university with a high percentage of “wider access” students located in the West of Scotland to a small further education college with a strong sense of community and rural “outreach” policies in the North-East of the country.

Prior to engaging with the ISLE project, each partner in the consortium was required to identify their key strategies and policies for effective learning. These, together with the number of times they occurred, were in the areas of:

- Learning and Teaching (6)
- E-Learning (5)
- Enhancement (2)
- ICT (2)
- Employability (1)
- Widening Participation (1)
- Rurality (1)
- HR (1)

This is a typical spread of strategic initiatives given the breadth and diversity of the institutions in the project but the major factor discovered by the project team is that the stage of development of these strategies is much wider than initially thought (see Progress to strategic transformation below). Therefore the project is moving forward on a much wider range of fronts that was originally planned for, making a coherent strategic development very difficult.
Support methods for PDP ranged from basic paper-based approaches to personal study planning to reasonably advanced pilot activity in ePortfolios to approaches to such enhanced learning behaviour. In all cases staff experience of ePortfolios was very limited with, at best, such experience existing in only a handful of “enthusiasts”. It was also the case that much of this PDP activity was not based on self-directed reflective analysis although the institutions were all buying in to this as the basis of the pedagogical model.

Within the ISLE project, initial strategy and policy documents from all of the partners provided formal, public statements concerning the objectives and intentions of institutions in specific areas. A very basic measure of the initial understanding of the concept of transformation was assumed as the extent to which references to relevant constructs were included in these documents.

From this it can be noted that

- Virtually all partner institutions cited more than one strategy (one institution cited only their e-learning strategy)
- The majority of institutions see their e-learning and or ICT strategies as the most relevant
- Two institutions cited an integrated suite of strategies as relevant to the project’s objectives

As a refinement on this, these strategies were scrutinised for the importance of the concept to the culture of an institution by assessing whether it was mentioned in the public documentation of that institution. To examine the extent to which PDP and ePortfolios were incorporated into strategic plans, a content analysis was carried out on the documents provided. All documents were searched for the terms “personal development planning”, “PDP” and “ePortfolio”. Since social inclusion and student diversity are also important to the idea of individualised learning, documents were also searched for the terms “inclusion” and “diversity”.

Results showed that eight of the ten institutions mentioned personal development planning at some point in the documentation provided suggesting that PDP was very much on the strategy agenda across institutions at the start of the ISLE project. Five of the ten institutions mentioned PDP as important in their more general teaching and learning/quality enhancement strategy documents, while four institutions had strategy documents focusing specifically on personal development planning. PDP was also mentioned in the eLearning strategy of one institution.

Across the partners, there was widespread recognition of the main advantages of PDP being:

- helps students become more aware of learning process
- helps in planning, monitoring, evaluating and providing feedback
- helps students take responsibility for their own learning
- will help make students more employable
- personalisation of learning.

One partner stated “The systematic development of PDP within the University is seen as a key element of both enhancing employability and student achievement by providing a means of personalising the learning experience”.

Most institutions aimed to embed PDP within current provision, but it was recognised that the needs of PDP would vary based on academic and professional requirements, the mode of study and the level of study. For example, some institutions reported that many part-time students were already using PDP through their employer.

Widening participation and inclusion is an important aim of all the partner institutions. Eight of the ten institutions included (contextually appropriate) uses of the words “diversity” and “inclusion”. Five of the institutions mentioned inclusion or diversity in their general teaching and learning or quality enhancement documents. In addition three institutions had more
specific strategy documents focusing on inclusion or widening participation. One partner stated: “Embracing diversity as a cornerstone of our learning community”.

However ePortfolios appear to be a relatively new concept and are mentioned only twice in the documentation provided. One partner included ePDP/ePortfolios as one of a number of “issues which have arisen for consideration” in their Teaching and Learning strategy where it is mentioned in reference to the ISLE project. Developing ePortfolio /PDP was seen as a response to the key strategic theme of placing “a greater emphasis on learning processes & outcomes will ensure that the learner is at the heart of the process and can derive maximum benefit”.

Interviews with Senior Managers

To gather baseline data from senior managers associated with ISLE, short interviews were carried out with a sample of seven members of the ISLE steering group in October 2005 prior to the first phase implementation. Steering group members are senior representatives of the consortium partners attending the steering group meetings. The aim was to establish the views of these representatives of the institutions involved in the ISLE project concerning how they see the ISLE project fitting with their institutional strategies and bringing about transformational change and their views about the impact on retention, progression and achievement.

Initially, interviewees were prompted to discuss how ISLE fitted with their Institutional Plans from the point of view of wider Access, policy for PDP and any eLearning Policy/initiatives. A number of respondents voiced the opinion that ISLE would benefit their institution because it was likely to help tackle issues and support ideas already proposed or about to be included in strategic plans, as well as ideas already/about to be implemented in some format. For example, wider access and participation, e-learning, student-centred learning, reflection etc.

The individual quotations are anonymised as per the agreement under which the interviews took place.

ISLE was regarded as in tune with broad pre-existing issues in FE and HE such as quality enhancement and the effective learning framework (ELF) and was seen as a mechanism for helping to implement pre-existing institutional strategies:

“the college is using institutional strategies to shape how they’re using ISLE rather than the other way round”

One respondent thought that PDP would be more suitable for some kinds of students than others:

“PDP not suitable for all – better for students with aspirations to big industry professions.”

Interviewees were then if they believed that the ISLE concept would lead to transformational change in their institution from the point of view of Staff/Student Interactions, the Approach to Teaching & Learning becoming more student centred and how this might affect academic & support staff ratios.

Five of the seven respondents agreed that ISLE would help students to become more self-directed learners, taking more responsibility for their own learning. This change to more self-directed learning was felt to be already evident but ISLE might help this change to be better resourced. One respondent felt that ISLE would help to accelerate movement to PDP by providing more resources. The move to student centred learning meant that the workload of academic staff would change although not necessarily that of support staff. However one respondent felt that the meaning of “student centred learning” was not widely understood making this claim difficult to evaluate.
One of the benefits of ISLE was initially conceived as helping institutions to become more collaborative and more aware of what was happening elsewhere which would help in avoiding repeating mistakes and not missing anything.

Several respondents claimed that ISLE should lead to transformational change for staff by making them more reflective too and helping their CPD plans. However the need to keep the implementation simple was highlighted:

“If ISLE is to be transformational for staff it would have to be easy to use; eLearning sometimes fails because it is too complex.”

Another conceived important benefit of ISLE was that it would lead to examples of best practice for PDP. One respondent commented that ISLE would be more effective if PDP and ePortfolios became embedded into the curriculum rather “bolt on activities”.

As a third question, senior managers were asked if the implementation of ISLE would affect student achievement in terms of progression, retention and performance – one of the original key aspects of “transformation” as conceived in the project bid document. Respondents were generally positive that ISLE would lead to improved student achievement. Two of the respondents felt that progression, retention and performance would all benefit. Five viewed retention as the main priority and felt that ISLE should help with this particularly in the early stages and at times of transition.

“ISLE should help in retention as it helps to identify the support needs of students at an early stage”

One felt that most impact would be on student performance because ISLE will “encourage them to reflect, identify resources, make learning more interesting and motivate them”.

Reasons given for these positive views of ISLE included:

“Students were more aware of PDP as they have it at school.”

“It will help students to become more reflective, increase motivation.”

“Might help to change the students’ mindsets/bring a culture change.”

“Should provide students with a better understanding of what they need to be successful and achieve.”

With large-scale projects of this nature, changes might not show up during the lifetime of the project.

“with respect to transformational change, this is unlikely over a two year period. However many things will be learned during this time.”

This last comment is particularly apt as during the lifetime of the project so far, it has been the growing feeling within the project team and the Funding Council that the two year period is too short to lead to major transformational change and within that progression and achievement rate change that could be directly attributed to ISLE activity.

Lastly, interviewees were asked how ISLE would affect links between school and FE/HE; FE and HE; FE/HE and Employment. Five of the seven respondents felt that ISLE would help to smooth links both between school and FE/HE and FE and HE, although only three agreed that it would facilitate the transition between FE/HE and employment. Two respondents argued that the fact that PDP reflects what is happening in schools should help to ease the transition, although one felt that the lack of common software would present a barrier in terms of links between school and FE/HE and between FE/HE and employment. However it is an ascertain of the project that a commonly understood, underpinning pedagogical model of PDP will mitigate this perceived barrier.
Progress to strategic transformation

In the initial stages of the project, thinking about the transformation process across the partners didn’t fully take into account the various starting positions of the partners, their state of readiness for change. The view (Figure 1) was that we were relatively close to each other in our understanding of PDP and our ability to support those processes electronically through ePortfolio systems and that by participating in the project we would all develop at a similar pace and head in the same direction. With these assumptions not enough account was taken at a project level of the needs and issues for each partner and their ability to respond to the change agents being developed.

The reality (and it now seems obvious) is that the original starting points of the partners was far more varied than first envisaged and the direction of each partner was not the same and the pace of change was also not the same (Figure 2). The phrase that is now used in the project is that after a year we are better prepared to start a transformational process as we have a better understanding of where we are starting from as well as an understanding of where it is we want to go.

This of course, in addition means that the finishing points for each institution at the end of the project will be very different and less cohesive than first thought. This in turn re-emphasises the importance of each institutions Exit and Sustainability Strategy.
Progress Since Initial Analysis

These initial findings from both evaluation of available strategy documents and from interviews with senior managers have been built on through a series of unstructured meetings with project partners during the course of the project so far. There is some anecdotal evidence of shifts in strategic attitudes and the emergence of new strategic approaches. The next stage of the project is to firm up these emerging views.

By the end of the project it is expected that each institution will have consolidated an exit strategy for the project and developed more coherent strategies for implementing ePortfolios based on a reflective student-centred learning model where appropriate.

Conclusions

The ISLE project is still in progress and full results will not be available till Spring 2007. However, results so far show that:

- the rich diversity of institutional attitudes, policies and missions coupled with the diverse nature of the various student populations is both a help and a hindrance to the project
- the data collected is proving to be valuable in assessing attitudes at student, staff and institutional level but there is a tendency towards fragmentation of some areas of the study due to the significant difference present
- The partners believe that the project overall will serve as a rich source of data on factors influencing self-directed empowered learning in students and how this is influenced by experience, social inclusion and cultural factors.

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MODELS, TOOLS, EPORTFOLIOS

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Abstract

Currently, at least in Italy, the ePortfolio is moving past the experimental phase and its increasing usage is determined by both institutional choices and current trends in the web culture. But both these factors bring up new problems. The institutional interventions that “impose” the use of ePortfolio for certification, are moving towards positivist models (Barrett & Wilkerson, 2004) in which checklists prevail on tools more appropriate for reflection and narration. Already in 1992 Lucas Catharine (1992) identified that the “co-option by large-scale external testing programs” is one of the dangers for a reflective learning portfolio.

At the same time, the evolution of WEB 2.0 and of Personal Learning Environments displayed efficient tools and technologies to be used also for the ePortfolio. Despite the dominance of the web, such tools require certain cultural prerequisites and use of technologies that are not always universally acquired. The ePortfolio is a learning tool that has to be embedded in an instructional program and that requires an expert teacher/tutor/peer to support the learner in his/her zone of proximal development (Vygotsky, 1954). We need therefore to evaluate if providing a Personal Learning Environment (PLE) is enough to start a reflective and narrative practice to increase the awareness of the learning path and to identify the future learning steps.

The reflective ePortfolio supporting Assessment for Learning (Barrett, 2004) requires also an initial training that cannot be underestimated: for example to be able to select, reflect on the personal learning path, to understand and use the rubric are competences that have to be built slowly over time.

The institutions that are willing to spread the use of the ePortfolio have to consider the following actions during the design phase:

- to define objectives, choose appropriate models and structures for the ePortfolio in relation to the context and to the objectives;
- to prepare an instructional program in which to embed the ePortfolio;
- to decide which kind of scaffolding the teacher will provide;
- to provide a specific training for the initial phase.

We also have to consider the differences (and choose appropriate strategies) between a tool used inside a specific learning path (built to reflect and monitor specific competences) and a tool designed to support the subject during his/her whole life.

The effectiveness of ePortfolio as a tool for a deep and conscious learning seems to be internationally recognized. It is taken for granted that we understand the role of the ePortfolio with its selection of meaningful artifacts, the reflection, the narration and the projection. The attention has to be moved on how effectively to compare the existing micropractices at an international level to perfect the existing ePortfolio models.

This paper will cover these issues and will describe the experiences of the University of Macerata and of its research group working on the ePortfolio for five years. It will present the suggested framework, the technological choices, the relation between the ePortfolio technologies and the folksonomic tools (blog, wiki, del.icio.us) and it will focus then the attention on the needed coherence between the ePortfolio framework and the instructional program. Finally it will clarify the elements and the activities on which the research is heading to spread the use of the ePortfolio inside the Macerata University and in Italy.
Introduction:

The reform, by the past Education Ministry, of the Italian school system introduced the portfolio in primary schools. The Ministerial Decree has not been followed with the proper training of the teachers and it does not have a model or a structure providing a positive attitude with the teachers. The publishing houses proposed in most cases portfolios composed of preformatted questionnaires, checklists and evaluation sheets of the student, building in this way an image of the portfolio very far from a Learning (Formative) portfolio and more similar to an Assessment (Summative) Portfolio.

At the same time, especially at University level, there is a growing interest towards instructional programs contemplating the use of an ePortfolio. Such interest results from the needs introduced by University Reform, from the Bologna process and from a higher attention in the Italian University to strategies able to improve the learning process of the students.

The application of the Bologna process in Italy resulted in the introduction of shorter courses and a great fragmentation of the subjects encouraging a stronger link between University and the labour market introducing stages, project works, periods at school and at work and a bigger attention to the long life learning process.

The fragmentation of teaching and the increased attention to the link between University and labour market requires tools for the students to be able to create a coherent learning path. ePortfolio provides a useful support in this direction; with it, the student can create a cross-coherence between the fragmented subjects and create links between the practical experiences during the stages and the theoretical knowledge acquired at the University.

The interest generated in ePortfolio within the Italian Universities and within the labour market, encouraged exchanges of information between Universities and training centres to develop further the existing research.

The University of Macerata decided to investigate this phenomenon due to the resulting gap between the students’ educational philosophy at the Education Department and their practices during their stages and internships.

In 2003, 46 forums have been analysed (586 messages exchanged between 112 students) where the following topics were discussed: what is learning, the role of the student in the learning process and the importance of a constructivist approach. At the same time we investigated the instructional programs designed by the same students for the stage’s activities.

From the analysis of the materials we discovered the following contrast: the theoretical debates suggested a socio-cultural constructivist approach (a student-centered environment and authentic assignments), but the designed activities were mainly conceived face to face, teacher-centered and the students’ only activity was to fill in questionnaires;

Moreover, we verified that the theoretical interventions of the teacher rarely reduced the existing gap (Rossi, Michelini, 2003).

We also noticed that the online activities (thanks to the continuous reviewing of ongoing chats and to the peer-to-peer discussion) developed different points of view. In some cases those differences resulted in a proactive behaviour.

To another group of students was asked to tell us about the event that changed the most (positively or negatively) their educational path before going to the University. In their stories about the pre-University experiences the perspective was closer to the students’ needs than to the teachers’ and their context analysis made explicit their models about the teacher’s role (Rossi et al., 2004).
The result of the analysis and its related activities addressed our research towards the adoption of the ePortfolio, which has been introduced the following year. We requested the students to make a selection of theoretical texts\(^1\) considered meaningful for his/her own professional development. Each of the selected texts had to have a motivation behind it. It was also requested by the students to fill in a narration/reflection related to the internship learning experience and to fill in a form/projection in which were clear the elements combining or separating the theoretical approach and the learning design (Rossi, 2004).

The ePortofolio model adopted follows the guidelines of different authors (Danielson et Abrutyn, 1997; Barrett 2001; Barrett, 2004).

The experiment gave very good results.

The evaluation has been conducted crossing different analysis: focus group on some students, individual interviews between teacher and students, analysis of the materials to verify the level of awareness acquired in relation to the own learning path (Rossi, 2004).

Both students and teacher noticed a bigger extrinsic motivation, a bigger awareness of their learning and a bigger ability to actively attend the discussions on learning design. Students also reported that filling in the ePortofolio was changing their approach with the studying generating a more proactive and customised approach.

The effectiveness of the use of the ePortofolio can be related to the following factors:

- the structure of the ePortofolio (articulated in selection, reflection and projection);
- the role of narration and of reflection on the own learning path;
- the learning path in general in which the ePortofolio was embedded;
- the scaffolding provided (with different perspectives) from the teachers during the stage and from the university teacher during the lessons and the activities inside the University.

The problems arised from the survey of the previous year requested to apply a cognitive dissonance. The strategies that mainly provided such cognitive dissonance have been:

- the teacher’s learning program (mainly focused on listening to the students’ needs)
- the stimulating questions posed by the tutor
- the connections in the ePortofolio between theories and narration
- the discussion with peers on the web

The positive experience allowed, in the following years, the improvement of the ePortofolio model and the technologies used. The main components of the model are the connection between the sections and the activities that allows you to observe your own learning path from different perspectives. The use of an electronic portfolio (not paper based) provides a quick shift from one perspective to another and from one section to another of the ePortofolio.

The following research perfected this model and identified the three moments of selection, connection/reflection and projection/direction as central to the process.

**Selection** – students collect the artifacts they produced or select the materials they consider important for their learning process (each artifact is accompanied with a brief explanation validating their choice);

**Reflection-Connection** – textual or graphical structure (a map) which connects artifacts in a narrative path to provide meaning to the learning path;

**Projection-Direction** – the indication of the competences acquired and the learning goals for the future.

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\(^1\) The fact that some of the texts were not produced by the students but only analysed by them has been criticised by some Italian experts.
The effectiveness of the ePortfolio is the result of the connection between these three processes that are not developed one after the other but they can be considered as three different points of view used to examine synchronously your own learning path.

**The structure – the circular process**

If the ePortfolio model follows the guidelines of the international research, a premium is put on the adopted technological choice that allows the *connection* of selection, connection and projection with each other to ensure a circular process between the sections. The analysis of other frameworks, even commercial ones, highlighted a separation between the different sections contained in the ePortfolio.

The interaction between the sections and between sections and learning activities is ensured by the connection between the ePortfolio and the learning environment.

For the possible relations between ePortfolio-environments we recommend the ePortConsortium White Paper (2003) that lists four types of ePortfolio:

- autonomous ePortfolio,
- ePortfolio as a part of the on line environment
- ePortfolio connected with the on line environment but autonomous
- peer-to-peer structures.

We chose an intermediate structure between the ePortfolio as part of the environment and ePortfolio autonomous but connected with the on line environment. Each student enters the ePortfolio from his/her personal page. The personal page contains a description of him/herself, a blog to freely interact with the other members of the community and a link to the ePortfolio.

Here we will specify the adopted technological choices that characterise the ePortfolio.

**Selection**

The link between the ePortfolio and the environment allows the exchange of data and artifacts, making the implementation of the ePortfolio during the studying time quick and continuous. Every page in the learning environment contains a menu and inside the menu there is an item named “Insert this page in the ePortfolio”. Every time that the student finds it useful to insert the page he/she is visiting in the ePortfolio (a document, a message in the forum, a map, the text of a chat), he/she has to click on this menu item similarly to the Post Delicious button on the Internet navigation bar. The student has then to give a title to the selected artifact and explain the motivation behind his/her choice. Such activities can be done and modified even later.

If technologies allow us to easily implement the selection, what and how to insert it is decided between students and teacher according to the portfolio’s objectives.

**Connection/reflection**

There are two tools designed to build reflection: the first is a *tool for on line writing* and the second one is a tool for *creating maps*. For using the on line writing tool it is requested to the student to narrate his/her learning path focusing the attention on a specific competence; in the produced text it is possible to add the links to the artifacts selected before. In the maps tool, the students can write text in the nodes of the maps or insert the artifacts selected before. When the student enters the maps tool as an author he/she can visualise the working page, a menu and a list containing the archive of the materials selected. With the drag and drop function he/she can pull the artifact from the selection and insert it in the nodes of the map. The student can also write directly in a node; with this text he/she connects the artifacts to each other and builds an interpretation of the path, describing the personal trajectory/path followed. A node can also contain a link to another map building a nesting structure.

In the ongoing experimentation, not finished yet, we proposed the students to insert in the nodes used to connect materials instead of text an audio recording in which they could tell about their experience and connect the materials selected before. Following what suggested by H. Barrett, that highlights the fact that the students’ voice in their own ePortfolio can be not only metaphorical but also real. Either
having texts with link or maps, in both cases the connection is tied to the selection. The reflection phase uses the same modalities of the narration (Barrett, 2004). Through the narration, the student tells the story about him/herself and gives meaning to the story (Bruner, 1990; Barrett, 2004).

At the same time, the connection between reflection and selection (thanks to the artifacts placed in the nodes) determines a narration based on the collected and created materials. Thanks to the connection, the student pieces together his/her experiences and assigns meaning to the path followed. In such a reconstruction the produced artifacts are the bricks to build meaning. When the subject tells about him/herself, he/she is “obliged” to review the personal history through the artifacts selected and this process of reviewing brings to the introduction of new materials in the selection phase. That means, the connection is producing a feedback on the selection and makes the story more detailed and authentic.

We have to add that in an ePortfolio the narration is connected to the selection and to the learning project. We tested ePortfolios composed only by free text students’ stories, related to their learning path. Results have been disappointing due to the materials being too generic: not focused on the educational content, too much focus on the individual and on the self-explanations of their own practices. Their narration was justifying their implicit practices but the ePortfolio should have revealed them to give possibility to modify and critique their narrations later.

**Projection/Direction**

The projection/direction is composed by two main elements:

- a form structured in three fields: enter the objectives in this moment in time, specify the level attained, suggest future goals;
- a tool for online writing where the student can modify the rubric designed by the teacher.

The projection is always connected to the rubric. For rubric we mean the list of key competences specified by the teacher; for each competence we further specify the indicators and for each indicator the possible levels. Using rubrics poses some problems. If they are not correctly solved then they could question the objectives of the formative portfolio. If using rubrics means to check the box of the level achieved, then filling in the portfolio is strongly becoming a teacher-oriented process. Our research is therefore oriented towards those models where the rubric is more a guideline, the starting point to build a personal profile. The teacher creates a general rubric collecting the most important competences of a given profile. The student can modify and implement such a rubric. The student can also modify (specify, add, cancel) competences, indicators and levels. All the different updated versions, from the first one by the teacher, to the last one of the student, are saved and visible on the internet to make explicit the flow of information.

In particular, the student can:

- highlight the levels achieved;
- describe certain competences in a more detailed way adding other indicators;
- add competences which are not provided but related to the professional profile;
- cancel the competences on which he/she does not want to work (because it is missing the basic knowledge or because it is not essential to the direction that he/she wants to give to his/her profile).

