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## Learners in transition: the use of ePortfolios for women returners to science, engineering and technology

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## **LEARNERS IN TRANSITION: THE USE OF EPORTFOLIOS FOR WOMEN RETURNERS TO SCIENCE, ENGINEERING AND TECHNOLOGY**

### **INTRODUCTION**

This paper reports on the use of an ePortfolio by women at a transition point in their lives, when they are planning to re-enter work after a career break. Although the case has been argued for the usefulness of ePortfolios for life-long learning (Greenberg, 2004) there has been almost no implementation of ePortfolios to support those in transition such as part-time adults, the unemployed and those retraining in mid-life. And yet, recent reports argue that ePortfolios have a particular role to play in supporting such learners:

‘particularly across transitions between stages of education and employment, which with changing employment patterns and Widening Participation, are likely to vary increasingly in sequence and combination’

(Richardson and Ward, 2005 p7).

Most ePortfolio developments in Higher Education are focused on building institutional systems. Having an institution host an ePortfolio has many advantages: central storage, access from many locations and potentially by many people, security of content against individual computer failure and perhaps most importantly for educational institutions, an interface with student assessment systems. However the disadvantages of this are that the ePortfolio is ‘locked’ into the institution’s needs and

systems and is perceived as being an institutional requirement and the individual user does not have a sense of ownership. This might explain why some studies report that many students abandon their ePortfolio at the end of their period of study (Jafari, 2004). Adults who are 'lifelong learners' have different needs which include learner-owned rather than institution-specific eportfolios (Harley 2005, Harley and Smallwood 2006).

A successful ePortfolio should therefore be portable, and serviceable throughout a working life. It should have 'stickiness' (Jafari, 2004) for the end user whose needs and circumstance change over time, rather than be sticky due to a fundamental 'embeddedness' in a particular course or institutional context. In this sense it needs also to have 'legs' i.e. be able to travel with the end user into the world of employment (or unpaid work and family activity), and then back again into further education in a different institution.

The ePortfolio discussed here forms part of a course supporting highly qualified women to re-enter work in science, engineering and technology sectors after a career break. Results from the evaluation indicate that integrating the creation by a student of their own individual ePortfolio through the curriculum and assessment activities of a short (100 hours) online course, has proved highly successful; and that for mature students a supported environment in which to reflect and then build an ePortfolio can be a life changing experience that can enhance employability. Further, a stand-alone product (as opposed to one hosted on an institutional website) which can be kept by the user on their own hard drive after leaving the institution is particularly useful for those who are undertaking short programmes of study. Several of the students on the course reported in this paper are now in employment or further training and the

majority (77%) surveyed during the research plan to continue using their ePortfolio in their professional and personal development planning.

### **BACKGROUND: WOMEN RETURNERS**

Recent research indicates that women returners to the workforce face a particular set of problems and difficulties and that these are more pronounced for those trying to get back into the Science, Engineering or Technology sectors. As well as personal issues such as lack of confidence and out of date skills, structural factors (for example long working hours and geographical location) and cultural norms within these industries can make it more difficult for women, especially those with dependent children, to find suitable work. Moreover among those who do find work, many are under utilising their skills and qualifications as well as receiving lower wages (Tomlinson et al 2005, Prosser 2006, People, Science and Policy Ltd 2002).

In response to these findings, a national strategy was developed by the UK government in April 2003, one of the key parts of which was the creation of an online course by the Open University (OU) aimed at supporting and empowering women who were thinking of returning to employment in SET after a career break. The OU can provide a UK-wide course through its supported online and distance learning methodology. The course has been accompanied by a range of other support activities such as a mentoring scheme, work placements, plus individual advice and guidance, provided by a network of regional organisations across the UK (UKRC 2007).