Moreover, at each level, the student can link a previous artifact from the selection to document the activities completed, validating the level achieved through the content of the text.

Working on the rubric is the starting point to fill in the autopresentation form but it is also a very strong tool to customise his/her own professional profile. In some Master programs, for example, we suggested different profiles. Working on the rubric the student understands which direction he/she is achieving in his/her professional profile. This experience also demonstrated how after the activity on the rubric, the type of materials collected in the selection and the narration of the path have changed.

The strong connection between selection, reflection and projection allows for the cognitive dissonances to be seen easier. The selection avoid that narration will be self-justifying and the projection is making sure that the reflection will not be self-referential. The projection makes the
selection aiming to meaningful competences. The reflection makes sure that the selection will not be distracting and confused but aiming to get the meaning of the training.

**Some other descriptive elements. First conclusions**

Another topic which we experimented with, is what components of the ePortfolio can be shared within the community.

H. Barrett (2004) suggested modifying the stage Celebrating with Publishing in the online portfolios for a better coherence between model and technology.

The difference between Celebrating and Publishing implies a different relationship between the subject creating the ePortofolio and the community. With Celebrating we mean the exhibition in front of a selected public of your own Portfolio. Publishing assumes a co-creation (always inside the community) of the ePortfolio. Such a collaboration does not concern only the final product but can be related to the whole portfolio design.

Why are we using shared modalities in the production of the ePortfolio? Differently from Knowledge Management where knowledge and intellectual productions are shared, in the ePortfolio you work collectively, observing the others’ materials to reflect upon in the analysis and the narrations of the others. Sharing in the ePortfolio produces an exchange of analysis models and elaboration processes more than final products.

Our experience brings us to state that the decision of what to share has to be analysed context by context and it depends from the chosen learning path. Often, in our own experiences, the production of the ePortfolio is a kind of “slalom” between moments shared in the community and moments to work individually. The individual moments are dialogues with oneself, dialogues which need time and reflection.

In our experiences (especially working with a community of teachers but also directly with the students) we highlighted the importance of efficiently managing the learning path, alternating between transparent events for the community and moments working alone, discussing with the mentor assigned. In the teachers’ course the shared moments have been represented by some selections of learning designs and operational modes. Reflecting on those activities has been initially an individual process and only when the tutor had decided that the right level of synthesis had been reached, he/she made the document public and open to rediscussion in the community.

**Interoperability and the circular process**

The term ‘interoperability’ is often understood like a synonym for reusability. It implies the possibility to use the same learning object in different environments and to use the same learning object in different LMS (Learning Management Systems). It has therefore more a technical meaning that a semantic one. We understood that interoperability can have a further semantic meaning and indicates the possibility to use textual fragments or multimedia objects in different tools, different from those designed to produce kaleidoscopic or combinatory messages, producing a “bricolage” (Attwell, 2006) or a patchwork.

In this case interoperability is part of the student’s activities and not only part of the training and of the services provided. For example, the texts built with the map, whose nodes contain fragments from other tools, put into action a semantic interoperability.

The dialogue between ePortfolio and environment makes sure that the student can select and send materials from the environment to the ePortfolio and can build patchwork-narrations with the materials taken from the other tools. The internal interoperability of the ePortfolio allows communication between the different sections of the ePortfolio.
Certainly, the semantic interoperability needs an informatic interoperability. The use of a database or xml language, are today essential, to start a semantic interoperability. The separation of the object from its visualisation blocks from one side the redundancy, but allows different objects to be built with the same fragments. Such a property could ensure for example to use the same artifacts both for the assessment and for the reflection, building different materials for different objectives.

The environment’s model (Rossi & Giannandrea, 2006) that we present could be seen as a hourglass containing the core data in its center.

We often talked about the circular process to highlight the cross connections between selection, connection and projection. For example, in the Master in ODL (Open and Distance Learning), the shift from the selections to the reflections and projections happens periodically and it is a cyclical process according to the developed modules. The connections do not happen just because of the informatical links but also thanks to the learning path that recalls previous observations and monitoring. The elaboration of the reflection, for example, can be focused on specific aspects highlighted with reflection questions from the mentor. Those specific aspects recall the materials in the selection and the competences detected in the previous projections.

Other times, the circularity is obtained modifying the observation perspectives of the same processes. A different point of view comes out also alternating shared and non-shared activities.

In the online training course for teachers, aimed at constructing a teacher’s portfolio, the first activity was a selection of meaningful materials and a reflection/synthesis activity on the same materials. The second part of the course was based on the learning design. They were asked to collect partial and final products of their own learning designs, reflecting to analyse their own design modality. In the third part of the course, every teacher was documenting their learning activities and was producing a reflection/narration. The reflection had to describe the coherence with their own learning philosophy and with the learning design. At the end, the teachers were asked to modify a rubric of the overall teacher’s competences and then realise their own position in it. The reflection moment in the third part of the course connect the selected materials with the synthesis produced in the two previous sections.
Benefits of a folksonomic approach

What are folksonomies

Folksonomies are tagging systems supporting classification of collections of materials. The term, introduced by Thomas Van der Wal in 2004, specifically refers to particular websites on the Internet (Mathes, 2004). The user, in his/her own personal page the user selects and classifies objects (images, book or text reviews, web links). Every object is tagged with key words freely decided by the author, that can be modified over time, in contrast with professionally developed taxonomies with controlled vocabularies. The tagging process activates relationships on multiple levels between the pages of different authors, including the analogical and the metaphorical ones. There are many kinds of folksonomic tools: bookmarks, photo catalogues and blogs.

DE.ICIO.US is “a social bookmarks manager. It allows you to easily add sites you like to your personal collection of links, to categorize those sites with keywords, and to share your collection not only between your own browsers and machines, but also with others” (Schachter, 2004)

Why to talk about folksonomies in a paper on ePortfolios? There are two reasons. First, to collect materials in a personal website is an operation similar to the selection phase in the ePortfolio. Through a collection of bookmarks it is possible to show aspects of yourself: “I like these websites, I am like a system that can be represented through these choices”. A second aspect is related to the tagging that allows an organisation of the materials. Tagging not only facilitates research but allows also the building of paths, stories, multilevel structures similar to the logical maps.

But folksonomic tools by themselves are not ePortfolios because they are not embedded in a learning or training framework and do not ensure any reflection aimed to the awareness of acquiring competences.

We need to differentiate between collecting and organising materials (build something from the favourite materials) and selecting materials to document the personal learning path. We need to differentiate between making explicit the personal, cultural and social background (often implicit in the behaviour) and detect the direction towards where we are going. This will modify our own learning perspective (that is building an ePortfolio). In this direction, the self-managed spaces are not sufficient if they are not embedded in a more complex learning perspective that include an external observer.

Nevertheless, we consider that some technologies that are successfully used with folksonomies can be used in the ePortfolio.

The same kind of approach can be discussed for blogs. Also blogs contain aspects that can be used in the ePortfolio. The blog can be used as an online reflective journal, and the value of reflection in an ePortfolio is recognised from many authors (Barrett, 2004). But, also in this case, I would like to underline that the blog is not an ePortfolio. The blog is only a blog, and other folksonomic tools are only tools even if the technologies supporting such tools can be useful to structure the ePortfolio. The difference is in the objectives, in the scaffolding provided and in the relation with a learning path.

ePortfolio and Folksonomies

How can we use the folksonomic technologies in the ePortfolio? The actual trend is to rethink the social bookmarking (for example del.icio.us) as a structure on which to build the selection of the ePortfolio to collect and select material with the same modalities of the social tagging.

The blog can be positioned in the reflection/connection/narration phases. We have to understand that the blog has the structure of an online journal and could be used in the moment of reflection in action. The reflection in the ePortfolio is, on the other hand, used often as a reflection on actions.

Both reflection modalities are efficient but reach a different awareness of our own competences. Very often, the reflection in action is the base on which to build the reflection on action; the first one contains data and materials for the future synthesis and restructuring.
This means that we carefully need to position the blog in the ePortfolio; it could be part of the selection (reflection in action) or allow a future restructuring (reflection on action) and become a tool for connection.

We have then to define the kind of connection existing between a selection using the social bookmarking (del.icio.us) and the reflection using the blog. The actual experimentation aims to understand how social tagging can be used to connect and create automatic networks between the materials of the selection and the messages in a blog.

We are also experimenting tools for the semantic filtering, to search semantic connections between the components of the selection, with story telling elements, and to verify if the automatic search of these connections can be useful in the reflection. This research has just begun.

Coherence between technologies and learning models

As mentioned by different authors, in order to refer to the ePortfolio and more in general about Portfolio, we need to indicate the type (Wolf, 1999; Barrett, 2004) and the objectives which should be achieved (Barton, 1993). The Portfolio we are referring to has the following objectives: reflection, assessment for learning, awareness of learning or learning profile. To this end, a convincing semantic-informatics architecture is not sufficient without an appropriate learning project (Richards, 2005).

The chosen model is connected with the knowledge society culture, where the main resources are connected to each individual’s learning and problem solving skills.

In the above mentioned context, knowledge is not objective, defined or modular. It exists as a flow running in time; knowledge is a process linking subjects, institutions and contexts. It articulates itself in different situations and is reified in a single subject’s micro-practices.

As a result, E-Portfolio becomes a tool to document the subject and institution practises, so that both the subject and the institution can be mutually aware of the running processes.

It is now necessary to explicitly express the metaphors representing knowledge technologies and the EP from the knowledge society perspective.

There are two metaphors that are more expressive than others for the online learning environment and the ePortfolio. The first is undoubtedly the net; it has been the most used metaphor to describe the hypertext structure and the links among tools and different artifacts. But the net is only a spatial static image, which does not concretely nor completely represent online learning environments, as they are self-produced environments. They structure and modify their organizations and materials over time and in a progressive diachronic interaction with the user.

A metaphor similar to the net, but not suitable, is the “place” one; as mentioned by Attwell & Malloch (2001), it does not effectively describe the interactive world.

The alternatives we propose are simply to allow interfaces for people to structure and contextualise their writing, resource-collation and messaging in meaningful but sharable categorical terms that can be processed by computers, to allow messaging and content to be discoverable and collectable automatically from their semantic properties, and to allow content and discourse to have common interfaces in each others’ context. (Attwell & Malloch, 2001)

According to my point of view, the best metaphor interpreting our contemporary culture is the flow (Castell, 2004). It describes the interactions happening in telematic environments, real space-time continua. The flow refers to autopoietic polymorphic entities, evolving in time and keeping trace of their internal evolution.

The flow concept has a relevant role also in the ePortfolio analysis. The ePortfolio can be seen as the media that makes explicit, communicates, reports, makes visible the learning flow. It is a system evolving over time, re-organizing itself according to the uploaded materials and it reifies the user’s knowledge and professionalism.

Undoubtedly, the flow concept involves not only the learning, but also the knowledge itself, moving from close, objective and defined knowledge to an always changing evolving magma.
In other words, ePortfolio could describe not only how the subject knows, his individual path and evolution, but it can reificate the knowledge building process.

Differences between the net and the flow evidently come out, when comparing the static html pages of the ’90 with the web 2.0 environments. Static pages and hypertexts could be described by the net metaphor; blogs and web 2.0 folksonomic tools can be difficultly described only by the net or the “place” metaphor. They change day by day, each message modifies the whole and each message is always defined and should be read taking into account the moment when it has been created.

In blogs, each message should be read in relationship to other messages, in the post-flow. The single message does not define a concept and knowledge runs into the blog. It becomes concrete in the flow, without reifying itself in any message.

The flow in learning processes supported by the ePortfolio can be described as a double spiral, similar to the DNA diagram: on one side, there is the learning project, the learning path developing its activities and strategies; on the other side, the ePortfolio semantic/technological architecture. Whenever the two spirals do not run parallel, the flow blocks itself. If technologies prevail, the time direction from past to present and to future is missing. Or, as Ricoeur (2004) would say, the direction from memory to promise fails. In that case, the projection or the development proximal area could be difficult to perceive. If the technology support is not requested, the flow becomes slower, lacks in the rapid ideas and analogies, that produce relations and associations. The synchrony of rapid contemporary visions of the net becomes diachrony, overcoming the old synchronic and diachronic distinction (Morin, 1974).

At the moment, the attention on Personal Learning Environments (PLE) seem too often focused on technology aspects, underestimating the role of the teacher and of the learning path. Giving the students a performing environment, where to move and organize themselves autonomously is functional to a tailored environment. Even fully agreeing with the proposal of D. Tosh & B. Werdmuller (2004) about personal and self-managed space utility (see ELGG), the ePortfolio is not only a PLE. For the ePortfolio it is necessary to include the technological framework in a learning project, focusing on the way tutors/teachers support creation of the portfolio.

Again, technology supporting selection, reflection, projection does exist. Therefore, the attention should be based on learning paths, where the ePortfolio activities are embedded, including the teachers’ scaffolding.

The learning framework should refer to authentic assessment (Wiggins, ), situated activities (Lave, ; Wenger, ) and modelling processes (Lesh, ), using balance assessment to reach cognitive dissonance.

But this is not enough. The circularity required to the ePortfolio structure is evident also in the learning process. In this case, the circularity results from a never ending project planning, made by the teacher according to reflections and projections in the ePortfolio.

The starting point for learning activities will be certainly these proposals, coming out in the listening phase. According to them, cognitive dissonant processes will be activated. The reflections and the awareness increasingly acquired by students and reified in the ePortfolio, allow the process to advance, requiring continuous project feedbacks to the teachers.

The teacher learning project model changes/becomes more complex/evolves/improves in parallel with the student personal learning/professional profile, coming out from the ePortfolio.

Moreover, the teacher’s scaffolding should be examined. The teacher involvement aims to:

- offer a learning framework, where the ePortfolio and the external activities should be both included: for example, in the 2003 academic year course, the theory activities and the internship experiences were linked; listening the students and the learning design were highly relevant. A multiple point of view was possible thanks to the circularity among theoretical lessons, learning framework and internship. Thanks to the ePortfolio, an effective reflection and an awareness of learning has been developed, activating a cognitive dissonance
- Accompany the student when he/she starts the ePortfolio, checking with him/her the artifacts and the selected materials and encouraging the initial comments with appropriate questions,
- Give a rubric, to include in the ePortfolio.
The teacher fading skill is connected with the scaffolding: thanks to it, the teacher chooses a more and more distant position, leaving the student more autonomy.

Finally, the welcome phase should not be underestimated. The first approach is connected with the teacher/tutor scaffolding role. Creating an ePortfolio needs two initial approaches, namely the technological and the pedagogical one.

The technological initial phase should be not underestimated especially in those contexts where technology is not regularly used, in order to avoid digital divided users. In the ePortfolio, technology is the tool to organise thoughts and to build up new meanings. A complex approach or a slow access blocks the action and prevents the user from reaching the ePortfolio goals.

The learning initial phase is as important as the technological one, even if it seems less considered. It is strictly connected with implicit motivation. Even working with university and post-university students, we perceive a limited aptitude to manage learning paths that are asking him/her to plan, manage and reflect on his/her work (at least in Italy). We monitored the selections from 24 Master students (all employed and older than 25 years of age). The selections refer to the first three months of the course.

<table>
<thead>
<tr>
<th>Total number of uploaded artifacts</th>
<th>Without any comment</th>
<th>The comment contains a description of the content</th>
<th>The comment contains a description and an evaluation of the content (why is it a good material?)</th>
<th>The comment includes the reason why the materials are meaningful for the personal path</th>
<th>Artifacts produced by the subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>290</td>
<td>41</td>
<td>148</td>
<td>60</td>
<td>41</td>
<td>78</td>
</tr>
<tr>
<td>14%</td>
<td>51%</td>
<td>21%</td>
<td>14%</td>
<td>27%</td>
<td></td>
</tr>
</tbody>
</table>

The above mentioned data are quite clear: 14% of ‘comments including the reason why the materials are meaningful for the personal path’ is quite low. But if we consider that about the 95% of the fourth category (The comment includes the reason why the materials are meaningful for the personal path) and the 76% of the third category (The comment contains a description and an evaluation of the content- why is it a good material?) have been inserted in the last month, the role of the initial phase can be understood better.

Comments connected to the learning path increased after the first project, when analysing the rubric, and this states the effectiveness of the ePortfolio model. For a student, self-guided learning is a skill acquired over time.

In the first ePortfolio experience with third year University students (21 years old), the focus groups have stressed that their main challenge was to ‘understand which materials were meaningful’ for them. Some students pointed out that they were not used to evaluate materials in relation to themselves. They had to change their perspective, in order to check materials for their personal learning path. The same focus group noticed new work methods that modified their standard learning approach, after an initial lack of orientation. The advantages were not only related with the possibility to check/self-evaluate their learning path. Starting from the material evaluation and then focusing the attention on the single artifact’s role in relation with the whole course, we noticed influences on the learning style and motivation.
Conclusions and open questions

In the last five years, ePortfolio testing tried to build an effective architecture for meaningful aware learning with different learning/professional practises. Experiences showed that dividing the structure in the three phases (selection, reflection/connection, projection) is highly recommended. In addition to that, two features are highly important, namely a rubric which can be changed by the student and the technology used to connect the different sections, so that it can be created a semantic circularity and cognitive dissonance.

The ePortfolio is more effective when it is embedded in the learning framework and its architecture is coherent with the learning project. Moreover, the teacher scaffolding is a priority.

In 2006-2007 academic year will start a testing, in different regions, on the specialization schools for secondary school teachers. More than 1000 students will be involved, so that the research will be highly meaningful. A range of directions will be obtained:

- to define the ePortfolio structure, in relation with the learning path
- to see how the teacher should support the student, when using the ePortfolio
- to select the circular elements, which activate the student reflection
- to understand how to use folksonomy tools (wiki, blog, bookmarking) in the ePortfolio sections.

Tools should be improved to evaluate the ePortfolio effectiveness in relation with an aware learning and professional practice changes. To this aim, different tools will be used to compare multiple readings of the results: textual analysis of the materials online, diachronic analysis of the materials, comparisons between different researchers’ interpretations and the participants’ focus group.

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Analysis of a survey of e-portfolio practice in UK Higher Education (Full research paper/presentation)

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In 2006 a national survey of e-PDP and e-portfolio practice in UK higher education was commissioned by the UK Higher Education Academy. (e-PDP is here taken to mean electronic support for personal development planning processes.) It was conducted by the Centre for Recording Achievement on behalf of the Academy. It sought to identify provision for e-pdp or e-portfolios, by:
• mapping and identifying existing practice;
• documenting the approaches being taken
• establishing a directory of practice and key contacts.

The survey was carried out using an online questionnaire with the option of a telephone interview with the author for those who found the survey questions inappropriate to represent their practice. It was deliberately not anonymous and multiple responses from single institutions were welcomed since it was believed that few individuals in any UK HEI would possess a total picture of development within his or her own institution.

Questions covered the software tools and systems being used or considered, target users, perceived purposes, guidance and support for users, technical aspects of the systems such as security, authentication, accessibility, editing and viewing rights, IPR and DP policies, interoperability and integration with other systems, storage capacity and duration, how institutional policy had evolved and any evaluation already carried out or planned.

This paper will report of the findings and consider what implications they have for the future development of e-portfolios in UK higher education.

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0 – 60 in (what seems like) seconds: A year of eportfolios at the University of Wolverhampton

Sutherland, Shane: University of Wolverhampton

This paper analyses the eportfolio implementation strategy adopted at the University of Wolverhampton and discusses the variety of strategies which saw eportfolio use go from a near standing start to being accessed by over 7700 users recording an overwhelming number and diversity of items in their eportfolio accounts including around 4000 webfolios with an average of 4 pages per folio. Of particular note is the amount of sharing taking place between users with evidence of over 5000 shared items and nearly the same number published to class or module ‘gateways’.

The eportfolio system adopted by University of Wolverhampton was trialled with small groups of students during 2004-05 and, following a successful evaluation\(^1\) was adopted by the institution in June 2005. The University Quality Committee authorised the institution-wide use of the system and at the same time determined that the eportfolio was to be the only institutionally supported tool for personal development planning (PDP). Throughout the pilot it had been established that the system was suited to many more uses than a formalised PDP structure. The underpinning pedagogic design emphasised learner centricity, reflection on learning, communication and collaboration.

The challenge then was to devise a suitable, institution-wide implementation strategy aimed at both staff and students and which highlighted the myriad ways of using the eportfolio system. A model, which came to be described as ‘organic’ was selected. The key features of the approach were to:

- make the system widely accessible
- inform the community of its availability
- deliver training workshops
- provide support ‘on request’ to users
- develop eportfolio leaders

It would be difficult to describe the approach as anything other than very successful. After one year the eportfolio has been accessed by over seven thousand users and is being used in every major area of the university. More detailed information on use is presented later but first the features of the approach are discussed in more detail.

**Easy to access**

In consultation with the IT department it was agreed to add an eportfolio icon to the desktop of all university computers; staff and students. This made the eportfolio webpage easy to locate without having to remember a complicated URL. Notwithstanding users would want to access the system from elsewhere and so the URL provided for the system settled as the university homepage URL with the extension `/eportfolio`\(^2\). Logging into the eportfolio was

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\(^1\) Halstead, A; McGuirk, M; and Peters, J (2005) ePortfolio Pilot Evaluation (Internal Report)
\(^2\) www.wlv.ac.uk/eportfolio
facilitated by users’ normal university credentials. Unfortunately whilst the eportfolio system supports integrated windows authentication (IWA) this is not supported by the general university network.

The University of Wolverhampton has its own virtual learning environment (VLE) which enjoys extensive use. Many users would be directed to access the eportfolio either from relevant content housed within the VLE or would simply choose to as a result of their learning. The irritation caused to users by having to log into the VLE and then into the eportfolio was not lost on the respective development teams and so from Easter 2006 a single sign-on facility was developed between both systems. Introducing an eportfolio system into an institution with well-developed VLE policy and practice has undoubtedly simplified the task though it has also raised questions and created tensions that are discussed later.

The eportfolio was also central to a JISC-funded project during this year which involved the university working with two local schools and three colleges. Participants in the project accessed a single installation of the eportfolio, hosted at the university, and were able to log-in using their local usernames and passwords via an authentication technology called Shibboleth.

Promoting Awareness

Most users will have experienced a new icon appearing on their computer desktop without really understanding what it was or how to use it. Rather than taking the user directly to the eportfolio system itself the icon directed the user to an informative website with a prominent log-in area. The website contained information about eportfolios in general; about its use within the institution and information about how the eportfolio could be used to support PDP, CPD and learning, teaching and assessment. There was also a help section with some tipsheets and details of who to contact for information and support.

Working in collaboration with the Students’ Union a range of mouse-mats, pencils, and sharpeners were procured to promote a scheme called ‘sharpen up your skills’. This scheme provided coaching, support and some workshops for students keen to develop their general IT skills. The eportfolio featured heavily in this scheme and all of the marketing items were prominently branded with the eportfolio URL. Importantly all of the student-coaches were introduced to the eportfolio system and many used it to record their own learning and experiences. The SU coaches also provided some support to teachers who were introducing the eportfolio to their student cohorts for use during this academic year.

The preparation for and launch of the Centre of Excellence in Learning and Teaching provided many useful opportunities to talk about the eportfolio. The university was also successful in having three members of staff rewarded as National Teaching Fellows. All three had been engaged with the eportfolio during its development and pilot and they shared news of the eportfolio along with their other work.

The intention throughout was to make as many people, especially staff, aware of the eportfolio as possible. However, unlike an earlier VLE implementation strategy there were no targets set for use nor were any incentives offered to colleagues. Exposure to the system, it

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3 Staff and students are issued with a username and password to access all IT systems
4 http://www.jisc.ac.uk/index.cfm?name=epistle
5 http://www.jisc.ac.uk/index.cfm?name=pub_shibboleth
was hoped, would generate sufficient enthusiasm amongst some staff to ensure a reasonably wide spread of use which would then continue to grow over time.

A series of one-hour presentations were held across the institution (on 4 campuses). The sessions were very well attended as colleagues seemed eager to find out more about the eportfolio which, by now, seemed to be mentioned at every turn. Attendees at these events were dispatched with an eportfolio user’s handbook and were invited to ‘shout for help’ when or if they needed it. A very interesting, and satisfying outcome of the open presentations was that many non-academic staff began using the system for their own personal and professional development. Some began using it voluntarily for appraisal/performance review and others for professional accreditation (see below).

In addition to the eportfolio presentations further opportunities were sought to inform specific groups who would be likely to benefit from use of the eportfolio system or at least warranted an understanding of it. Presentations were given to learning and teaching committees; research students; personal tutors; quality committees; executive board; work placement officers, indeed, wherever a group of people met there was likely to be some information given or shared about the eportfolio. This approach is not as onerous as it may appear and presentations to one group often yielded invitations to other groups. As the academic year wore on the range of ‘real’ assets grew and so the presentations became ever more powerful as the theoretical possibilities became evidenced actualities.

**Developing skills and understanding**

Despite its intuitive design simply knowing about the eportfolio did not equip most teaching staff with enough confidence or competence to use it with their students – though it was a constant surprise to suddenly come across those that had! During the pilot phase training workshops were delivered mainly to students on behalf of their teacher; clearly this was not possible with such a wide-scale roll-out though workshops for students were offered where feasible and they continued to be provided by the SU. Training workshops for staff tended to be offered to schools or subject groups as this made it very much easier to discuss curriculum design and innovation: the eportfolio is, after all, only a tool and requires thoughtful deliberation if it is to be used effectively.

Most workshops were offered over a morning or afternoon session. Typically the format of the sessions would be: an introduction to the context of eportfolios; creation of some simple assets; aggregation of assets into a presentation portfolio (webfolio); how to share, comment on and assess items; and discussion about implementation. Workshops always provided opportunities to ask questions and those which came up most often were around:

- The security and privacy of the eportfolio, especially important if it was to be used by teachers for their own CPD;
- The longevity of accounts i.e. what would happen to work one a user left the institution;
- The implications for workload, particularly if students chose to share their work with the tutor for regular feedback;
- The role and purpose of the VLE now that the eportfolio was available as an institutional system
The answers, in brief, are:

Contents of a user’s eportfolio store are absolutely private and can only be accessed by another person if that item has been shared with them and appropriate access permissions have been granted.

User accounts are guaranteed for a minimum of 12 months after graduation; the institution is considering the provision of ongoing eportfolio accounts as part of an alumni package.

Impact on workload is a much more difficult question to answer as it relates directly to a teacher’s conception of their role. A teacher with a student-centred view of learning and teaching is much more likely to see the use of the system as complementary to their work whereas a more didactic teacher may view the eportfolio, and in particular its communication and collaboration features, as an additional burden which is anathema to their role conception.

The final question is perhaps the hardest of all to answer. ePortfolio systems certainly challenge VLEs; the movement towards Personal Learning Environments (PLEs) will be even more challenging. Many staff have failed to engage with the VLE because of either its pedagogic design, its aesthetic design or its perceived focus on content delivery, and yet they see great possibilities through the use of the eportfolio. Where staff have used the eportfolio system to record their own learning and achievement they quickly recognise how easy it is to create and share their subject materials with students. One argument has it that the intellectual property i.e. materials designed and developed by the teacher, naturally reside in their eportfolio, as evidence of curriculum design and innovation, not in an institutional repository.

In an institution where targets have been set for the use of the VLE and a great deal of institutional effort has been expended on promoting said system it is challenging to find users opting for the eportfolio now that they have an element of choice. It needs to be stressed that the eportfolio system was not designed for this purpose and its adoption for learning and teaching is a double-edged sword. It is a testament to the system’s ease-of-use that staff are using it to create and share materials with students (most contain elements of discussion and feedback) in preference to the VLE but close evaluation must take place to ensure that the very personal feel of the eportfolio is not eroded through its use to serve a purpose which is very much more institutional. There is also scope for research into what it is about the eportfolio system which makes users respond to it in ways which are very different to the VLE. It may be that it is not the processes which take place through the respective systems but rather the amount of control held by the user. In the VLE control is held by the institution and their agents – normally teachers. In the eportfolio system control is shared more-or-less equally by all of the participants; though this itself is variable depending upon the use of the system for more formalised processes like assessment, accreditation and professional review.

**eMentoring**

In the sense applied here e-mentoring is used to describe the one-to-one or one-to-few support offered to staff engaged in developing their elearning skills, content or activities. This support was originally offered by the eportfolio coordinator (ePC) and the student support coordinator (SSC), who had been an early champion of the eportfolio in support of PDP. During the first semester user expertise grew and some of the ‘early adopters’ began to share their experiences with other users. It was very easy to persuade users, both staff and students,
to share their experiences and their work and 4 separate ‘show and tell’ events were held during the year.

In addition to the show-case events there have been 4 ePortfolio User Group Meetings. At the first of these meetings a chair was selected from the group to promote user-led activity and to provide some differentiation from the institutional role of the eportfolio coordinator. During semester 2 colleagues could call upon an eportfolio coach 2 days per week and could arrange support sessions for them or their students. This service was relatively well used especially in the lead up to the end of the semester assessment period when support was often requested to explain newer system features such as assessment gateways and archiving. Feedback from colleagues has indicated that the level of support has been very high and very welcome and yet it has not been a resource burden. It may be that simply knowing support is readily available; knowing that issues are dealt with very swiftly and knowing that tailored one-to-one support can be organised has left a strong and positive impression on the users.

In addition to the support provided by the ePC, the SSC and the part-time eP coach growing support started to flow from the ePUG and exceptional members within it. This kind of ‘mentoring’ was valuable once people started to use the eportfolio system but a ‘fast-track’ method of developing confident and competent users was also required. For this a series of eportfolio ‘retreats’ were run. The retreats took place over two days at a small hotel away from the university.

The purpose of the retreats is to isolate participants from their normal environment, more particularly from the constant demands of the telephone, email and departmental meetings. The hotels used are always small and provide good wireless networking. Some of the retreats are school-focused though they are more often cross-institution with invitations to attend offered to subject or theme-based teams of 2 or 3 members. The reason for inviting teams is that they are more likely to be self-supporting upon their return to the institution. The retreats follow this general structure:

- An overview of eportfolio developments nationally and regionally: this helps participants identify that the introduction of an eportfolio is not simply an institutional venture but rather that the development and adoption of an eportfolio system is commensurate with significant governmental and sectoral policies and trajectory. Importantly, the message is not lost on participants that future graduates will be entering the institution with existing eportfolios.

- An overview of the current system and examples of work: the PebblePad system being used offers many different ways of working and it is necessary to provide an overview of its potentialities. These are best demonstrated by reference to actual work where that has been made available by its owners for this purpose – luckily there is no shortage of sample materials as many eportfolio users are justifiably proud of what they have created and are keen to share it with others.

- Creating, reviewing, sharing and commenting: a simple asset type is created and developed through sharing and commenting. The main purpose of this section is to introduce basic navigation and functionality whilst discussing how the asset types can be used to support a variety of learning and
teaching purposes. Items are shared to demonstrate the communication and collaboration features of the system.

- Using Blogs: the blogging tool is introduced early and is sued throughout the retreat. Participants are encouraged to use the tool to record their experiences and ideas whilst on the retreat; in particular their thoughts around how the eportfolio system can be used in their learning and teaching context.

- Aggregating assets into WebFolios (storytelling): Once a number of assets have been created and some external files uploaded participants are shown how to created webfolios, or ‘stories of learning and achievement’. This provides a good opportunity to show further examples of existing work to explore the wide variety of ways in which the users are communicating their abilities and experiences.

- Using Gateways for assessment and support: the PebblePad system has a feature called gateways which provides a more institutional space for users to ‘publish’ their work for purposes such as assessment. During this part of the retreat participants learn how to manage gateways (including marking and archiving) and groups of learners. An important aspect of this stage is a discussion concerning the delineation between the personal eportfolio space and the institutional eportfolio space.

- Curriculum discussion and design: Learning and teaching theory underpins the whole retreat and the pedagogy of eportfolio use is referenced throughout. This part of the retreat provides an opportunity for the participants to think about the variety of ways in which they might choose to use the eportfolio system and to plan how to implement it in their curriculum and how to introduce it to their students and/or colleagues. The final afternoon of the retreat is reserved for curriculum planning though will often include participants developing some sample eportfolio items to illustrate purpose to their students.

**Becoming Redundant**

Part of the implementation strategy has been to make the role of ePortfolio Coordinator redundant and to a large extent, even within a year, this has been successful. The eportfolio system in use at the University of Wolverhampton is already being used for personal development planning, continuing professional development, professional accreditation, learning and teaching and appraisal: each of these areas has its own champions, strategies and support processes which will need to consider the role of the eportfolio within their domain. At the first meeting of the eportfolio user group a chairperson was nominated from the ‘ranks’ and this person has been instrumental in supporting the development of other users (particularly within their school where a collaborative ementoring project shows signs of great success).

From within the School of Education one of the pilot teachers has continued her influential work and the university has employed one of her former students to work across two schools providing mentoring support to staff. Within each of the schools one or more people have
emerged as champions and advocates for the eportfolio and, one year from initial deployment, it is they, rather than the eportfolio coordinator, who are running introductory workshops, staff development days and ‘show and tell’ events. The Students’ Union sharpen up your skills\(^6\) project was so successful in its first year that it has been continued and extended for 2006/07 with more student coaches providing IT support to students as well as offering a wide programme of skills workshops.

A growing collection of support resources is now available to students and teachers alike including video tutorials, captioned walkthrough movies and tipsheets. However, a large part of the reason the implementation has been so successful is the ease of use of the system itself. This has been evidenced, in part, by a new research project which asked a group of brand new students to ‘blog’ their first experiences of the university. Working just from a 5 minute movie and a simple tipsheet 17 users have registered for IT accounts, accessed PebblePad, created a blog, posted entries to the blog and posted it to the ‘UniLife Gateway’: this has all taken place before they have actually started at the university.

In terms of training and support for staff and students for the academic year 2006/07 the ePC role has become redundant with this work now being managed by the Student Support Coordinator and the Technology Supported Learning Coordinator. Importantly the majority of support is being provided by teaching colleagues with the university’s schools and departments and augmented by a small but growing number of mentors; a pool of student coaches and a substantial number of eportfolio users only too keen to demonstrate to others how to use the system. However, the role now exists now in a different guise. There has been significant interest amongst the university’s partner schools and colleges with at least 8 beginning to use the system with their students (and others in regional projects). Add to this interest from professional organisations providing placements and employment opportunities for our students; the need – or at least, desire - to provide services for our alumni as well as for colleagues moving between projects or institutions and it becomes evident that our existing institutional policy concerning provision of services is itself rendered redundant and in need of overhaul. One of the key tasks then for the ePC now is to help develop such a policy and to work with regional stakeholders, graduating students and employers.

**How Successful?**

Within the first semester (Oct-January 05/06) all 10 academic schools and a number of support departments (including Careers, Counselling and Learning Centres) were using the eportfolio system for a range of purposes. Some schools have made the use of the eportfolio a core part of their year 1 provision; for example the School of Art and Design, whilst others have taken their whole curriculum and embedded eportfolio use throughout it – the Midwifery programme provides a example of this and is the result of the entire midwifery team going away together on one of the eportfolio retreats.

…**In numbers**\(^7\)

The total number of users (7767) indicates all of those people who have logged into PebblePad since its launch across the institution in October 2005. Many users will have visited the site as a consequence of seeing the icon for the first time on their university

\(^6\) [http://asp.wlv.ac.uk/Level2.asp?Section=&Subsection=547](http://asp.wlv.ac.uk/Level2.asp?Section=&Subsection=547)

\(^7\) Figures taken at the end of the summer recess (August 2006)
desktop or in WOLF (the university’s Virtual Learning Environment). The number of active users\(^8\) (2692) peaked shortly before Easter 2006.

Files are the most popular form of asset added to the system (17428); many of these will have been uploaded by School of Education students evidencing lesson plans, observations and learning materials though the pre-placement portfolios created by students in the School of Computing also drew upon significant numbers of files to evidence prior experience and achievement. Significantly image, movie and sound files account for approximately 23% of the uploaded files: word processed documents make up approximately 60% of the overall total.

Of the integrated, structured assets thoughts are the most widely used (8028); perhaps as they are the easiest to complete and the most flexible. However there are also a significant, indeed unexpectedly high, number of action plans (3202) - the most complex of the standard asset types. The total number of action plans is roughly equal to the sum of the other four asset types (meetings; experiences; abilities; achievements) which saw similar levels of use.

WebFolios provide a framework for aggregating assets into coherent collections of learning artefacts (learning stories) and represent the most involved use of the eportfolio. It is highly encouraging then to find that 4093 WebFolios have been created with an average of 4 pages per folio. Blogs appeared as a relatively late addition to the system but by the time of this report 1810 are in use.

Through the eportfolio system users can share their work with others or to publish it for assessment or review\(^9\). Over 5563 shares have been recorded and 5230 items have been published to gateways (controlled by teachers). During the second semester there has been a noticeable increase in publishing as an alternative to sharing as teachers have become more experienced in their use of the system and more knowledgeable about how to manage eportfolio submissions from large numbers of students. Gateways provide tools for locking and archiving work and this certainly has appeal in some contexts. An unanticipatedly high number of report assets (1569) have also been recorded. Reports are generated as a result of using the integral Learning Skills Profiler - a feature which has not been widely promoted but seems to be generating significant use.

**In words and pictures...**\(^10\)

Whilst not strictly an example from within the university the example below is from one of the schoolchildren involved in the JISC-funded ePISTLE project.

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\(^8\) Active Users describes users who have used the system with the last 4 weeks

\(^9\) Sharing typically involves a transaction between 1 or more people selected by the eportfolio asset owner. Publishing involves making an eportfolio asset available on a gateway which would typically be owned by a teacher and would relate to a particular course, module or affinity group.

\(^10\) Examples of users work provided with their consent
Comic book to Screen

At the start of the project, the tasks:
To create a photo
To create a 30 second animation
To research the history of the comic

Result:
I have produced a very successful photo comic and have also made a 30 second animation using i-Movie to edit them. In this project I have learned a lot about animation and much more. I have even produced my own comic and have also liked the process of learning. If I could re-plan my project it would be more detailed as this would have helped me produce a better comic.

View my comic
Page 1
Page 2
Page 3

Title: Caricature
Filename: matt_charicature.jpg
Description: A caricature of my brother
The example above shows an archive of work published by students to a gateway. The WebFolios on the gateway were created in preparation for a one-year placement. Below is an example of one such WebFolio.

**Action Plan & SWOT Analysis**

Here below is a link to an action plan that has been created by myself, which allows the user to view my current situation at the moment and the ideal situation that I would like to be in when I finish my degree. I have made a step-to-step guide to success by myself and these goals are to be met if I want to reach my main aim and goals. I have produced a SWOT analysis, which goes through my strengths, weaknesses, opportunities and threats. Lastly, I have talked about my supporting resources, which will help to meet my goals to my ideal situation.

**Click Here to view my Action Plan**

**Title:** Action Plan

**Description:** Currently I am studying BSc Hons Computing Information Systems for Business at the University of Wolverhampton. I decided to take this course because I believe that I have a good knowledge and underst...
This is an example of a blog which has been developed by a community of users on a Post-Compulsory Teaching course and which is still being used by the group after the course has ended.

15/09/2006 11:05

**Eifel meeting**

Hi guys,

Jen, Llander, Mandy we need to arrange a quick group meeting with Julie as discussed before to go over the Eifel presentation. Is either Sat or Sun this weekend (16th or 17th) or next (23rd or 24th) any good for anyone? If we can agree on a date then we can plan somewhere child friendly so that Brendan and Grace can come.

See you all soon xx

Posted by Purnell, Emma

[Read More | Post Comment]

14/09/2006 16:23

**First day at Uni**

Well it was pre-induction today and it felt odd but familiar. New faces, some excitement, some trepidation. It feels odder because we won’t meet in tutor groups for 2 more weeks. I missed pre-induction last year so I’m glad I’m here as it’s allowing me to be in more contact with more of the students.

New thing this year - the youngest is a year older than my oldest daughter Rachel - gulp! They could be my kids!

Anyway that’s me blogging off for today - how are your new groups?

Posted by Hughes, Julie

[Read More | Post Comment]

10/09/2006 20:03

**Grace’s first graduation**

Grace’s first graduation
This example is from a colleague in our Learning Centre who has created a WebFolio for professional accreditation.

As the institution now enters into only its second year of using the eportfolio system it is reasonable to describe it as ‘established’. It is in use in every school and in most departments; it is being used by staff and students for a range or purposes encompassing PDP, CPD, L&T and many more. It is being used for formal purposes such as assessment and accreditation whilst contemporaneously being used by students to tell stories of their learning lives at Wolverhampton to their friends and family distributed across the globe.

The organic institutional strategy seems to have worked though what is missing from this text so far is the most essential ingredient. The eportfolio system used at the University of Wolverhampton feels like a personal learning system, it is controlled by the user and it offers them tools and functions which appeals to the ways they work and allows them to create imaginative and inspiring stories of learning.
MANAGING REFLECTION: THE DEVELOPMENT OF E-PORTFOLIOS TO SUPPORT PROFESSIONAL LEARNING IN NORTHERN IRELAND

Eleanore Thomas C2k, Victor McNair Ulster University

Introduction and Background

This paper presents the results of a pilot study which evaluated the integration of e-portfolios into the professional learning of 30 Postgraduate Certificate in Education (PGCE) student teachers from the University of Ulster in Northern Ireland, between 2005 and 2006. Professional learning, in this context includes how they used the e-portfolios to support evaluation and assessment of their teaching and how they developed the skills of reflection in and on learning. The study is particularly important as it took place amid the changing Northern Ireland policy context where three recent and separate developments have opened the way for it to become a mainstream possibility for all teachers. The first of these initiatives is a comprehensive review of the framework for Information and Communications Technology (ICT) in education, entitled ‘emPowering Schools’ (http://www.empoweringschools.com/). Published in 2004 (DE 2004), this strategy built on the achievements of its predecessor, the Northern Ireland Educational Technology (ET) Strategy (DENI 1997). The ET Strategy secured good connectivity, embedded ICT into the curriculum, developed, through the New Opportunities Fund (NOF) teachers’ skills and achieved a comprehensive infrastructure. ‘EmPowering Schools’ was able to set out a more ambitious vision, in which, within a 5-year plan, it would; ‘bring about systemic (system-wide) changes which embed ICT into practice, transforming that practice where appropriate, rather than computerising existing processes’ (their emphasis) (DE 2004:5). Anderson and Stewart (2004: 89) summarized the point in time where policy in Northern Ireland could move from having a strong ICT base to making radical changes in how teachers and pupils think about education and learning; ‘There’s enough technology in place in Northern Ireland to realise that it’s not really about the technology, instead we can begin to think about the real issues of new approaches to learning.’ The shift in emphasis from using ICT to e-learning now requires that research, innovation and good practice in online activity is harmonized with other areas of education policy to help it become mainstream. Action plans and milestones within ‘emPowering Schools’ have explicitly linked e-learning to key policy areas of education such as learning, teaching, assessment, professional development, infrastructure, procurement and administration, creating the expectation that online activity will be a catalyst for change in all areas of professional practice. One of the overarching aims of ‘emPowering Schools’ is to provide the context in which pupils and teachers can become lifelong learners. This means providing, for pupils, the infrastructure to host and maintain a continuously evolving record of learning, encapsulated in pupil profiles. Similarly, for teachers, there is a growing perception that professional development can be supported by e-portfolios. Indeed, the new strategy requires that; ‘Members of the professional community should maintain personal eportfolios, as records of their continuing professional development’...’ (DE 2004:23). The intention is to introduce the application of e-portfolios through teacher leaders in order to provide a robust model of application. However, some work has already been undertaken in this area ( McNair and Marshall, 2006: 474) and hence, this paper focuses on the use of e-portfolios within Initial Teacher Education as a precursor to evaluating possible trajectories for progress for the whole teaching community, in compliance with the aspirations of ‘emPowering Schools’. Another strong facilitating factor linked to ‘emPowering Schools’ is the widespread adoption of Northern Ireland’s new, custom-built Virtual Learning Environment (VLE) ‘Learning Northern Ireland’ (LNI) which is currently connecting approximately 370,000 users in Northern Ireland’s 1200 schools, support organisations and Teacher Training Institutions. LNI, developed by Classroom 2000 (C2k) in partnership with Hewlett Packard (hp), now provides a password-protected online environment in which teachers can build collaborative communities of practice, exchange resources and indeed, teach about and through online media in and beyond the classroom or school boundaries. The significance of LNI to this study is that it may have created the conditions in which
professional development is no longer seen as physical attendance at courses which are delivered by an expert to a passive audience. Already it is being viewed by some as collaborative, asynchronous and peer-orientated. Similarly, therefore, the recording of and reflecting on professional development within a common VLE leads to the notion of evidence of learning that is located, shared, developed and evaluated within an interested community whose support is provided within a protected area and to which they would be granted access anytime anywhere.

Even with its ambitions and far-reaching milestones, the professional development aspect of the ‘emPowering Schools’ initiative may progress little except by those particularly interested in e-portfolios, were it not for a second initiative. The General Teaching Council of Northern Ireland (GTCNI) in their review of the teachers’ competence framework (http://www.gtcni.org.uk/) has reopened the debate about what constitutes appropriate teaching competence and by implication, the content of appropriate professional development. The key motivation here was to review Northern Ireland’s 92 teaching competences, reducing them to 27 and seeking to establish career progression routes through Core, Chartered and Advanced Chartered milestones for each teacher. The timing of this review, coinciding as it does with a heightened awareness of the implications of ‘emPowering Schools’ means that the debate can now include new opportunities to think about how assessment and recording each teacher’s professional development milestones can be facilitated online and how support can be provided in ways that were not possible in the past due to geographical and time-bound restrictions.