The target group for the course was well defined and known to have particular needs as well as particular skills. Although they were all women with a professional

qualification, at least to degree level or equivalent, many were out of touch with paid work and with employment opportunities in particular sectors where they might return. Many lacked confidence in their employment skills; something reported consistently in the literature on women who have taken career breaks (Tomlinson 2005, Shaw 1999). There was a need to help these women recognise and value their transferable skills acquired both in paid and voluntary work, as well as identify where they needed to update skills. . Rommes et al (2005) Gouthro (2005) and others have argued that lifelong learning needs to take the particular gendered nature of women's domestic and personal lives into account when designing courses for women returners. Face-to-face courses of this kind have proved very successful in encouraging women to return to employment (Jenkins 2006), this was the first time one had been delivered primarily online. The inclusion of an ePortfolio in an online course allowed students to articulate the different areas of their lives.

### **SCIENCE, ENGINEERING AND TECHNOLOGY: A COURSE FOR WOMEN RETURNERS'**

'Science, Engineering and Technology: A Course for Women Returners' was launched in October 2005 and over 700 women have participated since then. Throughout the 10 week period over which each course presentation runs, participants study web-based course materials and engage in a series of online activities and discussions which are designed to take them through a process of personal/professional development planning (PDP).

A major aim of the course was to help women to identify, assess and demonstrate those kinds of competencies achieved through activities outside as well as inside

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work, culminating in the production of a CV and an action plan for a return to professional employment. All course content is on the web, all student interactions with tutors, the institution, and each other including assessment is dealt with electronically. While there have been many initiatives aimed at supporting women returners (Shaw, 1999), these have generally been face to face or built around printed materials. Traditionally, 'return to work' courses, and adult education courses, help participants build portfolios, but these are usually hard copy collections (Brown 2002, Baume 2003). We decided to adopt an ePortfolio on this course because of the e-learning approach used throughout the course and because we had an available prototype ePortfolio software package (*Profile*). The fact that this was simple to install and use, and that students could download and keep it to use after the course finished, made it very attractive.

Baume (2003) suggests that all portfolios include one or more of the following functions - process (reflection on learning) completion (assessment), accreditation of prior learning, career advancement (CV development) and CPD. The course authors were originally attracted to the ePortfolio tool for its career advancement role. The main objective of the funding body, as well as of the students themselves, was to get highly trained women practising their professions again. A portfolio device that would help them produce an impressive CV based on an organised collection of evidence of skills and qualifications was the bottom line requirement. During their studies students review their transferable skills, they map what they have learned during their time away from their professions onto their professional skills, and they review what skills and knowledge they need to refresh or update (although the course itself offers no accreditation of prior experience as such).

It was clear that the reflection and personal development activities that were a major part of the course could be integrated into ePortfolio use. Overall our vision was close to Barratt's (2004, 2006) idea of a 'learning portfolio'. User reflection is one of the key drivers in ePortfolio development (Lorenzo and Ittelson, 2005); more so than their function as a repository of student 'products'. Since many of the students on the returners' course graduated over ten years previously, they would have had little engagement with the kind of reflective learning journals that are more common in education today (Knott et al 2004). Throughout the course students are asked to reflect privately or to share their thoughts with their fellow students in an online 'tutor group'. They are also able to include these reflections in a section of the ePortfolio entitled 'Successes and Difficulties'. In the evaluation feedback, several talked about the impact of this reflective process and how important it had been in allowing them to make changes in their lives. It may be that people on a career break are in a situation which stimulates reflection, and structured activities and tools to support this are welcome.

Jafari (2004) argues that not all students or staff are convinced of the usefulness of ePortfolios. If they are not perceived as useful they are unlikely to be adopted by users i.e. they will not be 'sticky' enough. If ePortfolios become embedded into the assessment systems of institutions then they have local stickiness but no guarantee that students will continue using them once they have finished formal education. In our context we offered an ePortfolio as a tool for use outside of formal education. It needed to be simple enough to learn to use in a few hours and demonstrate enough 'future use' to convince potential users that it would be worth investment of time and

effort. Of Jafari's seven criteria for 'stickiness', the ePortfolio used on our 'Women Returners' course was easy to use, sustainable (because it was free, simple and required no institutional support once adopted), and it was transportable. It also had an X factor, which we would argue should be added to Jafari's list: user ownership, and user privacy.