A third, perhaps less germane but nonetheless strategically significant initiative has come from the Education and Training Inspectorate (ETI) in the form of their guidance on how teachers should become more effective in their teaching. ‘The Reflective Teacher’ (ETI 2005) sets out guidance relating to how teachers should habitually reflect on their own effectiveness in the classroom and by implication, the professional directions they need to embark on to improve. Its expectations are summarized in Figure 1 below:

![Figure 1: A Model of Reflection (ETI, 2005: 5)](image)
The significance of this initiative is that it formalizes reflection, embedding its language and expectations into everyday practice. Also, it provides a common platform for its application and, for e-portfolios, the potential for a commonly understood way of systematizing how reflective practice is recorded, communicated and evaluated. More strategically, the inclusion of this third statutory agency in the e-portfolio agenda for Northern Ireland (C2K, GTCNI and ETI) provides a more comprehensive basis for establishing a culture within which e-portfolios can be seen as a relevant and purposeful way of providing professional development support. Of course, the European context cannot be ignored. The European Commission’s (EC) Lisbon Strategy to increase Europe’s competitiveness and social cohesion and the desire to develop: “...a ‘portfolio’ system which will enable citizens, at all stages of education and training, to group together their qualifications and competences and present them...” (EC 2001) is an important aspect of developments in Northern Ireland. It is crucial that any progress with e-portfolios is closely linked with national and pan-European e-portfolio strategies (DfES, 2005; EfEL, 2005).

The PGCE course and the role of critical reflective practice

It was within this context that a partnership was set up between C2k and the University of Ulster to identify how competence development could be more effectively facilitated, recorded and communicated to mentors and peers. At the University of Ulster, there are 125 students enrolled in Post-primary courses representing the eight subjects of art and design, English, geography, history, home economics, music education, physical education and technology and design. Only the latter two cohorts were involved in the study in order to pilot the process of recording and evaluating teaching competence, with the intention of rolling the work out to the remaining cohorts, following evaluation and the agreement of the respective tutors. Two thirds of the 36 week course are taken up with school placements and there is a common approach to the development of reflective practice, based on Schön’s (1987) view of reflection in and on action. For teachers, this has been summarized by Pollard (2002: 16). Evidence of teaching competence in Initial Teacher Education has traditionally been provided through a combination of assignments, observations of teaching and the development of a paper-based teaching portfolio containing a wide range of resources, policy statements, lesson plans and evaluations. For students, this means that there is a strongly established link between the elements of their course and what they do in the classroom. Initially, students are ‘taught’ some of the main teaching concepts such as learning, teaching, psychological and social theory (received knowledge) but because of the intensive nature of the one-year PGCE course, there is rapid application of these theories to practice through observation and practical application. While reflection begins with the validation and evaluation of received knowledge, students are required to evaluate their practice on a continuing basis (following each lesson), review and update their knowledge base and reapply it. Once revalidated, students are expected then to share the process and its outcomes with peers, tutors and mentors in their placements schools. The process is iterative, interactive and progressive. In practice, students are required to use the VLE for reflection during their school placements (its use serves many other purposes including sharing resources and collaborative working in a range of teaching and learning activities (Clarke, 2002; Lambe and Clarke, 2003).

Developing the aims and rationale for the study

Setting up the study, therefore commenced with a review of how the new competence framework might best be represented within the structure of an e-portfolio. The main aims of the study were to:

- Identify the main issues in designing and developing an e-portfolio for professional development of teachers;
- Consider whether the communication and collaboration tools within a VLE can add value to the e-portfolio once located within LNI;
- Establish what competences would be most relevant to student teachers and how the e-portfolio might support their development;
• Bring together key teachers and learners to support student development;
• Identify issues for further development and study.

Figure 2 illustrates the model which was used as a basis for deciding the layout of the HTML pages that made up the e-portfolio sections. Two main issues influenced its construction, the institutional, curricular and educational constraints within which students and their tutors would need to operate (represented by the underlying circles) and the layout and content expected within each page. The institutional constraints included the course structure, its assessment requirements and its teaching and learning expectations, each of which influenced when and how students would enter evidence of teaching competence into the e-portfolio. We outline below, how the e-portfolio met some of these course requirements. The curricular constraints aimed to recognize that students would compile the e-portfolio as post-primary subject teachers (in this study, technology and design and physical education (PE)) and that subject differences may influence how they selected, applied and evaluated e-portfolio content. While within the pilot, no subject differences were detected in the process, nonetheless the model recognizes that other subjects may differ. Other educational constraints included what would be expected in relation to, for example, the use of ICT, special needs education, pastoral care, classroom management and discipline.

Each page represents a set of competences that were grouped under headings defined by the GTCNI (http://www.gtcni.org.uk/). While no specific competences were listed in the pages, there was an expectation that students, supported by tutors, would ensure that all the competences within that group were addressed. Thus, the competence areas, which the student teachers were to develop throughout their PGCE year became the navigation structure for their e-portfolios. Regarding page layout, it was important that each page had a consistent structure and appearance so that students and supporting teachers would become familiar with its layout and target important issues relatively quickly. Based on the view of reflective practice outline above, each web-page had space for an introduction, a section for the presentation of evidence relating to the competence area for that page, a section for comment by others and a final section for action plans for further development. The home page provided an introduction to the e-portfolio and outlined user requirements (illustrated in Figure 3 below) Students were asked to complete e-portfolio at key points in the course; during and following each school placement (to consolidate and articulate the extent of their work-based learning); at ‘eureka’ moments (when students themselves noted a significant personal learning gain) and as part of the assessment process (one assignment was presented completely within the e-portfolio). For the purposes of this pilot, students were given freedom as to which section they completed (whether teaching and learning; professional values etc.) but there were collaborative and individual discussions with the tutor about how best to represent the learning gains within the sections chosen.
Figure 2: An e-Portfolio Development Model

Figure 3: Typical e-Portfolio Home Page
Summary of Results

Design and Structure

The e-portfolio was created as a template set of HTML pages and housed within the LNI environment. This was to allow the e-portfolio builder to avail of all the functionality and communication and collaborative tools within the VLE. The advantages of storing the e-portfolio within LNI included the absence of a need to purchase web-space to host their e-portfolios online (they were entitled to their own online learning area within LNI). Any content uploaded to the e-portfolio was automatically stored in the Northern Ireland Data Centre, which is managed by hp and backed-up regularly. Furthermore the students had free access to contact the C2k Helpdesk for technical support under the ‘Managed Service’ agreement that C2k has with hp. LNI is a secure password-protected e-learning environment so the e-portfolios were initially private to their authors until opened to selected audiences. The authors had automatic access via LNI to a database of LNI users, from which they could select their individuals or groups who could then access a student’s e-portfolio via their own portal within LNI. The author could also set permissions for their guests to view their e-portfolio with a complement of rights. A guest could be made a co-editor along with the author and in the context of this study, co-editing rights were given to the project team to moderate the e-portfolios for the evaluation of the pilot. However it is a feature that could be used more to facilitate peers developing joint projects. Guests, in general, viewed the e-portfolios with read-only rights plus the ability to post comments to discussion forums. The author could insert multiple discussion forums at any point within their e-portfolio. All of the students inserted at least one discussion forum and several created a separate forum for each competence area they were developing. The forums were used more by the UU tutors than by supervising teachers for the mentoring of the students. A further study will concentrate on encouraging more input from the teaching community. One of the more user-friendly aspects of the LNI e-portfolio was that no web-authoring skills were required to maintain and update an e-portfolio. The e-portfolio author used a set of simple online tools for editing and formatting text, uploading and downloading files, embedding media files and inserting hyperlinks. The editing was done online and so, on accepting changes, the e-portfolios were automatically published within the VLE. The area within LNI where the students built their e-portfolios had not been designed with an e-portfolio in mind so in order to facilitate the study some ad-hoc technical changes were made to integrate the e-portfolio with the discussion forums and other areas of the VLE.

Using the competence statements to design e-portfolio structure has enabled students, their school mentors and course tutors to map their strengths and weaknesses directly onto the e-portfolio and share them with a wider professional audience. While the current structure may change, the process of designing it has provided a developmental model that teachers are likely to recognize. While completing sections of the e-portfolio was an integral part of the PGCE assessment structure (an important innovation in linking the course with the e-portfolio) most students were aware of the personal advantages of using the e-portfolio and agreed that they would sustain it through Induction and Early Professional Development (years two and three of their teaching career).

Using the e-portfolio to support teaching and learning

When asked about the importance of the e-portfolio in their teaching, students commented on how the process of compiling the e-portfolio supported reflection, improved their teaching and made them more thoughtful about their teaching (Figure 4).
While reflective practice was a key feature of the project, some students failed to analyze their work but rather, thought that descriptions of their teaching would be adequate. We take the view that for some students, analytically articulating their reflections requires a level of understanding that may take time to develop, while for others such analysis seems to become a feature of their professional development more readily. This differentiation in reflection was seen as an important highlighting function of the e-portfolio and enabled deeper and more targeted dialogue about students’ teaching and learning activities. On completion of the pilot, interviews, carried out with a sample of six student teachers, highlighted four issues, each of which have technical implications for any future e-portfolio solution. Firstly, students expressed the view that there were advantages relating to its portability. In its simplest form it was used as a repository for their work. The online dimension counteracted the necessity to maintain paper-based portfolios; “...because the e-portfolio is online it has potential to make paper-based portfolios redundant. All that is required is an online computer to access it” (Technology and Design student). In fact it was felt to be an improvement over other off-line digital forms of e-portfolio as online access negated any need to find a means of transporting or transferring an e-portfolio to the desired audience. Secondly, they commented upon the e-portfolio as a useful medium for showcasing their work; “...I used my e-portfolio as a means of showcasing my work. I showcased examples from the projects I had undertaken and developed during the PGCE year. I uploaded exemplars I had created and used in the classroom with my pupils and I even included demonstrations of work I had done as an undergraduate” (Technology and Design student). In order to provide access to their e-portfolios, students were granted access to the NI database of teachers and educationalists, giving them opportunities to present their work to a target audience such as potential employers or practicing teachers who, through the discussion forums, could act as mentors. Several students expressed the view that as their e-portfolios grew, pride and confidence in their work grew also. Some students became keen promoters of the e-portfolio by demonstrating their e-portfolios to teachers they had worked with on school placement and explaining the ease with which an e-portfolio could be built.

Thirdly, the students felt that as a medium for personal reflection, the e-portfolio brought added value to their professional development. They suggested that it had potential to become a learning journal or a revision journal to which a teacher could return and reflect throughout their teaching career. They agreed that the reflective aspect of the e-portfolio could help its author learn from past mistakes and thus inform decision making for the future. In this respect it could prove to be a valuable tool to support lifelong learning; “I can see its potential for continuous professional development if teachers were to......build up their e-portfolios they will always be able to look back and see how their career has progressed” (PE student). Several students also expressed the view that an e-portfolio would be a useful tool to help teachers meet new challenges arising from the new educational initiatives. As Northern Ireland is on the verge of implementing a new curriculum, the student teachers devoted aspects of their e-portfolios to focusing on the development of the new skills.
required. Where sections within the e-portfolio had little content (as this was a pilot, we did not require students to complete all sections of the e-portfolio) the need to concentrate more effort in these areas was highlighted; “There were clear benefits for building an e-portfolio...[it] highlighted which areas needed more work...It revealed where evidence was lacking.” (PE student).

Fourthly, the study revealed that communication and collaboration are considered by the students to be key aspects of professional development and that the e-portfolio has a role to play in this. The students approved of the fact that they could share their e-portfolios with peers and colleagues both within their subject specialism and across the curriculum. They were positive about the opportunity to open their e-portfolios to potential employers and mentors who could add their advice and expertise; “The e-portfolio has potential as a vehicle through which teachers, especially Beginning Teachers, can be mentored by experienced professionals” (Technology and Design student). The e-portfolio was considered to be a point of reference for collaboration that would give opportunity for teachers to pool good ideas, share resources and collaborate over the production of new resources; “the e-portfolio has potential to support collaborative networks of teachers working together.” (PE student). One student felt that his e-portfolio was such a rich source of educational material that it should be opened up to pupils but was unsure how this could be done to the benefit of the teaching and learning process without comprising the need for author privacy in areas containing sensitive personal information.

The student teachers felt that as authors they each were the owners of their e-portfolios. They referred to the personal facet of the e-portfolio; “I think that it is important that the e-portfolio is owned by the person who created it. That personal sense of ownership stimulates pride in your work and gives you the confidence to showcase to others.” (Technology and Design student). The students were concerned about both privacy and copyright issues and as prospective teachers and possible future managers of pupil e-portfolios, they highlighted the need for an e-portfolio coordinator, to ensure that the e-portfolio content was authentic. This was of particular interest to one student who expressed concern about validating the e-portfolio content after the PGCE year had finished. Regarding copyright, students had been encouraged to insert a statement on the opening page of their e-portfolio to inform guests that all the content on view remained the sole copyright of the owner and was not to be used for any purpose without author permission. This step was to protect the intellectual copyright of the author and also to set up the expectation that dialogue should be collegial and mutual. Peer evaluation and support has been an integral part of the PGCE course for many years and while there was intensive peer support off-line through texts, emails and phone calls, collaboration within the e-portfolio was seen as a more formal task and may not have captured the broad range of professional learning activities and support that actually took place. Finding ways to blog more informally so that learning support can be extracted will be an important aspect of future innovations. However, we acknowledge that this is an area of research and evaluation that needs to be developed.

Conclusions and Recommendations

The study revealed that the incorporation of a number of technical enhancements to the e-portfolio could support any future e-portfolio initiative for the professional development of teachers. For example, we believe that to help the author maintain the intellectual copyright of their work, a copyright statement outlining the terms and conditions under which a guest could view the e-portfolio could be set to open on first access by a guest who would then be required to accept before proceeding. To promote ownership, users should be able to personalise their e-portfolios using, for example, text editing, colour, clipart, animation, graphics and hyperlinks, all being part of a preferences, menu. While this project did not use video to support the analysis of evidence of teaching and learning, some students advocated the use of video as a self-evaluation tool, making the construction, editing and evaluating of video files and important part of the way evidence is presented. The extent to which administrators or co-editors should also be able to make modifications emerged as an issue of uncertainty, as the concept of ownership may conflict with the ability of others to intervene. We believe that the teaching profession as a whole need to agree how it views the hierarchy
of influence in teachers’ e-portfolios. There are at least five institutions providing Initial Teacher Education in Northern Ireland and there may be debate focusing on the role of the institution and that of the profession in relation to such levels of access.

Students agreed that the accessible and universal nature of the web-based e-portfolio available to them in LNI, along with the fact that its anywhere-anytime editing features allowed them to work flexibly and would help towards promoting an e-portfolio culture. Similarly, they expressed the view that the use of discussion forums for the mentoring of students by experienced teachers (although not widely used during our pilot) should be encouraged as a means of providing the students with guidance and support for their continuous professional development. While the reason for the lack of participation in discussions may have been that during the period of the study LNI was still in the process of being introduced to the teaching community, this is an area that all agreed should be developed. Strategically, the roll-out of LNI to all schools in Northern Ireland, along with training to help embed it as the VLE for teachers and pupils, is taking place at the time of writing. The pilot has stimulated interest in teacher e-portfolios with Northern Ireland and there is discussion about the integration of a teacher e-portfolio within LNI. This discussion is timely as the training, technical and embedding issues, may support the view that teaching, learning and professional development should take place within one integrated and unified system. Such thinking may add value to LNI usage as it may capitalise on user-familiarity with the interface, navigation and functionality. Other benefits would include the benefits of technical support from the C2k Helpdesk and the availability of the Northern Ireland Data Centre, the storage area where all resources for all schools is held and maintained. The final benefit to integration is the ability to construct a single sign-on facility, where all electronic services are available on receipt of one ID and password.

If e-portfolios were to be used in support of lifelong learning then keeping them up to date, valid and relevant will be essential. Issues central to career-long and career-wide professional development include timing of key milestones for ITE and serving teachers. The e-portfolio should alert the owner to key times when evidence may be required for assessment, evaluation or other purposes. Similarly, good management of data storage and file sizes may assist users to maintain e-portfolios that are transportable across a range of platforms. The relationship between online and offline storage may need to be considered and it is possible (some may say likely) that not all teachers will use an e-portfolio to support their professional development. Similarly, off-line storage may require investigation if it is likely that users may need to update, re-instate or modify archived material. In such cases, the transportation of information highlights another complexity, particularly where teachers move from one jurisdiction to another, an increasing trend within Europe. It became evident from feedback that e-portfolio ‘views’ is a desirable feature. By views, students expressed the need to open up different parts of their e-portfolio to different audiences whilst keeping some aspects private. For example, colleagues in subject departments may have different reasons for visiting the e-portfolio than senior managers. Also, peers who try to develop collaborative work across schools may have different reasons for visiting the e-portfolio than subject experts. With this flexibility in mind, the e-portfolio can become a centre for a wide range of professional development activities. At the moment LNI provides a partial ‘views’ feature allowing teachers to build multiple e-portfolios each with its own access and permission rights. Such integration will require further technical development. The incorporation of a ‘search’ mechanism would facilitate interrogation of an e-portfolio. A viewer would be automatically directed to an area of particular interest to them within the e-portfolio, a definite advantage when browsing large and complex e-portfolios. Search functionality would also allow a visitor to find stored work, information or comment and facilitate the quick and targeted provision of feedback for specific support purposes. The study also revealed that reflection informed decision making for the future. The addition of an action planner and diary would allow the author to identify a focus for further development, articulate a plan to meet its challenges, set personal targets, milestones and deadlines and review and evaluate progress. The collaborative nature of the e-portfolio would allow mentors with appropriate access rights to input their expertise to the planning and evaluating process.
While the project was limited in its scope to two groups of students within one institution, it has nonetheless achieved its overall aim, to establish the concept of a student teacher e-portfolio for career-long and career-wide learning and has highlighted issues that need to be exposed and discussed by the teaching community as a whole. The major cultural issue we foresee is that of integration within the teaching community. While students were keen to try the new e-portfolio, the small scale of the project means that there is a strong challenge to ensure that broadcasting its benefits to the wider teaching community targets the needs of both new and experienced teachers. To this end, the study has informed the beginning of a wider Teacher e-Portfolio (Te-P) collaborative project between the GTCNI, the University Council for the Education of Teachers in Northern Ireland (UCETNI), the Regional Training Unit (RTU) and the Department for Education. The Te-P group has been presented with the task of designing a specification that will lead to the development of an e-portfolio system for all Northern Ireland’s 25,000 teachers and teacher leaders.

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LAUNCHING e-PORTFOLIOS FOR LEARNING, ASSESSMENT AND EMPLOYMENT FOR STUDENTS IN A TECHNICAL COLLEGE

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1. Introduction

This report examines in detail the experiences of a group of faculty from the College of Applied Science (CAS), University of Cincinnati (UC), as they developed and initiated early implementation of an ePortfolio program for the students in their technical college. The project, not even a year from its inception at the writing of this paper, is an ambitious one. The authors propose to develop a college-wide ePortfolio system that students will begin in their first year and continue to build and modify over the course of their academic, and later, professional, careers. As the title suggests, the project is ambitious in other aspects as well. The authors seek to integrate the various theoretical and practical functions of ePortfolio development as discussed in the literature The authors also envision their model for students’ ePortfolios would enable both assessment of learning and for learning (Barrett, 2004; Barrett and Carney 2005). They further seek to use their ePortfolio model for institutional assessment of courses and programs. Finally, the third outcome they envision for this ePortfolio model is for student employment: a “marketing” portfolio for their career-minded students.

The faculty who participated in this project represents almost every department at the College of Applied Science. Three specific issues brought them together. CAS students seek and hold co-op positions throughout their college careers, and expect to find employment in their fields upon graduation. In fact, 100% of the students who graduated in the Class of 2005 who sought employment in their fields were hired. The first issue was quite practical: faculty recognized that students, initially architectural students, but also those from many other majors, face assembling cumbersome portfolios to present as part of their job applications. These portfolios, in addition to being unwieldy, are also often prohibitively expensive for students to assemble and ship, particularly when the employers are distant and the projects are large and complex. Therefore, faculty sought to develop a more efficient, cost-effective and simple method for students to showcase their talents to potential employers. The second issue evolved from early preparations for an impending visit from the College’s national accreditation board, the American Board of Engineering Technology (ABET). In reviewing the board’s criteria for learning outcomes, means of assessing these outcomes had to be identified. The faculty sought to investigate the possibility of using student ePortfolios for program assessment. The third issue was also related to assessment, but assessment for student learning. It grew out of faculty’s concern with the students’ ability to transfer skills, concepts and theories. Often students seemed unable to recognize the relationships among the material presented both within individual courses and among courses in any given curriculum. In other words, as a whole, many students did not seem to recognize the connections among concepts from course to course. Members of the faculty were searching for a means or a method to optimize the transference of concepts, skills and theories from course to course.

The ePortfolio concept seemed to offer substantial possibilities in terms of addressing the issues inherent in these problems. In terms of the first problem identified, essentially that of marketing CAS students to potential employers, the use of ePortfolios would offer a flexible, highly transportable and easily customized delivery system for the kinds of projects for which CAS students are known. The ePortfolio could be seen as an enriched résumé which a student would develop over time and which could be...
updated to follow him or her for years after graduation. The second issue, program assessment via the examination of student reflections in their ePortfolios, was more problematic. The group realized the conflicting purposes inherent in attempting to reconcile student and program assessment. In terms of the third issue presented, the faculty felt that developing an ePortfolio over time would encourage students to make connections within and between courses. In addition, the reflective aspect of the portfolio concept would promote deep learning (Barrett and Wilkerson, 2004).

The University of Cincinnati offers a yearly September Institute for faculty. The authors explored the possibility of launching a College-wide ePortfolio project during this University-sponsored institute in early September, 2005. During the institute, they read the literature and discussed educational theory, investigated different software packages that might be used to generate ePortfolios, developed a series of easily-usable templates, and devised an initial plan for implementation. The authors planned to begin immediately with a pilot course with Honors Scholars, and then broaden the ePortfolio development program to include most of the first-year students in CAS by the end of the fall, 2005, term. The latter cohort of students would then continue developing their ePortfolios by adding benchmark course materials and reflections throughout their first year. Plans were also made to include future benchmark courses in the ePortfolios as the students continue through their degree programs.

During the institute the faculty explored the feasibility of initiating a college-wide ePortfolio system. Seven specific objectives emerged for the project:
1) to understand basic elements of ePortfolio educational theory;
2) to explore software alternatives for ePortfolio development and choose an appropriate vehicle;
3) to construct a user-friendly template that would be appropriate for students in all majors college-wide;
4) to develop a pilot course that would employ the ePortfolio model and apply what was learned in the pilot to the general student population;
5) to educate other members of both the Applied Science faculty and the University faculty of the value and benefits of the ePortfolio;
6) to develop multi-level assessment strategies;
7) to assess the outcomes of the initial project, in terms of student acceptance, ease of use, and transference and connectivity of knowledge/skills across courses, and in terms of faculty acceptance of the model.

2. Background and Context: Stakeholders and Scale

The College of Applied Science (CAS) is a bachelor-degree-granting division of the University of Cincinnati (UC). The University has 35,244 full- and part-time students; the College, 1,820. Entering first-year classes number approximately 250 students. CAS offers nine technical majors which lead to bachelor’s degrees: Architectural Engineering Technology; Chemical Technology; Computer Engineering Technology; Construction Management; Culinary Arts and Science; Electrical Engineering Technology; Facilities and Hospitality Management; Information Technology; and Mechanical Engineering Technology. The College also offers ten majors which lead to associate (two-year) degrees. Cooperative Education (co-op) is a hallmark of both a CAS and a UC education. During their first year enrolled at CAS, most students take of full load of courses (12 to 18 credit hours per quarter). These classes are a mixture of introductory classes in their major fields and general education courses such as mathematics, English composition, psychology, or speech communication. Students also take a professional development course to help prepare them for their co-op experiences. After their first year, students routinely alternate between academic quarters, during which they attend classes, and co-op quarters, during which they work in their fields in university-sanctioned co-op positions. Students receive salaries for their co-op positions, and co-op employers frequently hire former students as they graduate. Students
at the College of Applied Science are highly technical and career-oriented. However, despite these representative qualities, not all students enter the College with high degrees of competence, or confidence, in electronic learning practices or strategies.

2.1 Stakeholders

Several distinct groups can be identified as stakeholders in this project: students, faculty, departments in the College, and employers. The primary stakeholders in this project are the students, who would benefit both educationally and professionally from creating their ePortfolios. Developing an ePortfolio such as the one envisioned in this project would help them make sense, or as John Dewy would say, “make meaning,” of their college courses and the sequence of these courses (Rodgers, 2002). The ePortfolio would also help them realize their professional personas by helping them develop their résumés and analyze their professional and academic experiences over time. In addition, they would be able to post complex projects for viewing by potential employers. The CAS ePortfolio would engage faculty as teachers, mentors, and assessors – both of student learning and of the quality and outcomes of their courses. Departments in College of Applied Science would benefit from the ePortfolio process as described here in several different areas. Use of the proposed ePortfolio should improve students’ understanding of departmental requirements. In addition, the inclusion of outcomes assessment would also help departments identify student perceptions in terms of accreditation criteria. Finally, co-op employers and post-graduation employers could use the ePortfolio as a valuable tool that would provide a much richer picture of potential employees.

2.2 Scale

During the early autumn, 2005, the ePortfolio project initially consisted of the seven original faculty members and a group of six Honors Scholars students. By late autumn, the project had expanded to include approximately 160 students enrolled in a first-year experience course and their instructors. Over the rest of the 2005-2006 winter and spring terms, approximately 175 students and an additional six faculty participated in the first stage of the project.

3. Implementation

3.1 Software Issues and Decisions: the Nuts and Bolts of the Project

In addition to developing a theoretical schema on which to build the ePortfolio project, the authors realized that the method of constructing the portfolios themselves had to be easily accessible and inexpensive for students and faculty at the college. The method also had to be simple. Students and faculty at the College of Applied Science represent a wide range of computer literacy. Some students enter the College with extensive software and Internet proficiency; others may have little experience beyond word-processing. Faculty expertise also varies widely. The group needed to identify or create a systematic approach to ePortfolio development that would be adaptable, simple to use, and easily translate into more sophisticated software as the students themselves became more computer-literate.

The group initially investigated using the Blackboard Learning System™ as the vehicle for students and faculty to create and maintain their ePortfolios. Since the University of Cincinnati supports the Blackboard system university-wide, and Blackboard offers an electronic portfolio function which would be available to all UC students, this option seemed to be the most practical and the most obvious. A member of the Faculty Technology Resources Center at the University of Cincinnati held a training session during the Institute during which she reviewed the capabilities of the Blackboard ePortfolio. Although the group had initially anticipated using Blackboard as the principal method for students to
develop their ePortfolios, the limited disk space of the program (100 MB for students) and obvious problems that arose during the training session at the Institute, led them to reject this option.

The second software option the faculty investigated during the Institute was the web development tool, Dreamweaver. As was the case with Blackboard, the group met for training sessions, this time with a member of the University Libraries instructional staff. Dreamweaver initially seemed to meet the group’s needs. While sophisticated, this software was also user-friendly and promised to encourage and support creativity in student ePortfolio development. Faculty (and some student) training on the product would be available through the library’s Instructional Services. In fact, the navigational template for the students’ ePortfolios was developed using Dreamweaver. However, when the group considered potential student access to this product, it, too, had to be rejected. While Dreamweaver was available in some computer laboratories at the College of Applied Science, it was not universally available to all students. It is also relatively expensive program, a fact that would limit students from purchasing the program for themselves.

In the end, Microsoft Word emerged as the most easily adopted program for student use. Faculty member Kathy Ossman wrote an ePortfolio manual geared specifically for students in the pilot course to create their portfolios using Word. It proved to be an easy entry point for all students, and was accessible throughout the College.

3.2 Developing the ePortfolio Model

As suggested by the title of this paper and discussed earlier, the ePortfolio model visualized by the faculty in this project would serve several purposes. In her 2001 chapter in The Electronic Portfolio Education Technology Encyclopedia Barrett describes three purposes for the electronic portfolio: “formative,” “summative,” and “marketing.” The authors sought to meld these three purposes. The ePortfolio they suggest would be used to foster student learning in an on-going basis: it would be a formative portfolio. The authors also sought to develop an ePortfolio model that would serve as a “summative” portfolio: it would serve as a vehicle for assessment. The focus of this assessment, however, was both on student work, and beyond individual student’s work. The ePortfolio envisioned would be an integrated assessment of the courses and programs of study represented in the portfolios, guided by accreditation criteria. Use of the accreditation criteria would provide a strong mechanism for a feedback loop that could improve programs. Finally, the portfolios would be refined to serve as enriched résumés for students before starting a new cooperative education experience or before joining the workforce as they graduate from college. The CAS ePortfolios could evolve to become “marketing” portfolios. These three different, sometimes competing, but always interconnected purposes had to be merged into a workable model for the students.

In addition to this conceptualization of an evolving ePortfolio model that could serve three purposes, the faculty also had to provide a model that could be easily utilized by beginning students. They developed a series of templates that contained all of the elements that students would need to begin to build their own ePortfolios. All of the templates were devised to encourage students to develop an ePortfolio which would, in the end, address the three purposes discussed above. This was accomplished by designing templates with the three outcomes (learning, assessment, and employment) in mind, then nesting the templates within the different navigational areas.

A first-page navigational template (See Figure 1), and all of the other initial documents and additional support templates were packaged in a zip file. This file would be given to all students as they begin their ePortfolio development. The students would save the file to their network space, which provides continual access to the material. The first navigational page of the template provides students with links to develop sections which roughly represent the three purposes of the CAS ePortfolio. The lower left-hand corner of
this page contains links to the academic, assessment and professional aspects of the portfolio: “My Résumé,” “My Major Program,” My Course Portfolio,” and “My Co-op Experience.” The résumé and co-op links relate directly to the marketing and employment functions of the ePortfolio. “My Major Program” and “My Course Portfolio” can be considered as reinforcing the learning and assessment outcomes of the ePortfolio. The major program link (as in the student’s major course of study) and the course portfolio link were designed to underscore both the learning and assessment purposes of the portfolio. Both of these links were designed with nested templates.

Figure 1 The original first-page template

![Figure 1 The original first-page template](image1)

Figure 2 A first-year student’s adaptation of the first-page template

![Figure 2 A first-year student’s adaptation of the first-page template](image2)
The focus of the navigational page template is the student’s photo, and a link, “About Me,” which encourages students to provide their own histories and images. It also allows them to customize the portfolio over time. The faculty envisions that, as the students mature and gain experience, these sections of the students’ ePortfolios will reflect that evolution and enhance student learning in the affective as well as cognitive arenas. In fact, any number of students, from first-year up, immediately changed this first page to make it their own (See Figures 2 and 3). They adopted and adapted much more quickly than the authors could have imagined.

3.3 Templates-within-Templates

The authors anticipate that the templates-within-templates will work together to foster learning and transference and encourage reflection. For the “My Major Program” link, students choose from a list of major programs (such as Construction Management, the default link) and then link to a program map that contains all of the courses required to graduate with a degree in their majors (See Figure 4). This course map allows them to visualize the sequence of all of their courses over time. This visualization will hopefully help students understand the relationship among course offerings and their sequences. The map is also designed to help students choose courses to include in their ePortfolios.

The highly structured template system (See Figure 5) includes templates and prompts developed specifically to elicit reflective observations from the students. Students may sometimes have difficulty seeing the purpose or benefits of reflection and may find it pointless (Rubens and Heinze, 2005). Templates were adopted to encourage students’ choice of artifacts and to help trigger their reflective responses to the artifacts (See Figure 6). Prompts were developed to help focus student reflection without infringing on genuine student response. Students are asked to think about and present their artifact responses in terms of three points. The prompt asks student to provide 1) a sentence that summarizes the goals of the assignment; 2) a sentence or two which relate what they did and/or learned in the assignment to other things they have learned in the course or in other courses (here they are asked to be specific and to use examples); 3) a sentence that explains how they will apply what they have learned to other classes or situations.
Figure 4 Program course map for Construction Management

Figure 5 The structure of the ePortfolio
Figure 6 Artifact table and reflection prompts

A longer, more directed, prompt was developed for the full course reflection that follows the artifact table. It is with this prompt that the authors hoped students would provide information for program assessment. The “Guidelines for Writing a Course Reflection” ask the students to develop a multi-paragraph essay within a standard essay format. But the guidelines also include a series of questions derived from the accrediting body’s (ABET’s) outcome criteria for engineering education (See Figure 7). The authors feel that close readings of these reflections will help faculty assess course and program

Figure 7 Course reflection guidelines developed from ABET criteria
effectiveness in terms of whether students perceive their courses fulfill the stated criteria.

4. Speculations on Success

The proposal for this paper, and the plan for assessing the outcomes of this project, includes conducting telephone exit interviews with a sample of the students and faculty involved during the 2005-2006 academic year. These interviews have yet to be conducted, but are crucial to the credibility of the project. Other aspects of the project will have to be revisited and restructured during the 2006-2007 academic year. The course which was identified as the initial portfolio development course no longer serves a majority of the first-year students. The first-year English Composition courses will now have to function as the entry point for ePortfolio development. Benchmark courses in the students’ major areas also must be identified and their instructors enlisted to participate. Without more complete participation in the students’ major areas of study, the full value of the portfolio process will never be realized. The introduction of ePortfolios as learning, assessment and employment tools at the College of Applied Science shows a promise of success. Whether the promise can be sustained over the years required to fulfill the mission of portfolio learning is another matter.

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E-PORTFOLIO AS A TOOL FOR ASSESSMENT OF COMPETENCES
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Background and context.

In this abstract we will present our work with a project, in which the e-portfolio is used as a tool for assessment of competences and as a tool for facilitating reflections on competences. The project is called KONK and has as its primary purpose to focus on developing transparency in educations following the declaration text of the Bologna Declaration. The KONK-project is a project which is financially supported by the Danish ministry of Education and has it's focus on the issues mentioned. In the paper we will describe the strategy of the project, which is to develop adequate descriptions of the competences required in the education as well as a taxonomy, that makes the evaluation criteria transparent to the student. Last but not least the paper will discuss the work with assessment. In the project the e-portfolio plays an important role as a platform for the student in working with presenting and documenting and assessing the competences acquired.

The challenge for all educations in the danish education system, but in particular for the educations, that are educating students to a specific profession, is to develop precise descriptions of the competences required, taxonomies to assess competences and ways of assessing competencies. In this view, the change from thinking in basic skills as reflected in the current descriptions of curricula, to thinking in competences linked to requirements of professions, points at the need for developing didactics that supports this thinking as well as news ways of evaluating and examine the students.

Objectives.

The project has three purposes:

1. Development of ways to assess competences: According to the 2 purposes mentioned below, it is important in the respect of coherence in the thinking on competency, that we develop ways of assessing competences, that acknowledges the nature of competency. The challenge is to explore if and how the material, that the students store in the e-portfolio, can serve as a tool for assessment. If this is to be done effect fully, it’s crucial to consider that measuring competency requires something else compared to measuring basic skills.

2. Transparency in competences required in the profession of the education: The project aims at a development of a taxonomy on competences, that can function as a guide for the students in their efforts to reflect on, to acknowledge and to assess their achievements of competences. An essential point regarding definitions is, that they have to be recognizable for students in order for them to aim at aquiring them.

3. Design of didactic approaches to support educational thinking in key competences: In the project we examine the consequences for the curriculum, role of the teacher etc., that will be influenced by the focus on key competences. These consequences will call for development of a didactic design, that on one hand can handle the focus on key competences and on the other hand can work as a support, when the platform for reflecting and documenting competences is an e-portfolio.

Summary of results.

As the paper is a rapport on work in progress, the results in the paper is limited to 2 central issues:

1. Authentic assessment – assessment on competences:
The students are in the process of the education regularly asked to place their work in the presentation portfolio with a declaration paper, that explains what is mentioned below (selection-reflection-evaluation).

In the process of examining the students the basis of the examinations is the contents of the presentation portfolio.
- the students select elements of competency, that they will concentrate on documenting within the frame of the curriculum.
- they choose artefacts that works as a documentation of competency
- the students and the examinator debates on the selection of artefacts, reflections on the correspondence between artefact and documentation of competency and the assessment on the competencies chosen.

2. Interviews in focus groups on assessing competences:
The focus of the interviews is to explore the process of selfassessment and our first experience with the process mentioned above. A group of students have done some work with selecting material from their portfolio, reflecting on it and evaluating the work

We will now discuss the results of the interviews, that took place at the end of june this year. The students had many important reflections regarding how and why different parts of the selfassessement where useful or not. We will focus on the parts that was most important for the students:

- **Validation:** The process of selfassessment can not serve as documentation of a competency on it’s own. The students clearly express, that they need someone wiser or more experienced than themselves to give a form of validation to the selfassessment. It could an assessment done by a teacher or a student on a higher level, or someone from one of the institutions in which the students work during their education. The validation could take the form of conversation, an examination, feedback, or evaluation. It is important, that the students know when this type of validation takes place and with whom. Equally important is, that the evaluation points at ways of developing further competency, as an assessment that functions only as a status review is less fruitfull in the perspective of motivation to further development.

- **Artefacts:** It seems to be very important, that the students understand that they can use many types of artefacts. One student mentions: “It is very important that other artefacts than literal is just as valuable”. When the students are in the beginning of their education, they require more supervision to get a sense of which kind of artefact could be relevant and how many artefact is needed in order to document or illustrate a certain competency.

- **Progression:** When choosing artefacts it is a complex situation for the students to pick artefacts, that correspond with the competency they wish to document as, they are trying to document a competency, that they only vague realize what is. This leads some of the students in the group to conclude, that the didactics should include a progression in choice of artefacts, that match the progression in demands in curricula as well as progression in the assessment process.

In the interviews it is clearly a much more meaningful process to go through the second and third time than the first, which points at the fact, that the students realize the importance of practise: “It was much easier the second time” and the quality of the work increases: “I used much more time on the selfassessment process. The reflections was more profitable for me, it was more fun”.

Finally it is experienced to be more fun and more reassuring in the perspective of future development.
- **Facilitation**: It is crucial for the process of selfassessment that the introduction is thorough. For instance is the language on the process very important: the concepts that are introduced, the terminologi attached etc. Another thing is the assignments given, the possibility of counselling (mentor) and feedback on your work with selfassessment.

One student says: “You need to talk to somebody about the selaassessment in order to validate your own experience of competency”.

**Conclusions and recommendations:**

One of the central issues regarding examinations/assessments made on competencies as opposed to assessments on basic skills and regarding the contents of the examinations based on the students own choice of selection from the portfolio, is the issue of validation. The issue of validation plays a central role as examination can not be based only on selfassessment.

The students find the selfassessment process very useful in order to get wiser on their development as well as getting to know their future profession better. It also seems to provide different kinds of reflections that are useful to the work f.ex. reflections on theory and practice. One student mentions that it helps him to express his tacit knowledge. But selfassessment has to be in combined with validation from others than the student himself and it has to be transparent in the organisation.

The students express a need for clarity on validation of the selfassessment. Besides it would be helpful for them in the selfassessment process in the sense of transparency, that there are descriptions in the curricula of the progression in demands – a sort of visualization of the different levels of assessment and finally suggestions on artefacts, that match different compencies and different levels of competency.

Another issue pointed out by the students is the issue of facilitating the process. It seems important to consider the role of the teacher, the assignments given during different stages in the education, the possibilities of counselling and feedback – last but not least: considerations on how to make exams match the actual education process. Some of the students say, that most of their efforts during the education are formed by the fact, that they have to do exams in very specific ways. So the notion of selfassessement is regarded even more valuable, if this match is found – it makes the selfassessment process a more meaningful thing to do.

**References**

Bateson, Gregory (1979): *Mind and nature*  
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Phone: +45 73 22 24 00
Fax: +45 73 22 24 44
E-Mail: cvu@cvusonderjylland.dk
website: www.cvusonderjylland.dk

University College, CVU Sønderjylland is a merger of several institutions for higher education. In total there are about 2,800 students, and 285 employees. The following studies are provided at CVU Sønderjylland: Bachelor in Education, Bachelor in Social Education, Bachelor in Nursing, Bachelor in Nutrition and Health, Bachelor in Visual Communication, Certificate in Adult Education. All programmes consist of theoretical studies and periods of practice. CVU Sønderjylland holds a great knowledge regarding technological, organisational, pedagogical/educational and didactical aspects of eLearning.

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BUILDING EPортFOLIO APPLICATION PROFILES FOR EUROPASS CV AND INSURING CROSS INTEROPERABILITY

Van Coillie Marc, EIFEL

ABSTRACT

Context
The Europass strategy driven by the Cedefop is a key issue for interoperability of learner’s information across Europe. Unfortunately even if the Cedefop have produce some tools with dedicated XML Schemas to help implementation, for the moment these specifications are not based on existing and widely used standard like IMS LIP/ePortfolio or HR-XML.

A European project Telcert has produced in collaboration with IMS Europe a methodology and a set of tools that allows an application profile dedicated to a specific purpose or community to be built from an existing standard. The test system provided by this project already proved during the previous conference that it is now possible to do conformance test in order to help ePortfolio interoperability between systems.

Objectives
The objectives of the Telcert project until now have been oriented towards studying and check in conformance in the field of eLearning only. In order to help cross interoperability between systems from Education to the labour market it is worth using this methodology and tools with the specifications in application in the two fields:
- Educational field using IMS ePortfolio and LIP specifications
- HR field using HR-XML SEP (Staffing Exchange Protocol) and especially the candidate standard.

The proposed paper outlines each main part of these two application profiles and the interoperability issues they are solving. The last section will introduce some guidelines and proposals to allow cross interoperability between these two application profiles.

Summary of results:
The main part will give information about the application profiling work:
- The methodology of application profiling and the Telcert toolset to do this work,
- The mapping between Europass CV model and existing HR-XML candidate and IMS eP/ LIP specifications elements including all extensions used
- An explanation of the competency management model supported in these application profiles in order to support external definition of competency like European language competencies using the European model with an XML representation using work done by IEEE LTSC RCD group (Reusable Competency Definition).

Conclusions and recommendations
This paper will finally gives some recommendations:
- In order to maximise interoperability between HR and eLearning systems based on these profiles with ePortfolio tools,
Building Europass CV ePortfolio Application Profiles

- To build packages of full ePortfolio data using the Europortfolio Application profile based on IMS ePortfolio specifications with both HR-XML or IMS Lip based portfolio parts (like UK Leap)

- To work on a conformance program and certification process for Europass CV based on the Telcert Test System
Building Europass CV ePortfolio Application Profiles

1 Introduction

A computer understandable CV is one of the challenges to achieve the Lisbon 2010 objectives. The European Commission has mandated Cedefop to build a transparency framework for qualifications and competences: this is the Europass initiative [1]. Europass documents are

- Europass CV
- Europass Language Portfolio
- Europass Diploma Supplement (EDS)
- Europass Certificate Supplement (CDS)
- Europass Mobility Pass

After having initially designed a human readable information model, last year Cedefop proposed a new online tool developed internally to create Europass CVs using a machine readable binding (based on XML Schema). Compared with the initial paper version of Europass CV, this implementation suffers from gaps in the binding. For example, it is possible to add additional information or annexes to a Europass CV but there is no clear possibility to do this using the Cedefop Schema Binding. This implies the use of a specific online dedicated tool.

In the perspective of using ePortfolio systems to manage personal data, it might be better to be able to export parts of the user data in a package that would be an application profile of Europass CV. This should be done using existing specifications or de facto standards such as IMS LIP [2] and IMS ePortfolio [3] or/and HR-XML Candidate [4]. Additional benefits to this approach is that it would be possible, using IMS ePortfolio specifications, to use discrete parts of learner information (portfolio-parts) for several objectives (for example, sharing the name of the owner in both his/her Europass CV and his/her Europass Language Passsport); it would also be possible to include multimedia files (text, images, videos…) in the zip package that the user would like to add to his CV, as annexes or additional information. Similarly, it would be possible to use the “Reflexion” element of ePortfolio specifications to reflect on the CV in order to establish communication channel between a candidate and a human resource manager. ‘Relationships’ can be established between different portfolio-parts in order to add semantics information. That would facilitate automatic computations, such as the dynamic transformation of ePortfolio according to the different perspectives and needs of a community. So it would be possible to build two application profiles of the Europass CV: one for the eLearning community using IMS LIP specifications and the other for the industry and human resources using HR-XML Candidate specifications.

To describe the process of the Europass CV application profiling, this paper will continue with an overview of the ePortfolio Europass application profile, following guidelines as defined by IMS [5] and CEN/ISSSS WS LT [6]. For the IMS based Application Profile in section 3 we will explain how relationships and external vocabulary can be used to add new semantics information in order to facilitate the reuse of the information stored in the different instances of this application profile. In section 4 we will explain how to use HR-XML based Application Profile to reference external document and to include xml instances based on this Application Profile in a ZIP file based on IMS ePortfolio Content Package specifications. Finally, section 5 and 6 will present information related to conformance testing, certification and further developments, linking this work on application profiling to the HR-XML Europass Working Group.
2 Building Application Profile using Telcert toolset

In order to build an Application Profile some rules should be followed in order to ease implementation and maximise the interoperability ability. The application profiles described below will respect requirements and recommendations from IMS Global as well as CEN ISSS WS LT. To build these Application Profiles and to ease conformance testing, the tools provided by the European project Telcert will be used. The “Schemaprof” tool to build the AP only store modifications regarding the base specifications used (these specification must be based on XML Schema). Then the “Schema Transform Tool” will generate a new set of derived schemas based on both the base specifications and the Application Profile modifications. The “CRT” (based on Reload) can use these derived schemas in order to build or reengineer xml content based on them. And finally the “Test Suite” can check conformance of XML instances based on these derived schemas and provided by implementers. This process is described below:

Figure 1. Telcert Flow to produce and use an Application Profile (copyright Apple UK, partner in the Telcert project)
Building Europass CV ePortfolio Application Profiles

3 Europass CV Application Profile using IMS specifications

First of all it is important to study all required elements regarding the base specifications (IMS LIP) to match Europass CV structure. We have done so by following the proposal from the CEN/ISSS WS LT CWA [7]; this mapping is presented in figure 1 below.