### **PDP (PERSONAL/PROFESSIONAL DEVELOPMENT PLANNING)**

The process of engaging in PDP has been identified by both UK higher education institutions (see the Higher Education Academy resources on PDP: HEA 2006) and employers (Edwards, 2005) as crucial in encouraging learning and in providing a structure for the information needed by employers for recruitment and selection. A major part of the PDP process is the critical reflection that takes place. Since Schön's work in the 1980s, critical reflection has been positioned as key to the process of developing professional expertise. It is increasingly incorporated into the curriculum of higher education. Baume (2003) discusses three types of critical reflection that educators want to encourage in students and that professionals should be engaging in: reflection on action and reflection in action (Schön 1982) and reflection for action (Cowan. 1998). The course participants were neither students doing a professional practice course (novices), nor employed practitioners (experts) at the time they studied our course. Therefore, the reflection that they did was the first and last of these: reflection on what has gone before, and reflection in order to plan ahead.



***‘PROFILE’: THE FUNCTIONS OF A SIMPLE EPORTFOLIO IN A SHORT ONLINE COURSE FOR WOMEN ‘RETURNERS’***

In an application like *Profile*, where the ePortfolio and all its contents sit on the student’s own PC, the student selects and presents what she wishes anyone to see, and makes links to University sites and to files on her own PC as appropriate. There are no issues of access rights to the portfolio; access is controlled by the student. In the ‘Women Returners’ course we adopted the very simple principle that ePortfolios exist primarily for its individual owner. Students were introduced to *Profile* on the course and it was emphasised that it could be used as a personal organisational tool from that time on. There was no expectation that tutors, employers or others would look at the contents of the ePortfolio as such. Others would only ever see documents produced by the ePortfolio owner: CVs, action plans, training records, learning logs.

The course activities are therefore structured around the creation of an ePortfolio, which grows as the student progresses through the course. These activities include both individual and group work, some of which form part of the mid-course and final assessments that are required in order to gain course credit. *Profile* performs a central role in the course, enabling the collation of prior work and educational experience, linking to documents stored on the student hard-drive, reflections on achievements and disappointments, records of strategies for returning to work and finally an output that can be turned without much additional work into a standard CV.

As students are able to keep the product after the end of the course and continue to use it indefinitely, it seemed highly suitable for those taking short online courses, and

for those returning to employment who may need to develop and create several versions of their CV frequently in a short space of time.

*Profile* is structured as a simple data-base, with templates (See Fig 1 for an example of these) for students to organise and store evidence and reflection. A 'report' feature allows students to specify which fields of information they want exported as text to create a CV or other reports. Features include the ability to record past experience (work, voluntary work, education) as well as future plans, and these include areas for analysis of successes and difficulties encountered. Its simple interface is quick to pick up and can link to files on the student's own PC. One weakness is that *Profile* does not allow users to store files of evidence; it only allows links to files held elsewhere.

[Figure 1. about here]

## **EVALUATION OF PDP AND EPORTFOLIO**

### ***The evaluation methodology***

This paper draws on data gathered from the first group of students to participate in this course. The course evaluation contained a number of data collection devices: a postal questionnaire sent to all students at the end of the course, email accounts of critical incidents, messages posted to online discussion boards, and telephone interviews which took place eight months after completion of the course. The questionnaire included six questions about attitudes towards and the uses of personal development planning (PDP) and ePortfolios. 113 women registered for the course, 76 successfully completed it; all registered students were sent the questionnaire. 47

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returns were received. The average age of respondents was 42 years. We carried out 10 telephone interviews with a sample of those who had completed questionnaires to probe more deeply their responses the PDP aspects of the course. The interviewees had been chosen to represent a range of ages and SET occupations and responses to *Profile*. We also asked students to email us with narratives of critical incidents during the course that had had an effect on them - 16 critical incident emails were received. Finally we analysed online discussion conferences where students had been asked to post comments about their responses to *Profile* and PDP. 19 conference postings on this issue were included in our analysis.