<table>
<thead>
<tr>
<th>No</th>
<th>Name in Europass CV</th>
<th>IMS LIP element</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personal information</td>
<td>&lt;identification&gt;</td>
</tr>
<tr>
<td>1.1</td>
<td>Surname(s) / First name(s)</td>
<td>&lt;identification&gt;name&gt;&lt;firstname&gt;</td>
</tr>
<tr>
<td>1.2</td>
<td>Address(es)</td>
<td>&lt;identification&gt;address&gt;</td>
</tr>
<tr>
<td>1.3</td>
<td>Telephone(s)</td>
<td>&lt;identification&gt;contactinfo&gt;</td>
</tr>
<tr>
<td>1.4</td>
<td>Fax(s)</td>
<td>&lt;identification&gt;contactinfo&gt;</td>
</tr>
<tr>
<td>1.5</td>
<td>E-mail(s)</td>
<td>&lt;identification&gt;contactinfo&gt;</td>
</tr>
<tr>
<td>1.6</td>
<td>Nationality(ies)</td>
<td>&lt;identification&gt;demosographics&gt;</td>
</tr>
<tr>
<td>1.7</td>
<td>Date of birth</td>
<td>&lt;identification&gt;demosographics&gt;</td>
</tr>
<tr>
<td>1.8</td>
<td>Gender</td>
<td>&lt;identification&gt;demosographics&gt;</td>
</tr>
<tr>
<td>2</td>
<td>Desired employment / Occupational field</td>
<td>&lt;goal&gt;</td>
</tr>
<tr>
<td>2.1</td>
<td>Description</td>
<td>&lt;goal&gt;description&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Work experience</td>
<td>&lt;activity&gt; &amp; &lt;affiliation&gt; &amp; &lt;relationship&gt;</td>
</tr>
<tr>
<td>3.1</td>
<td>Dates</td>
<td>&lt;activity&gt;date&gt;</td>
</tr>
<tr>
<td>3.2</td>
<td>Occupation or position held</td>
<td>&lt;affiliation&gt;role&gt;description&gt;</td>
</tr>
<tr>
<td>3.3</td>
<td>Main activities and responsibilities</td>
<td>&lt;activity&gt;description&gt;</td>
</tr>
<tr>
<td>3.4</td>
<td>Name and address of employer</td>
<td>&lt;affiliation&gt;organization&gt;description&gt;</td>
</tr>
<tr>
<td>3.5</td>
<td>Type of business or sector</td>
<td>&lt;affiliation&gt;classification&gt;</td>
</tr>
<tr>
<td>4</td>
<td>Education and training</td>
<td>&lt;qld&gt;</td>
</tr>
<tr>
<td>4.1</td>
<td>Dates</td>
<td>&lt;qld&gt;date&gt;</td>
</tr>
<tr>
<td>4.2</td>
<td>Title of qualification awarded</td>
<td>&lt;qld&gt;title&gt;</td>
</tr>
<tr>
<td>4.3</td>
<td>Principal subjects / occupational skills covered</td>
<td>&lt;qld&gt;description&gt;</td>
</tr>
<tr>
<td>4.4</td>
<td>Name and type of organization providing education and training</td>
<td>&lt;qld&gt;organization&gt;description&gt;</td>
</tr>
<tr>
<td>4.5</td>
<td>Level in national or international classification</td>
<td>&lt;qld&gt;level&gt;classification&gt;</td>
</tr>
<tr>
<td>5</td>
<td>Personal skills and Competencies (language part)</td>
<td>TO INCLUDE LATER (extensions needed, maybe CEDEFOP Europass Language Portfolio Schema)</td>
</tr>
<tr>
<td>5.1</td>
<td>Mother tongue(s)</td>
<td>TO INCLUDE LATER</td>
</tr>
<tr>
<td>5.2</td>
<td>Other language(s)</td>
<td>TO INCLUDE LATER</td>
</tr>
<tr>
<td>6</td>
<td>Personal skills and Competencies (other parts)</td>
<td>&lt;competency&gt; &amp; &lt;qld&gt;</td>
</tr>
<tr>
<td>6.1</td>
<td>Social skills and competencies</td>
<td>&lt;competency&gt;</td>
</tr>
<tr>
<td>6.2</td>
<td>Organizational skills and competencies</td>
<td>&lt;competency&gt;</td>
</tr>
<tr>
<td>6.3</td>
<td>Technical skills and competencies</td>
<td>&lt;competency&gt;</td>
</tr>
<tr>
<td>6.4</td>
<td>Computer skills and competencies</td>
<td>&lt;competency&gt;</td>
</tr>
<tr>
<td>6.5</td>
<td>Artistic skills and competencies</td>
<td>&lt;competency&gt;</td>
</tr>
<tr>
<td>6.6</td>
<td>Others skills and competencies</td>
<td>&lt;competency&gt;</td>
</tr>
<tr>
<td>6.7</td>
<td>Driving licence(s)</td>
<td>&lt;qld&gt;</td>
</tr>
<tr>
<td>7</td>
<td>Additional information</td>
<td>&lt;reflection&gt;</td>
</tr>
<tr>
<td>7.1</td>
<td>Description</td>
<td>&lt;reflection&gt;description&gt;</td>
</tr>
<tr>
<td>8</td>
<td>Annexes</td>
<td>&lt;reflection&gt;</td>
</tr>
<tr>
<td>8.1</td>
<td>Description</td>
<td>&lt;reflection&gt;description&gt;</td>
</tr>
</tbody>
</table>

![Figure 2. Mapping between IMS LIP and Europass CV](image)

Due to a depreciated element in IMS LIP (Accessibility) it has not been possible to use this depreciated element as proposed in the CEN CWA to map the Europass CV Language competencies. This point may need additional work.
Building Europass CV ePortfolio Application Profiles

3.1 Using “Reflexion” or “Assertion” elements to include external documents

To allow the inclusion of external multimedia document in the ‘additional information’ and ‘annexes’ part of the CV, the new ‘Reflexion’ or ‘Assertion’ elements from IMS ePortfolio specification can be used. So it will be possible to reference an external document using this element in conjunction with a “dedicated file” section of the associated “resource” in the IMS Manifest. The manifest.xml file is the entry point in the IMS specifications, it is based on the widely used IMS Content Packaging specifications (for example in Scorm or IMS Learning Design).

Here is an example of this kind of structure.

In the “PortfolioParts” section of the manifest:

```xml
<item identifier="ITEM-ADDINFO" identifierref="RES-REFLEX1">
  <title>Reflexion</title>
</item>
```

In the “Resources” section of the manifest:

```xml
<resource identifier="RES-REFLEX1" type="europasscvlip-Reflexion" href="Reflexion.xml">
  <file href="Reflexion.xml"/>
  <file href="mydiploma.pdf"/>
</resource>
```

And the associated Reflexion.xml instance:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<reflexion ...
</lip:typename>
  <lip:tyvalue>EuropassCV60</lip:tyvalue>
</lip:typename>
</reflexion>
```

3.2 Describing semantic relations between portfolio parts in a simple CV e-portfolio package

In this Europass CV Application Profile, it is proposed to use the IMS LIP activity element with an Affiliation element to model the Work Experience. As these two elements are in different portfolio-parts of the manifest, it is important to use a relationship section in the portfolio manifest with a relationship element describing clearly their mutual relation.

Here is an example of such a manifest file:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<manifest...>
<organizations default="RLD-73574572-orga1">
  <organization identifier="RLD-73574572-orga1">
    <title>cv388_Europass_CV_Teacher-Ireland</title>
    <item identifier="ITEM-PORTFOLIOPARTS-ROOT">
      <title>PortfolioParts</title>
      ...
      <item identifier="ITEM-456DA14D" identifierref="RES-PART3">
        <title>LIP-Activity</title>
      </item>
    </item>
  </organization>
</organizations>
```
Building Europass CV ePortfolio Application Profiles

The relationship description itself is declared in the xml files and used the “indexed” reference included in the activity.xml and affiliation.xml files.

Here is an example of such a relationship xml file:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<learnerinformation …>
  <relationship>
    <tuple>
      <tuplesource>
        <indexid>work1</indexid>
      </tuplesource>
      <tuplerelation>
        <typename>
          <tyvalue>ispartof</tyvalue>
        </typename>
      </tuplerelation>
      <tupledest>
        <indexid>affiliation1</indexid>
      </tupledest>
    </tuple>
  </relationship>
</learnerinformation>
```

3.3 Describing semantic relations to use the same portfolio-part in a complex ePortfolio package including several ePortfolio using “Views”

This section illustrates how to use the “relationships” and “views” parts in a manifest, in order to declare that some of the portfolio-parts must be used to illustrate both the Europass CV and the Europass Language Passport.

The “Views” part in the manifest can be used with two main items, one for the Europass CV view and the other for the Europass Language Passport view. Each of these main items will include sub-items using reference to existing resources associated with portfolio-parts.

Here is an XML example of such a manifest:

```xml
...<organization identifier = "ORG-4433B3DD">
  <title>MyEuropassPortfolio</title>
  <item identifier="ITEM-VIEWS-ROOT">
```
Building Europass CV ePortfolio Application Profiles

The same approach could be used to include also other Europass models (Diploma Supplement, Certificate Supplement, Mobility).

3.4 Transforming portfolio-parts for each portfolio views in a complex Europass e-portfolio package using “Presentations”

In the previous section 3.3 we explained that common elements (i.e. identification) could be used with several portfolio views. This might require some additional changes. For example an ‘identification’ element in a Europass CV includes the name, date of birth, address, telephone number and other fields but the ‘identification’ element in a Europass Language Passport only includes the name and the date of birth. So it would be possible to use in conjunction with a Portfolio Language Passport ‘View’ a dedicated ‘Presentation’ portfolio item which could reference XSL transformation files or other files related to presentation (like CSS files).

Here is the related information in a manifest:

...
4 Europass CV Application Profile using HR-XML SEP Candidate (work in progress)

The same kind of application profiling work has been done to map HR-XML SEP Candidate specifications with the Europass CV Model. It has started in collaboration with the European project KITE [8] and is actually still in progress and supported by the European HR-XML Europass Working Group [9].

In this first step the mapping is done using a single complete XML file to store all information related to a CV. In a second step it will be studied how to use this API in an ePortfolio content package based on IMS ePortfolio specifications using several portfolio parts based on HR-XML CPO components.

Here is the actual mapping:

<table>
<thead>
<tr>
<th>No</th>
<th>Name in Europass CV</th>
<th>HR-XML Candidate element</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Personal information</td>
<td>&lt;CandidateProfile&gt;&lt;PersonalData&gt;</td>
</tr>
<tr>
<td>1.1</td>
<td>Summary(ies) / First name(s)</td>
<td>&lt;PersonName&gt;</td>
</tr>
<tr>
<td>1.2</td>
<td>Address(es)</td>
<td>&lt;ContactMethod&gt;&lt;PostalAddress&gt;</td>
</tr>
<tr>
<td>1.3</td>
<td>Telephone(s)</td>
<td>&lt;ContactMethod&gt;&lt;Telephone&gt;</td>
</tr>
<tr>
<td>1.4</td>
<td>Fax(es)</td>
<td>&lt;ContactMethod&gt;&lt;Fax&gt;</td>
</tr>
<tr>
<td>1.5</td>
<td>Email(s)</td>
<td>&lt;ContactMethod&gt;&lt;InternetEmail&gt;&lt;(Xmlrpc)&gt;</td>
</tr>
<tr>
<td>1.6</td>
<td>Nationality(ies)</td>
<td>&lt;PersonDescription&gt;&lt;DemographicDescription&gt;&lt;Nationality&gt;</td>
</tr>
<tr>
<td>1.7</td>
<td>Date of birth</td>
<td>&lt;PersonDescription&gt;&lt;DemographicDescription&gt;&lt;DateOfBirth&gt;</td>
</tr>
<tr>
<td>1.8</td>
<td>Gender</td>
<td>&lt;PersonDescription&gt;&lt;DemographicDescription&gt;&lt;GenderCode&gt;</td>
</tr>
<tr>
<td>2</td>
<td>Detailed employment / Occupational field</td>
<td>&lt;CandidateProfile&gt;&lt;PositionTitle&gt;</td>
</tr>
<tr>
<td>2.1</td>
<td>Description</td>
<td>&lt;PositionTitle&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Work experience</td>
<td>&lt;CandidateProfile&gt;&lt;EmploymentHistory&gt;</td>
</tr>
<tr>
<td>3.1</td>
<td>Dates</td>
<td>&lt;EmployeeOrg&gt;&lt;PositionHistory&gt;&lt;StartDate&gt;</td>
</tr>
<tr>
<td>3.2</td>
<td>Occupation or position held</td>
<td>&lt;EmployeeOrg&gt;&lt;PositionHistory&gt;&lt;Title&gt;</td>
</tr>
<tr>
<td>3.3</td>
<td>Main activities and responsibilities</td>
<td>&lt;EmployeeOrg&gt;&lt;PositionHistory&gt;&lt;Description&gt;</td>
</tr>
<tr>
<td>3.4</td>
<td>Name and address of employer</td>
<td>&lt;EmployeeOrgName&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Type of business sector</td>
<td>&lt;EmployeeOrg&gt;&lt;PositionHistory&gt;&lt;IndustryDescription&gt;</td>
</tr>
<tr>
<td>4</td>
<td>Education and training</td>
<td>&lt;CandidateProfile&gt;&lt;EducationHistory&gt;&lt;SchoolOrInstitution&gt;</td>
</tr>
<tr>
<td>4.1</td>
<td>Dates</td>
<td>&lt;Degree&gt;&lt;DateOfAttendance&gt;&lt;StartDate&gt;</td>
</tr>
<tr>
<td>4.2</td>
<td>Title of qualification awarded</td>
<td>&lt;Degree&gt;&lt;DegreeName&gt;</td>
</tr>
<tr>
<td>4.3</td>
<td>Principal subject / occupational skills covered</td>
<td>TODO</td>
</tr>
<tr>
<td>4.4</td>
<td>Name and type of organization providing education and training</td>
<td>&lt;School&gt;</td>
</tr>
<tr>
<td>4.5</td>
<td>Level in national or international classification</td>
<td>TODO</td>
</tr>
<tr>
<td>5</td>
<td>Personal skills and Competencies (primary part)</td>
<td>&lt;CandidateProfile&gt;&lt;Usability&gt;&lt;Competencies&gt;&lt;PersonalData&gt;&lt;PersonalDescription&gt;&lt;DemographicDescription&gt;&lt;LanguageSkills&gt;</td>
</tr>
<tr>
<td>5.1</td>
<td>Mother tongue(s)</td>
<td>&lt;CandidateProfile&gt;&lt;LanguageSkills&gt;&lt;LanguageSkills&gt;</td>
</tr>
<tr>
<td>5.2</td>
<td>Other (language(s))</td>
<td>&lt;CandidateProfile&gt;&lt;LanguageSkills&gt;&lt;LanguageSkills&gt;</td>
</tr>
<tr>
<td>6</td>
<td>Personal skills and Competencies (other parts)</td>
<td>&lt;CandidateProfile&gt;&lt;Usability&gt;&lt;Competencies&gt;&lt;Name&gt;&lt;EuropassLanguageSkills&gt;</td>
</tr>
<tr>
<td>6.1</td>
<td>Social skills and competencies</td>
<td>&lt;Competencies&gt;&lt;Social&gt;</td>
</tr>
<tr>
<td>6.2</td>
<td>Organizational skills and competencies</td>
<td>&lt;Competencies&gt;&lt;Organizational&gt;</td>
</tr>
<tr>
<td>6.3</td>
<td>Technical skills and competencies</td>
<td>&lt;Competencies&gt;&lt;Technical&gt;</td>
</tr>
</tbody>
</table>
Building Europass CV ePortfolio Application Profiles

| 6.4 | Computer skills and competencies | <Competency xml:lang="en" name="computer"/>
| 6.5 | Arabic skills and competencies | <Competency xml:lang="en" name="arabic"/>
| 6.6 | Others skills and competencies | <Competency xml:lang="en" name="others"/>
| 6.7 | Driving licence(s) | <Competency xml:lang="en" name="driving"/>
| 7. | Additional information | <CandidateProfile xml:lang="en"/>
| 7.1 | Description | <CandidateProfile xml:lang="en"/>
| 8. | Answers | <CandidateProfile xml:lang="en"/>

**Figure 3.** Mapping between HR-XML SEP Candidate and Europass CV

### 4.1 Reference to external online document

To support references to external document it is possible to use the HR-XML SupportingMaterials element. It is possible to use either “Link” or “AttachmentReference” sub-elements to refer to an external document. “Link” only allow to gives a URL while “AttachmentReference” have two additional optional attributes, ‘mimeType’ which can be use to give additional information about the type of the external resource and ‘context’ which can be use to gives reference to another existing element in the Candidate xml file using an xPath expression. This can be very useful for replacing the “relationship” element provided by IMS specifications in this case.

Here is an example of this kind of Candidate instance with a reference to one of the educational history element:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Candidate ...>
  <CandidateProfile xml:lang="en">
    ...<EducationHistory>
      <SchoolOrInstitution schoolType="university">
        <School type="degree">
          <SchoolName>University of Oxford</SchoolName>
        </School>
        <PostalAddress type="streetAddress">
          <CountryCode>EN</CountryCode>
          <Municipality>Oxford</Municipality>
        </PostalAddress>
        <Degree degreeType="Master">
          <DegreeName>MBA</DegreeName>
          <DatesOfAttendance>
            <StartDate>
              <AnyDate>1994-09-01</AnyDate>
            </StartDate>
            <EndDate>
              <AnyDate>1998-09-01</AnyDate>
            </EndDate>
          </DatesOfAttendance>
        </Degree>
      </SchoolOrInstitution>
    ...<SupportingMaterials>
      <AttachmentReference context="Candidate/CandidateProfile/EducationHistory/SchoolOrInstitution[1]" mimeType="application/pdf">
      </AttachmentReference>
      <Description>Official Transcript</Description>
    </SupportingMaterials>
  </CandidateProfile>
</Candidate>
```
4.2 Using IMS ePortfolio Content Packaging to package external documents

If you need to export a full package including your CV instance with your multimedia documents for ‘additional information’ and ‘annexes’ part of the CV, then it is possible to use the IMS content packaging part of the IMS ePortfolio specifications. The Europortfolio Content Package Application Profile include several new vocabulary items to identify a Europass CV based on other non IMS specifications like the HR-XML specs.

Here is an example of this kind of manifest:

```xml
<?xml version="1.0" encoding="UTF-8"?><manifest>
  <organizations default="RLD-73574572-orga1">
    <organization identifier="RLD-73574572-orga1">
      <title>cv388_Europass_CV_Teacher-Ireland</title>
      <item identifier="ITEM-PORTFOLIOPARTS-ROOT">
        <title>PortfolioParts</title>
        <item identifier="ITEM-1" identifierref="RES-1">
          <title>HR-XML-CV</title>
        </item>
      </item>
    </organization>
  </organizations>
  <resources>
    <resource identifier="RES-1" type="europasscvhrxml-Candidate" href="myCV-HR-XML.xml">
      <file href="myCV-HR-XML.xml" />
      <file href="mydiploma.pdf"/>
    </resource>
  </resources>
</manifest>
```

4.3 Referencing external competency definition using IEEE RCD / IMS RDCEO specifications

In order to add a basic semantic reference to Europass competencies (or other Competencies Taxonomy) it is useful to use existing proposal from IEEE LTSC RCD working group [10], the specifications provided by this working group are still in the draft stage but the schema used is based on IMS RDCEO specifications which are already in a final stable state. Even if the HR-XML specifications provide a useful “Competency” element, this element is normally planned to be used inside other elements (like ‘Employment History’) so it is needed to add a related namespace in the list of authorized namespace for the “Any” extension point provided by HR-XML specifications which is named UserArea.

Here is an example of this kind of Candidate instance with a reference to European Language Qualification Framework:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Candidate>
  <CandidateProfile xml:lang="en">
    ...
    <UserArea>
      <Competency description="CEF" name="Europass-LanguageSkills">
        <Competency description="" name="English" required="false"/>
        <Competency name="speaking">
          <CompetencyId description="CEF-Speaking-SpokenInteraction-A1" id="CEF-Speaking-SpokenInteraction-A1.xml" idOwner="Europass"/>
          <TaxonomyId id="CEF-Speaking-SpokenInteraction-A1" description="CEF" idOwner="Europass"/>
          <CompetencyEvidence dateOfIncident="2006-06-06">
            <StringValue description="Level: A1, A2, B1, B2, C1, C2" maxValue="C2" minValue="A1">A1</StringValue>
          </CompetencyEvidence>
        </Competency>
      </Competency>
    </UserArea>
  </CandidateProfile>
</Candidate>
```
Building Europass CV ePortfolio Application Profiles

</Competency>
</Competency>
</CandidateProfile>
</Candidate>

And the associated “CEF-Speaking-SpokenInteraction-A1.xml” instance:

<?xml version="1.0" encoding="UTF-8"?>
<rdceo xmlns="http://www.imsglobal.org/xsd/imsrdceo_rootv1p0"
xsi:schemaLocation="http://www.imsglobal.org/xsd/imsrdceo_rootv1p0 imsrdceo_rootv1p0.xsd">
  <identifier>CEF-Speaking-SpokenInteraction-A1</identifier>
  <title>
    <langstring>CEF-Speaking-SpokenInteraction-A1</langstring>
  </title>
  <description>
    <langstring>I can interact in a simple way provided the other person
    is prepared to repeat or rephrase things at a slower rate of speech and
    help me formulate what I'm trying to say. I can ask and answer simple
    questions in areas of immediate need or on very familiar
    topics.</langstring>
  </description>
</rdceo>

It is also possible to use this competency definition in an ePortfolio package based on IMS ePortfolio specification using the “competency” element even if the description won’t allow to include all the information available in an HR-XML Competency instance (like CompetencyEvidence with StringValue) it is therefore possible to use the sourceid to do the reference on the external competency description and the ‘short’ description to define other part of this competency (like the language in case of European Language definition).

Here is an example of this kind of “competency” portfolio part instance with a reference to European Language Qualification Framework:

<competency>
  <contentype>
    <referential>
      <sourcedid>
        <source>CEF</source>
        <id>CEF-Speaking-SpokenInteraction-A1.xml</id>
      </sourcedid>
    </referential>
    <description>
      <short xml:lang="en">English</short>
      <long xml:lang="en">European language competency in English</long>
    </description>
  </contentype>
</competency>
5 Conformance testing and certification

In order to be sure that interoperability can be maintained between different systems it is mandatory to check conformance regarding these application profiles and the base specifications. It is in fact often possible to have several interpretations when reading or implementing a specification. Conformance testing can help to solve these ambiguities in the specifications especially for the implementers. This is the first step to building a conformance and certification process. The other big step is to maintain support of the users and solution providers communities.

In case of Europass and ePortfolio community, EIFEL is leading a European-wide ePortfolio and Europass Readiness study [11], with support of main specifications bodies IMS Global and HR-XML as well as leading certification organisation like The OpenGroup. A part of this study will state if a certification process can take place for the European ePortfolio community. The TELCERT Test System could be used in this perspective to build a European ePortfolio Europass CV Interoperability Certification Programme.

6 Future Work and recommendations

It should be possible to use XSL transformation file to translate a Europass Portfolio Package using IMS eP/LIP AP in a Europass Portfolio Package using HR-XML Candidate AP and vice-versa. This would greatly increase the interoperability of Europass CV.

The HR-XML Candidate specifications are based on several simpler schemas (CPO) which can be compared to IMS LIP main sub-elements. Therefore it should be possible to consider each of them as portfolio-parts. Using the same ‘Relationships’ and ‘Views’ sections from the IMS e-portfolio specifications with a specific external vocabulary it might be possible to build a new application profile to construct portfolio packages of Europass data using HR-XML specifications as ‘PortfolioParts’. This work has already started with a first proposal for a common ePortfolio Content Package Application Profile for Europortfolio community (including also vocabulary extensions to support other IMS Lip based AP like UK Leap).

Another main interesting area is to study how to use other useful standards for ensuring data privacy especially the Liberty Alliance Web Service Framework with a proposal for a new identity service interface specifications based on the HR-XML Europass CV application profile.

Most of this work will be available online in the Europass documentation section of EIFEL and Europortfolio community portal at: http://www.eife-l.org/publications/europass
Building Europass CV ePortfolio Application Profiles

References

TELCERT SCHEMAPROF: http://iwm.uni-koblenz.de/schemaprof/index.html
TELCERT TEST SYSTEM: http://www.opengroup.org/telcert/
ePortfolio Europass CV Application Profiles public release: http://www.eife-l.org/portfolio/interop/europasscv

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Synergetics - NedCar ePortfolio Project

Addressed themes & issues:
- Policies: ePortfolio policies, regional policies
- Employability: seeking employment, recruitment, managing competencies, managing learning & development
- Learning & learners: competencies, assessment
- Implementation: implementation, scale, stakeholders
- Technology: interoperability, authentication, architectures, standards

Submission Format:
Work-in-progress report and presentation

Authors:
- Vervenne Luk, managing director
- Meersman Davor, communications specialist

Case:
NedCar NV – ePortfolio implementation

Target users:
- Employees of NedCar
- NedCar NV (HR department)
- Public employment agencies
- Vocational Training Centres
- Service organizations, which offer APL-tracks

Introduction:
NedCar, situated in Born in the Limburg province, is the only large-scale automobile producer in the Netherlands. It started in August 1991 as a joint venture between the Mitsubishi Motor Corporation and Volvo. With a workforce of 3,000 people, it is also one of the largest employers in Limburg. Many employees are trained to junior technical school level and realize the benefits of additional training only later in life. Staff training is an essential part of the company’s strategy to remain competitive, and to encourage employees to take responsibility for improving their own job prospects, both internally and externally.

The problems at the Nedcar plant in the southeast of The Netherlands were triggered by DaimlerChrysler AG’s (DCX) decision to stop the production of its Smart ForFour model. NedCar is expected to reduce the number of employees by 1,000 in a reorganization aimed at cutting production costs.

Synergetics introduces the eXact Portfolio as the ePortfolio Management System (ePMS) for the Nedcar project. All 3,000 employees will get their personal “EmployabilityPortfolio”.

The ePortfolio data will be imported from Nedcar’s SAP-HR and other HR-applications. Supported by Nedcar HR-coaches, external consultants and various employability/employment service providers, such as www.cwi.nl, www.kenteq.nl and training service providers.

All employees will be enabled to develop and complete their personal EmployabilityPortfolio, thus creating both a powerful, standards based tool that will help them to develop their NedCar career (internal employability) or assist them in the finding a new job (“shortest way to work”, external employability).
The ePMS will also act as an instrument for the new continuity-HR policy of Nedcar, which is focusing on developing mobile, competency-aware employees thus providing mobility of work in the region.

To orchestrate this broad range of (web) services, especially for the 1,000 employees who will leave the company, the ePMS will be integrated with Giunti’s LCMS, eXact skills®, and eventually embedded in an BPMS/SOArchitecture.

**Employability:**
The ePortfolio solution for NedCar addresses several of the top 10 employability challenges in Europe as defined by the European Commission (see next page):
<table>
<thead>
<tr>
<th>Employability challenges</th>
<th>Related aspects</th>
<th>Related e-learning issues</th>
<th>Related e-learning solutions</th>
<th>Nedcar project</th>
</tr>
</thead>
</table>
| 1 globalisation & economic integration | -globally business process integration  
-standardization  
ever-increasing need for learning content homogenization | -bridging time-space dimension  
-global standards-based e-learning content creation  
-meaningful classification: content & context ontologies  
-content standardization in function of international labour market context | -intelligent learning content management systems based on international standards and using semantic technologies  
-open knowledge networks  
-EU skills portal | Synergetics LCMS |
| 2 shrinking & ageing workforce | -big labour market outflow of older employees due to shift from industrial to service to knowledge economical context and low skills adaptability (readiness) | -education programmes for skills adaptation to changing economical context, re-education, personal development | -accessible and pro-active learning systems for economical employees (re)integration in terms of realistic and integrated economic objectives | -ePortfolio services  
-employees are 40+ and have a low educational level  
-APL and training give them a better position on the regional labour market |
| 3 economic slowdown | -due to bad labour market adaptation to fast economic changes (inability to find right employees for right jobs)  
-due to collectivity of work force and thus lack of flexibility  
-due to not fully using innovation potential of knowledge economies | -individual learning trajectories for personal competency aggregation  
-business-inspired learning trajectories for maximum profitability  
-need for collaborative knowledge exchange | -intelligent, personal, relevant and user-friendly learning systems  
-collaborative innovation networks for knowledge exchange | -part of activities of NedCar will be terminated due to low competitiveness of the factory  
-increasing competitiveness means a well tuned system of allocation and training of staff |
| 4 hiring & firing (lacking flexibility) | -due to collectivity of workforce and maladjustment of national legislation  
-old paradigm of protecting low-skilled, intellectually passive workforce  
-old paradigm of companies as lifelong employers | -empowering individuals through lifelong learning  
-employers offering learning trajectories and competency improvement instead of (nowadays non-realistic) lifelong employment | -learning systems that permit evidence elicitation in terms of competency aggregation  
-ePortfolio systems | -regional approach of employability  
-increasing the agility of the workforce by looking at the available resources inside and outside the workforce |
| 5 low workforce adaptability | -inside companies: little success in matching competencies and learning efforts to ever accelerating business processes  
-outside companies: lack of professional learning supply chain framework | -learning processes and business processes alignment as a key driver for agile businesses, smart processes and organisational flexibility (HRM as a 3rd generation ERP system) | -real-time vocational education programmes  
-competency driven business learning processes | -APL and cooperation with the regional training centres means building a learning chain for employees, facilitating learning and certification beyond boundaries of one company. |
| 6 gender gaps | -sectoral gender gaps: image problems  
-Glass ceiling: due to societal role divisions, work – personal life division | -overcoming difficulties in time management through e-learning and e-working | -e-learning initiatives for relevant target groups  
-ICT competency development in function of e-working possibilities | (APL) competency driven approach excludes traditional interpretative (and subjective) boundaries  
-relocation of employees offers new opportunities based on personal profiles and wishes |
| 7 ethnic gaps | -prejudice  
-language problems  
-cultural differences | -competency-based HR-policies instead of subjective analysis | -Competency driven lifelong education  
-ePortfolio systems | (APL) competency driven approach excludes traditional interpretative (and subjective) boundaries |
| 8 disability gaps | -mobility problems in education as well as working environments | -overcoming mobility difficulties through extensive ICT-use  
-integration of disabled employees in physically less demanding knowledge economy | -e-learning initiatives for relevant target groups  
-ICT competency development in function of e-working possibilities | -traditional education programmes with e-learning competency driven content  
-e-learning initiatives for increasing ICT literacy |
| 9 ICT (competency) gaps | -ICT literacy: skills gap directly related to unemployment  
-low ICT literacy: low productivity due to little use of ICT possibilities, resulting in slower economic growth | -solving accessibility problems to e-learning initiatives  
-increasing ICT literacy through e-learning initiatives  
- benchmark issues | -traditional education programmes with e-learning competency driven content  
-e-learning initiatives for increasing ICT literacy | - |
| 10 ill-defined cost-sharing between societal partners for increased investment in HR | -redefinition of societal educational roles due to lifelong learning and knowledge economy context and corresponding maladjustment of relevant partners in terms of investments | -need for a synergetic approach to lifelong learning | -creation of accessible and intelligent e-learning infrastructures with clear-defined collaborative roles for societal partners | -regional approach is supported by and developed in close cooperation and financial participation between regional stakeholders |
Solution

- Implementation of eXact Portfolio® for all 3,000 NedCar employees. eXact Portfolio is IMS-compliant. The service will be offered as SAAS (Software AS A Service). eXact Portfolio® is hosted in Antwerp and managed by Synergetics.
- The initial ePortfolios will be filled with data from SAP and other HR data.
- Supported by HR coaches the employees will further check and complete their ePortfolios and define the Views. The Views determine which information will be available for which user (HR department or third party).
- The ePMS will exchange information with external service providers in the region. The services offered by third parties in this project are:
  - APL tracks offered by Kenteq (www.kenteq.nl)
  - matching on vacancies (offered by CWI, www.cwi.nl)
  - competency tests and assessments offered by the Competency Test Centres of CWI
  - training offered by regional vocational training centres (ROC’s).

Internal advantages

- More detailed and accurate insight & in available competencies and development potential
- Increased flexibility of the workforce
- Increased competency aggregation of the employees by rationalization process triggered by personal ePortfolio development

External advantages

- Better position for fired employees on the labour market, by:
  - usage of the ePortfolios by consortium of service partners
  - alignment with opportunities in current and expected local labour market
- Increased functioning of local labour market:
  - better matching with vacancies
  - more effective training
  - APL
- Support of life long learning
- Introduction of the ePortfolio concept on a societal scale
  - apparent advantages
  - media coverage
  - employees
  - employment services
  - companies

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PORTFOLIO MODELS AND COMMUNITY BUILDING IN DUTCH HIGHER EDUCATION, LESSONS LEARNED OF NL PORTFOLIO

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Introduction

Much useful experience with the implementation of e-portfolios has been acquired in the Netherlands, through both national projects and initiatives set up by most institutions of higher education. The aim of NL Portfolio http://www.surf.nl/portfolio, established in 2004, is to combine, share and expand this experience. NL Portfolio is one of the SURF Foundation’s special interest groups. SURF is the Dutch partnership organisation for Information and Communications Technology (ICT) in Dutch higher education and research. Below we describe what we have achieved in terms of e-portfolio know-how and community building so far in the Netherlands on e-portfolio and we would like to outline our plans and future views of the field.

Position of e-portfolio’s in Dutch HE

In Dutch institutions of higher education the subject of e-portfolio continues to attract increasing interest. This can be explained partly by the focus on competence-oriented education in universities of professional education, in which the emphasis is placed on student development, but also by academic universities’ attention to fostering academic maturity. In the process of educational innovation, the e-portfolio is frequently used as an aid for guiding the learning process or as an assessment tool. It also offers the ‘Net Generation’ students of today the possibility of presenting themselves to various target groups. E-portfolios have the potential to offer clarity and flexibility, which various stakeholders in education have a particular need for, both in pedagogic and administrative processes. Although much terrain has been explored, many questions still exist regarding the most efficient and effective use of digital portfolios. At the same time, systems for digital portfolio are in technical terms still in a considerable state of flux; this also applies, for example, to their relationship to digital learning environments and study registration systems.

Digital portfolios play a significant role in both the didactic and administrative processes of institutions of higher education and, increasingly, in other branches of the Dutch educational sector as well. Furthermore, even outside the confines of education, issues such as ‘competence management’, ‘employability’ and ‘life-long learning’ are salient topics of discussion, both in the field of employment and the public arena. NL Portfolio aims to be an active player in these areas, establishing links and developing initiatives beyond educational boundaries. NL Portfolio is also seeking opportunities in the international context. In post-Bologna Europe, the digital portfolio will possibly become a tool for supporting study across international boundaries.

Activities NL. Portfolio

One of the things we plan this year is an e-portfolio trip to the EIfEL-conference in Oxford for the members of our community. This is in illustration of the “learning together” approach NL Portfolio uses in combining, sharing and expanding experience in the field of e-portfolio.

We use a variety of formats to establish co-operation between higher education institutes, in the Netherlands and in the international portfolio arena. We also try to link up across the boundaries of educational sectors and with the labour field. Some of our activities are described below:
• We organise insight meetings at the local institutions to share practise and problems
• We facilitate a community of practise, with activities targeted at specific audiences like e-portfolio specialists, project managers and for the larger audience of teachers
• We set up network table sessions for topics that need special focus, e.g. service oriented architecture, the use of audio and video in portfolio’s, research on portfolio’s, et cetera
• We fund small-scale qualitative projects to explore topics related to e.g. e-assessment, portfolio coaching, et cetera. These projects concern different content areas, e.g. medicine and education.
• We have funded overview projects on portfolio research and on describing the Dutch portfolio landscape.
• We organise (pre) conferences and presentations on e-portfolio in the Netherlands, but also at international conferences like ALT-C, Educause, EDEN, HEI/CRA and Online Educa.
• We have recently started up co-operation between SURF and JISC; we have been sharing experience in several meetings and are planning to set up mutual projects in the context of the e-framework.
• We have established relationships with several experts and bodies in e.g. Belgium, Canada, Norway, Germany, Denmark, the USA and Britain.

A Dutch (?) approach towards e-portfolio

Although there are also quite some differences in the way institutions approach the topic of e-portfolio, there appear to be some similarities in the way they go about in the Netherlands. The models presented below shows a common approach in the Netherlands to the e-portfolio topic from different perspectives in an integrated and balanced way, giving attention to technical, educational and organizational issues. More detailed description of these models can be found in Aalderink and Veugelers (2005)

![Diagram of e-portfolio concept](Image)

Figure 1 E-portfolio concept, the attention areas for educational innovation and the role of the support; Universiteit van Amsterdam 2005. Based of the model by Van Tartwijk a.o.. (SURF Project 2003)

The Van Tartwijk model was developed as part of one of the first large scale national e-portfolio projects, in the Netherlands. See [http://www.surf.nl/en/projecten/index2.php?oid=62](http://www.surf.nl/en/projecten/index2.php?oid=62)
The following model presents an overview of different scenarios of implementation, as part of a website that presents a toolkit for managers and other stakeholders. [http://www.du.nl/portfolioimplementation](http://www.du.nl/portfolioimplementation)

Figure 2: Scenarios for e-portfolio implementation (Digital University Project 2004)

Building on this model as one of NL Portfolio’s projects a more detailed e-portfolio maturity model was developed, by Rubens and Kemps. This will be presented on this Oxford conference as well. See also [http://www.surf.nl/en/projecten/index2.php?oid=62](http://www.surf.nl/en/projecten/index2.php?oid=62)

Figure 3: E-portfolio maturation model, Rubens and Kemps (SURF project 2006)
Lessons learned

Working for some years together on e-portfolio we have learned several lessons (for more elaboration see Aalderink & Veugelers 2006). Some of that are:

- pedagogy comes first;
- we must work on well-defined goals towards planned results;
- all stakeholders should be involved in a multidisciplinary approach;
- management support cannot be missed;
- as is the case for functional and technical support;
- the different IT tools have to interoperates in a technical architecture that is user-friendly in a personalized way.

Developing and implementing an e-portfolio is a challenging job that takes a lot of time and energy. It calls for context-dependent Folio Thinking that can only succeed when linked closely with educational change in the specific organization at different levels and from different perspectives.

We can expect more progress in the field of e-portfolio if we succeed in learning and applying these lessons together.

References


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ePEARL: Electronic Portfolio Encouraging Active Reflection Learning

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Background

In Québec, like many other places, more than 20 percent of primary-school students have to repeat a grade before going on to secondary school and 70 percent of those drop out of high school (Statistics Canada, 2001). Currently, school is too often a place that disengages learners, which fails to encourage honest self-assessment, and where learning and evaluation are not meaningful acts of improvement but detached and punitive symbols of failure. Over the past several years, the Québec Ministère de l’Éducation du Loisir et du Sport (MELS) has been phasing in the Québec Education Program (QEP)—a complete reform of the curriculum favoring an integrated, comprehensive learner-centred approach to education based partly on a co-constructed, inquiry-based curriculum that responds to individual student needs and interests. The cross-curricular competencies, which have become central to the reform, are designed to ensure that the skills and knowledge being taught in our schools meet the changing demands of the 21st century workforce (Conference Board of Canada, 2001; MEQ, 2001). One way to meet this challenge appears to lie in the use of electronic portfolios which can be designed to support the process of students’ self-regulated learning.

The value of portfolios for exhibiting evidence of learning has been well established and while the research and debate continue over the best vehicles or formats for portfolios, their use has become mandate in Canadian provinces such as Quebec as a means for capturing students’ metacognitive processes and evidence of learning. Social cognitive theorists like Bandura (1986) identify personal, behavioral and environmental factors as triadic processes which influence student performance. These processes underlie the self-regulatory processes which Zimmerman (2000) defines as forethought, performance or volitional control and self-reflection. The importance of developing self-regulating ability within students has been extensively researched for the past two decades and is believed to be essential to successful learning within schools and extending self-directed learning into adulthood (Boekaerts, 1999; Corno & Randi, 1999).

Concordia University’s Center for the Study of Learning and Performance (CSLP) has identified the potential for portfolios to provide evidence of self-regulation as well as the potential for a an electronic portfolio tool to support and scaffold self-regulation (Wade, Abram, & Sclarer, 2005). As the research continues regarding the effects of portfolios in their various formats, the development of a tool which not only supports the development of a student’s portfolio but also of their self-regulative abilities provides opportunities for researching student outcomes in both arenas. This presentation will provide the theoretical background that guided the redesign of the CSLP’s bilingual, web-based electronic portfolio, now called ePEARL, along with some of the key features within the software.

Electronic Portfolios

An electronic portfolio (EP) is a digital container capable of storing visual and auditory content including text, images, video and sound. EPs may also be learning tools not only because they organize content but also because they are designed to support a variety of pedagogical processes and assessment purposes. Historically speaking, EPs are the Information Age’s version of the artist’s portfolio in the sense that they not only summarize an artist’s creative achievements but also illustrate the process of reaching those
achievements. An artist, architect, or engineer who displays her portfolio of work allows the viewer to form a direct impression of that work without having to rely on the judgments of others. EPs tell a story both literally and figuratively by keeping a temporal and structural record of events.

EPs have three broad purposes: process, showcase, and assessment, and often serves multiple purposes. For example, a teacher may use EPs to measure student’s learning about the course content, their effort, their progress over time, and their self-regulatory abilities. EPs may be designed as process portfolios supporting how users learn through embedded structures and strategies. Process portfolios are personal learning management tools. They are meant to encourage individual improvement, personal growth and development, and a commitment to life-long learning. The authors are especially interested in the use of EPs as process portfolios to support learning. A process EP can be defined as a purposeful collection of student work that tells the story of a student’s effort, progress and/or achievement in one or more areas (Arter & Spandel, 1992; MacIsaac & Jackson, 1994; Abrami & Barrett, 2005).

Process EPs are gaining in popularity for multiple reasons. They provide multimedia display and assessment possibilities for school and work contexts allowing the use a variety of tools to demonstrate and develop understanding—especially advantageous for at-risk children whose competencies may be better reflected through these authentic tasks. At the same time, by engaging these learners, their deficiencies in core competencies may be overcome. Process EPs may scaffold attempts at knowledge construction by supporting reflection, refinement, conferencing and other processes of self-regulation, important skills for lifelong learning and learning how to learn. They are superior for cataloguing and organizing learning materials, better illustrating the process of learner development. And they provide remote access encouraging anywhere, anytime learning and easier input from peers, parents, and educators, letting them provide feedback through a single electronic container. In short, the potential of process EPs are nothing short of revolutionary as a dramatic expression of the possibilities of e-learning from cradle to grave as epitomized in the slogan “E-portfolio for Life”.

**Student Self-Regulation**

According to Wade, Abrami & Selater (2005), EPs may be linked to a student’s ability to self-regulate their learning and to enhance their meaningful learning of important educational skills and abilities. Self-regulated learners are individuals who are metacognitively, motivationally, and behaviourally active participants in their own learning (Zimmerman, 2000). A main feature of self-regulated learning is **metacognition**. Metacognition refers to the awareness, knowledge and control of cognition. Proponents of socio-cognitive models emphasize that to develop effective self-regulated learning strategies, “students need to be involved in complex meaningful tasks, choosing the products and processes that will be evaluated, modifying tasks and assessment criteria to attain an optimal challenge, obtaining support from peers, and evaluating their own work” (Perry, 1998, p.716). When students use portfolios, they assume more responsibility for their learning, better understand their strengths and limitations, and learn to set goals (Hillyer & Lye, 1996). Educators believe that portfolios allow students to think critically, and become active, independent and self-regulated learners (Perry, 1998; Mills-Courts & Amiran, 1991). See Figure 1.

EPs may provide important means for student self-regulation. Students may review their own work and then modify learning goals as a result of such reflection. The process of reflection is what makes EPs a tool for life-long learning and professional development rather than a mere collection of work (Foote & Vermette, 2001). The student needs to be able to make a direct connection between each submission in the portfolio and an intended learning goal. The student needs to be able to explain why a specific submission was placed within the portfolio. Barrett (2004) further confirms the importance of this idea when she says, “the artifacts need to be accompanied by the learner’s rationale, or their argument as to why these artifacts constitute evidence of achieving specific goals, outcomes, or standards.” (p.3.) Bereiter and Scardamalia (1989) mention that portfolios encourage the pursuit of personal cognitive
learning goals, what they call intentional learning. Portfolios prompt students to look back, to digest and debrief, and to review what happened so that they can set new goals and determine next steps (Camp, 1992). In an attempt to demonstrate the effects of reflection, Sweidel (1996) asked students self-reflective questions about their study strategies and found that at the end of the semester they were able to identify relationships between the process and the outcome of their studying.

Wade and Yarbrough (1996) elaborate on the pedagogical value of using portfolios as a learning tool. Portfolios are developmental in their nature, since a portfolio represents a certain period of students’ growth and learning. Portfolios should not be solely used for short-term goal attainment since they are the culmination of long-term learning outcomes. Portfolios are dual valued in that they offer both the teachers and the students the opportunity of dyadic interaction. A portfolio allows the student the opportunity to reflect and record learning process while offering teachers an authentic integrative approach of evaluating student growth and achievements as well as acting as a feedback mechanism for their teaching practices. Portfolios are also interactive in that they enable students to share their work with their teachers and peers, thus seeking guidance or suggestions. In this way, the development and establishment of the portfolio may be seen as a form of collaboration. Finally, EPs, as multimedia containers for student work and learning, allow teachers, students and others unique opportunities for contextualized evaluation as well as evaluation during the learning process.

Self-Regulation in Computer-Based Learning Environments

Zimmerman and Tsikalas’ (2005) review of computer-based learning environments (CBLEs) designed to support self-regulated learning (SRL) provides a framework for development of a tool to support the three cyclical phases of SRL: forethought, performance and self-reflection. While the various processes involved in self-regulation have been discussed, the lessons of other partially SRL-supportive CBLEs has enabled us to plan for effective SRL-supportive design of ePEARL.

The three cyclical phases of self-regulation include both meta-cognitive and motivational components, providing the foundation for better sustainability of learning and skill development.

- **The forethought phase includes task analysis (goal setting and strategic planning) and self-motivation beliefs (self-efficacy, outcome expectations, intrinsic interest/value and goal orientation).** Tasks involved in the forethought phase: set outcome goals, set process goals, document goal values, plan strategies, and set up learning log.

- **The next phase, performance, includes self-control (self-instruction, imagery, attention focusing and task strategies) and self-observation (self-recording and self-experimentation).** Tasks involved in the performance phase: creation of work, and learning log entries.

- **Finally, the self-reflection phase includes self-judgment (self-evaluation and casual attribution) and self-reactivation (self-satisfaction/affect and adaptive-defensive responses).** Tasks involved in the self-reflection phase: reflection on work, reflection on process, awareness of new goal opportunities.

**Research on EPs**

Unfortunately, evidence to date on the impacts of EPs on learning and achievement and other outcomes is sparse. Ten years ago, Herman and Winters (1994) concluded that there was a “dearth of empirical evidence” on the impact of EPs. This sentiment was echoed by Lyons (1998) who stated “there is not yet a body of systematic data documenting their [portfolio] uses or their long-term consequences” (p.247). Zeichner and Wray (2001) concluded similarly: “Despite the current popularity of teaching portfolios, there have been very few systematic studies of the nature and consequences of their use for either
assessment or development purposes” (p.615). And finally, Carney (2005) concluded “Electronic portfolios show promise for enhancing learning, but if we fail to critically evaluate our uses of the device, we may find that they will go the way of Papert’s Logo turtles and become yet another educational fad—an innovation poorly understood and often implemented in ways contrary to its theoretical underpinnings” (p. 4).

Methodological complications and controversies challenge researchers in this area. First, there is the question about whether a quantitative or qualitative research paradigm is appropriate for answering questions about EP impact (i.e. Linn, Baker & Dunbar, 1991). Second, there is the question about the instructional sensitivity of traditional learning measures to EP effects, particularly, among those who argue for EPs as alternative and/or authentic tools for assessment. Finally, there is the question about the strength and pervasiveness of the EP treatment. EPs are not curricular content but tools for learning content. They are a pedagogical approach or strategy for learning that needs to be used correctly, widely, and for a reasonable period of time for effects to appear. Research on EP effectiveness, therefore, may need to include measures of implementation fidelity to insure their use by teachers and students is faithful to their purpose.

**Expected Outcomes of Further Research**

We expect that EPs will enhance teaching and learning processes and outcomes. We hope to show significant and practically important impacts on student learning over time, especially literacy skills and students’ regulation of their own learning. We also expect enhanced motivational and cognitive benefits for students due to the use of multimedia for learning; the development of ICT skills in children; improved accessibility to school work from remote locations; enhanced ability to communicate easily with parents; and greater flexibility to carry forward school work from year to year. We also expect that EP, by providing authentic tools for assessing progress relative to oneself rather than others and emphasizing individual efforts to learn, may be especially useful for impacting on these learners and especially those with special needs or who are at-risk of school failure. We expect that EP, by making the assessment meaningful and personally relevant to the learners, will increase their likelihood of success, and hence their motivation. We also expect that teachers using EPs will become more expert users through their use of the tool and because of the scaffolding provided in the professional development that will be embedded in and linked to the tool; in particular, we expect that they will improve their ability to align their assessment measures with how they teach (instructional activities) and with what they intend students to learn (competencies). We believe the tool will help teacher’s learn ways to encourage active learning of literacy skills through student construction and refinement of their work and feedback from others. We also believe that teachers will be better able to encourage student self-regulation because of the way the CSLP tool supports self-regulation and because of the embedded teacher professional development. In general, the research and development activities will enhance our understanding of whether and how to use EPs as a means to enhance students’ core competencies, skills, and abilities and as a means to provide authentic assessment of those competencies.

**Our Prior Research on Portfolios**

As a precursor to our involvement with EPs, Kakkar, Zitkute, and Abrami (2000; see also Wade, Abrami & Sclater, 2005) explored whether paper-based educational portfolios assist the processes of self-regulation. To this end, a mixed-method study was employed to investigate student self-regulation in high context, low context, and no portfolio classrooms. The main goals of this study were to a) provide evidence that portfolios encourage students to become self-regulated learners and b) to analyze how different portfolio processes influence student self-regulation. We hypothesized that students will become better self-regulators as they continue to be part of a portfolio classroom and subsequently students in a high context portfolio classroom that foster high self-regulated processes will be stronger self-regulators.
In this study, we noticed some change in the expected direction but not as much as we expected. First, it appears that the transition is not a ready one from more traditional modes of instruction and assessment to portfolio processes and assessment. Despite their willingness, effort, and preparation—which was both genuine and substantial—our sample of teachers in the low context classroom did not entirely abandon more traditional classroom practices. Likewise students in portfolio classrooms struggled, in some ways yearlong, with portfolio activity and responsibilities. Yet, there were significant changes that occurred consistent with students increasing their self-regulation—a sign of hope. We speculate that the demands of the portfolio classroom are greater than in more traditional, teacher-centered classrooms on both student and teacher especially during a time of transition from other ways of teaching and learning. Second, portfolios place greater emphasis on the process of learning and different emphasis on the outcomes of learning than traditional methods of instruction and assessment. The discomfort of students with portfolios may signal their struggle with self-regulating their learning because they have not fully accepted its precepts due perhaps to the demands placed on them externally for traditional achievement gains. Alternately, they may not wish to accept the risks associated with the personal responsibility of regulating their own learning to achieve success. The struggle is difficult and change may neither be asked for nor accepted willingly.

On the basis of this evidence, we believe the following is worth exploring. First, the use of portfolios should be a school-based or board- (district-) based initiative. Students, teachers and administrators should believe that the change to portfolios is widespread and a regular part of the school routine. Second, the use of portfolios should begin early in students’ educational experience and not be short-lived. The processes of self-regulation and approaches to pedagogy which portfolios support require time for younger students to learn and effort for older students to make the transition from traditional, teacher-directed methods. Third, teachers need to develop facility with portfolio processes and they should be supported with appropriate professional development. Fourth, EPs may provide additional means to scaffold teachers and students in the portfolio process and better encourage self-regulation. This research and these reasons helped us develop the CSLP’s EP software tool, ePEARL, which we describe further below.

**Electronic Portfolio Encouraging Active Reflective Learning Software (ePEARL)**

ePEARL is bilingual, web-based software designed at the CSLP to encourage self regulated learners within student-centred curriculums. Developed in PhP using a MYSQL database, three levels of ePEARL have been designed for use in elementary and secondary schools: Level I - Grades 1-2; Level II – Grades 3-6; and Level III – Grades 7-12. Features available include: Customizing the portfolio; Setting goals; Creating new work; Linking to existing work; Reflecting on work; Sharing work; Obtaining feedback from teachers, peers & parents; Editing work; and Sending work to a Presentation portfolio.
Features

Students can:

- Learn to reflect on their learning meaningfully and to comment constructively on the work of their peers.
- Track their reading and music development, or oral presentation skills by recording directly into the computer;
- Learn basic word processing commands through use of a text editor;
- Archive selected artifacts within a Presentation Portfolio over the course of their education.

Teachers can:

- Create their own portfolios;
- Provide feedback on students’ goals, work and reflections;
- Track the development of their students’ learning over a term, a year, or a cycle;
- Model effective practices related to goal setting, reflection and conferencing.

Parents can:

- Track their child’s learning; and
- Become actively involved in their child’s education through the provision of feedback on their child’s portfolio or individual work stored within their child’s portfolio.

ePEARL’s View Artifact page
ePEARL is the result of close work with both the research evidence and the practical classroom requirements. This easy-to-use software was designed to support teachers and students throughout the portfolio process, and is available at no charge for schools who wish to partner with us on this project. For further information visit http://grover.concordia.ca/eportfolio/promo/

Current Research Plans

The current version of ePEARL is the culmination of five years of research, development, and collaboration with our partners in the educational community. The insights we have gained moved us further in the direction of a tool which supports students’ self-regulation. And we also came to release that regardless of the technical simplicity and engaging nature of the tool, the underlying pedagogical model it supported represented a radical departure from frontal teaching and transmission models of instruction. We also came to see the value of providing professional development and embedding just in time support in ePEARL, which we plan to do this year. This past year, we spoke with teachers about the use of EPs in their classrooms and analysed the EPs of select students. These baseline data are summarized below.

EP Baseline Data

We contacted teachers from the research schools in six partner English school boards who had agreed to attend implementation meetings. We transcribed and summarized the comments of 14 teachers about their initial reactions to EPs. We also followed up with several of these teachers and obtained parental consent to analyze the contents of 185 student EPs.

Teachers

Overall most teachers (12) were in the beginning stage of using EPs. Two had not started using it yet but they indicated that they would like to. Three teachers in one school who used the tool in collaboration with the computer teacher realized that they were using the software inappropriately. Due to technical problems of uploading work or time limitations for creating work within the software, these three teachers were only using e-portfolio as a reflection tool for work that was most often done on paper and to which access out of class was very difficult. Teachers’ reported use of the software was once per week for three teachers, twice per week for three teachers and three times per week for three teachers. Special circumstances in a specific school had the students start a project with two of the teachers in their classrooms on paper and continued with it while working with a computer teacher in the computer lab once a week. Eleven out of 12 teachers who used the software, did so in Language Arts, while one used it in Catholic Education. Two of the 11 teachers who used the software in Language Arts also used it in Math and one of them also used it in History. Students’ grade level ranged from the 1st to the 8th grade. However, the majority of teachers (7) used it in grades 6-8. When the tool was used in a classroom, all students created their own portfolios and they did so individually. No collaborative use of the tool was reported.

Need for Support: Teachers indicated that their students needed a lot of in-class support to use the tool, especially in the early grades. The support required is difficult to provide by a single teacher in a class of over twenty students. In one case, student-mentoring was implemented as a strategy, having those seventh grade students fluent in the use of the software train first graders in its use. Another strategy that was used in upper elementary school involved pairing up struggling students with more competent ones for mentoring. However, most students in upper elementary school or high school were comfortable with using technology, therefore they did not typically have problems with the use of the tool. Difficulties were most often encountered with the pedagogy that underlies the software, for example, writing reflections and setting goals.

Reactions to the Software

Students: Overall, teachers reported that students were excited with the tool and asked to use it
repeatedly. They liked the ability to personalize their portfolios and the fact that they could share them.
Teachers had very positive comments with regard to the use of the tool with students with special needs.
A teacher reported that the tool “has completely changed a child with ADHD”, because it acted as “the ultimate motivator”. Now the child is focused and engaged. The use of the tool has helped him in having all his work collected in a place where it cannot be lost.

**Teachers:** Teachers could see the value of electronic portfolios, but reported that it was difficult to integrate use of the software into the curriculum on a daily basis. This was mainly because of lack of time, technical problems, lack of in-class support and in some cases lack of access to equipment.

**Parents:** Parents’ reactions to the tool were also positive. In one case, the teacher noted that she had never seen such good attendance at the school’s Portfolio night—an event whereby the students present their portfolios to their parents. She credited the use of e-portfolio to this.

**Analysis of the Student Portfolios**

**Students:** Students’ grade levels ranged from the 1st to the 8th grade. Access was feasible for 152 out of the 185 student portfolios.

**Size of Portfolios:** Overall, the majority of portfolios (24%) had one piece of work stored, a somewhat surprising finding given portfolios are, by their definition, typically collections of work. Over half of the analyzed portfolios contained from none to three pieces of work.

**Goal Setting:** The majority of student portfolios (55%) did not use the goal-setting feature of the software. Twenty-nine percent of portfolios had one goal and 16% of portfolios had two to six goals.

**Reflections:** The majority of portfolios (66%) did not use the reflection feature of the tool. Thirty-four percent of the portfolios contained from 1 to 8 reflections. Reflections indicated:

1. **effort** (I worked hard on it, I am proud of it, I spent lots of time, it is my best project)
2. **external motivation** (I got a good grade)
3. **factors unrelated to learning** (it was fun, liked it, loved it)
4. **sharing** (so that everyone can see, my parents can see, I want people to learn about)
5. **improvement** (I have improved)
6. **quantity** (I wrote a lot)
7. **self-evidence** (e.g. on a piece labeled: “My winter holiday” a reflection such as “because it is what I did on my winter holiday”)
8. A **combination** of the above categories (“I liked doing this story and I got a good mark on it. It was very fun and we did a story book with pictures and worked very hard on it”)

**Conferencing:** The conference feature of the CSLP e-portfolio tool was used in 19% of the portfolios, mostly by peers.

**Conclusion**

Our current focus is to support teachers in their use of the newly released ePEARL and to explore more intensive use of EPs especially in elementary schools. Teachers will be pre-tested and post-tested using a Portfolio Implementation Questionnaire currently under development at the CSLP. This will provide some indication of the quantity and quality of portfolio processes occurring in the classroom. The expectation is that the use of ePEARL will encourage greater and richer use of portfolio processes throughout teacher practise. Additionally, based on what we learned through the collection of baseline data last year, multimedia support materials are being developed and will be integrated throughout
ePEARL to provide ‘Just-in-Time’ support for both teachers and students.

Next year we will conduct a two-year longitudinal investigation using a non-equivalent pretest-posttest design focusing on changes in student self-regulation and literacy skills improvement. Ultimately, our objective is to learn more about the impact of EPs on student learning.

While teachers, students, and parents see great promise in the use of EPs for learning, there is much that remains to be done to insure this promise is realized. To teach the skills of self-regulation within an EP environment requires commitment and purpose on the part of teachers and students. Both “will” and “skill”. It isn’t just about the destination but also about the journey. Stay tuned.

**Triadic Forms of Self-Regulation**

- **Person**
  - Covert Self-Regulation
  - Behavioral Self-Regulation

- **Environment**
  - Environmental Self-Regulation

- **Behavior**
  - Behavioral Self-Regulation

**Self-Regulation Key Concepts:**

- Self-regulation is cyclical: feedback from prior performance used to make adjustments in current effort
- Personal, behavioral, and environmental factors are constantly changing during the course of learning, necessitating adjustments
- Self-generated thoughts, feelings, and actions are planned and cyclically adapted to the attainment of personal goals
- Open feedback loops in the triadic process must be **proactively** as well as reactively adapted for the attainment of personal goals

**Behavioral Self-Regulation:**

- Self-observe and strategically adjust performance processes, such as one’s method of learning

**Environmental Self-Regulation:**

- Observe and adjust environmental conditions or outcomes

**Covert Self-Regulation:**

- Monitor and adjust cognitive and affective states, such as imagery for remembering or relaxing

**Levels of Self-Regulation Skill Development**

<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Observation</td>
<td>Watching the skill as performed through a proficient model</td>
</tr>
<tr>
<td>2</td>
<td>Emulation</td>
<td>Imitating performance of the skill with assistance</td>
</tr>
<tr>
<td>3</td>
<td>Self-control</td>
<td>Independent display of the skill under structured conditions</td>
</tr>
<tr>
<td>4</td>
<td>Self-regulation</td>
<td>Adaptive use of the skill across changing personal and environmental conditions</td>
</tr>
</tbody>
</table>
Processes that occur during motoric efforts and affect attention and action.

- Self-control
- Self-instruction
- Imagery
- Attention focusing
- Task strategies
- Self-observation
- Self-recording

In action:

Self-control processes such as self-instruction, imagery, attention focusing, and task strategies, help learners and performers to focus on the task and optimize their efforts.

Self-observation can lead to self-experimentation, wherein learners vary aspects of their own functioning that are in question. This can create better personal understanding and better performance or volitional control.
References


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Theme #3 Learning and Learners

Title: ‘One Stop Shop’ a cohorts window to the world of ePortfolio.

Presentation Mode; Good practice case study – user testimony

To illuminate, intrigue, diverse and sway was an immense expectation of the ePortfolio but it did not fail to reward even the most skeptical of us. Therefore the objective of this abstract is to identify and discuss the usage of ePortfolio within the development and growth of a group of student teachers; analyse how this technology built a community and encouraged and supported reflection, self development and advanced theoretical learning.

This academic year has enabled a group of virtual strangers to create a community and begin on individual and communal aspirations that will endeavour to bring lifelong learning development to all. Twelve student teachers began a reflective journey, all with similar goals and ambitions but ultimately will travel varied paths in their attainment. Through the adoption of pebblePad, the University’s electronic portfolio, an online learning and teaching environment was created. Students have identified this innovative dimension to their learning as not only a support mechanism but metaphorically as a lifeboat, ski slope, roller coaster and flowering tree illustrating individual and communal vivid, turbulent but mostly rewarding journeys.

Initially the thought for many of the cohort on becoming reflective practitioners through the use of ePortfolio was a ‘frightening’ and ‘reluctant’ process, as individual’s previous learning experiences were derived from traditionally formal learning methods. Some were apprehensive on adapting an IT element to the already difficult task of reflection, however this was now to be challenged and individuals were encouraged and drawn to contribute in a non formal and informal learning environment. Whether actively participating in online discussions or watching from the sideline, an influential, creative, supportive and safe place was born. Difficulties and perceptions of theories, clarification of learning abilities and sharing of critical incidents were discussed and respected by all. What initially seemed a daunting unattainable task for many dramatically transformed into a communal and individual environment enabling all students to express, stretch and face experiences. Each ePortfolio was developed through individual expression, learning preference, time constraint and need. Enabling students to express the ability to feel in control of their learning and ‘not being left behind’ due to their dyslexia or other learning curves only confirms the incredible differentiation attribute ePortfolio offers. In addition there were numerous students who felt their ePortfolio and the communal blog area provided support, comfort, bonding, inspiration and ultimately reflection a resource that enabled individuals to showcase their abilities whilst learning and developing new intriguing skills.

So how did this all begin? Rapidly, abundantly, overwhelmingly. Although cautious in the initial approach of building, sharing and discussing our individual ePortfolios, once experienced it became contagious to all. The only competencies deemed necessary to participate were that of communication although arguably this happened on many different and varying levels. It was inspirational to meet individuals in the blog who triggered an untapped reflection that then could be transported to individual development and help in the identification of strengths and opportunities. Few imagined that the pebblePad ePortfolio was to be one of the few constants in an influential year that stretched and portrayed our thoughts and experiences. Many of the groups peers considered them incredibly fortunate and a little jealous of the communal blog, as they saw growth and unbiased support both of which has continuously developed an unwavering appreciation of this radical learning environment. The ePortfolio has acted as a gateway through which individual and group developmental needs have been addressed, not only from peer support but through formative assessment of reflective work. The ability to receive instant, relevant and personalised assessment has been influential to many and ‘has made the journey that little easier to follow’.

A community has been created that has offered support to many on varying levels, pregnancy, fear, dyslexia, time, space, IT novice, frustration and criticism. Through utilising
the weblog an online journal feature of pebblePad the group were all able to grow as reflective writers and enter a shared space that was free from ‘ridicule’.

All students have taken ownership of individual and communal ePortfolios and many have utilised this to catapult and achieve their development and learning objectives. So why does it work? ePortfolio offers support in many facets and conforms to no rule book, whether it is day or night, light relief after a hard day’s teaching or simply a place for laughter and compassion ePortfolio enables us all to take full ownership of our aspirations and gives us all the ability to adopt a ‘lurker’ position when necessary.

Although informal in its approach to facilitating reflection, ePortfolio has enabled a flexible but structured approach to further in-depth research of poetry, metaphors, theoretical works and standardised and innovative learning methods all of which are often confined to the restraints of a traditional classroom. These could now be analysed, discussed and shared within the pebblePad environment and illustrated the ways in which the ePortfolio was used as contributor to formal learning without traditional pressure to answer/talk back immediately and support individual response from everyone, something that rarely happened in a classroom learning environment.

The ongoing dialogue in the ePortfolio has been key in developing reflective skills as the community created within the ePortfolio could not have been achieved in the 2 ½ hrs that the group met physically in the classroom. Sharing reflections of others has enabled the cohort to individually look at themselves differently; whilst the initial concept of displaying thoughts to others was somewhat scary, inhibitions soon evaporated. Without the e-portfolio and the dialogue with peers and tutor the journey to becoming reflective writers would have been much harder and definitely a much lonelier road to travel.

The cohort is now entering its final journey and the ePortfolio has shifted in how it now supports these individuals. The objective and desire of all student teachers has been to their developments, reflection upon their progress, the stretching of their skills, entering uncharted waters and feeling a sense of accomplishment in the completion of the course. However even though it is a final journey it is a journey with new direction, a year has been spent where each individual within the cohort has experienced the floaty highs and turbulent lows but through it all have had the unfailing support and direction indicators to forge forward. Therefore the cohort believes to continue in challenging our future educational and professional development and encourage future adoption of the ePortfolio programme, all are determined to continue their contribution to the ePortfolio. As one student identified, this journey was made together, it would not been have made so easily without each other and the adventures which have been shared using PebblePad. This group has all followed the same path together, sometimes at their own pace and other times hand in hand. It is recognised that the e-portfolio allows for growth and development through a media still to be discovered within the wider academic context. This tool will continue to be a support network as further steps are taken to secure their future within the teaching community as there is now a community that has developed a meaningful understanding of sustainability of the individual and group lifelong learning community.

By Karim-Akhtar, Yesaine, Mahmood, Khalid, Mcdonald, Mark, Mcdonald, Tess, McGuinness, Seamus, Staunton, Mandy, Purnell, Emma, Taylor, Liander and Woodhams, Jenny.

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