#### ***Attitudes Personal Development Planning (PDPs)***

Survey respondents were positive about PDP. Indeed for some the process of reflection had been highly significant:

‘This course helped me look back at my own personal life, to better understand how and why things had happened to contribute to where I am now.’ (Survey comment)

Nearly 90% of respondents found the PDP activities in the course ‘fairly’ or ‘very’ useful. 70% of respondents (32 students) said that they would continue to use PDP as part of their own development and were convinced of its value for example:

‘I have always found it a bit uncomfortable to focus on myself. This course has made me realise the importance of planning and recording my own development. I spend a lot of my time working with young people in my spare time and encouraging their development. I guess I needed some body to do the same for me.’ (Survey comment)

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Those who said that they would NOT were asked if there were better ways of supporting their development. For some the course and reflective activities had simply highlighted the barriers they faced and they were reluctant to continue with this. For some the course had simply failed to motivate them enough to do more PDP and they felt they needed more ongoing support for their development.

Previous experiences of PDP were often related to the use of these within the work place which were generally not positive, and seen to be perfunctory. There was a recognition that PDP should be something that is independent of a work or indeed an educational context eg

'I think it's important to recognise that the PDP belongs to 'us' (i.e., the individual) rather than the company. This is difficult when it's imposed by the company as part of their (usually) 'best place to work' or 'investors in people' initiative!' (Online conference posting)

'(...)My conclusion is that one should have the 'real' PDP for ones own personal development, a subset of which can give rise to the 'ceremonial' PDP agreed in a work environment. Sometimes there may be a beneficial result, sometimes not, but at least you know where it all came from!'

(Online conference posting)

For many of the participants, there had been some initial reluctance to participate in PDP activities, which felt unfamiliar and challenging, but the majority found it beneficial once they had experienced the process and understood the relevance to their own career development.

***Experience of 'Profile'***

Respondents overall rated Profile as useful, despite feeling that it could be improved (see Figure 2).

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[Fig 2. about here]

They reported that *Profile* enabled them to value their own skills and experiences, often including things in their CV that they had forgotten to include in the past. The process itself was crucial; entering data into *Profile* was part of the reflective process and allowed users to recall and value things they had done and to see them in a different light eg:

‘ it has helped me not only remember stuff I did years ago, but also extract some value from them by thinking about skills (I never thought the work I did in hospital as a medical student would ever be useful, but I got a lot of exposure to the public then, which I didn't in IT jobs, and, who knows, this might come in handy at some point...).I feel relieved to have it all written down in one place I can come back to instead of having to rely on memory’ (Online conference posting)

*Profile* was far from perfect; the software had features that students found irritating and annoying. It was not the purpose of this study to get feedback on technical issues, but these did influence the way in which some individuals used of *Profile*. Some respondents commented on *Profile*'s technical limitations yet at the same time praised the reflective process and the benefits of collating all of their experiences and skills in one place. Benefits far outweighed technical problems for most people.

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***Future use of ePortfolios***

77% of respondents (33 students) said that they would use *Profile* or another ePortfolio in future. 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’. It appears that this sample could see the value of any system which archived personal materials and helped produce reports, CVs and PDPs from these. Despite its limitations *Profile* was positively received and respondents could see the potential of similar systems, making comments such as:

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

Those who said that they would not use an ePortfolio in future were asked to explain why not. 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, some even preferring paper-based records.

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.’ (Survey comment)

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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.

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). 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).

This evidence suggests that this sample had no prior experience of an ePortfolio system before studying the course, 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**

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. Here we would like to make a less than serious analogy for an ePortfolio with the fictional ‘travelling luggage’ from Terry Pratchett’s ‘Discworld’ novels. 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 please see the Wikipedia entry!).

As far as our ‘Women Returners’ course is concerned, this simple ePortfolio was received better than we might have expected given its limitations. The gender of the students is important in appreciating the significance of this. Technology acceptance models (Venkatesh et al. 2003) have shown that women and older people in general are much less likely to adopt a technology if it appears difficult to use, even when it is clear that adopting it will improve performance. This seemed to be the case even with our SET students when we enquired about the use of a variety of technologies in their personal and domestic lives. However the same model suggests that women are more influenced than men by the social expectations of those they are with; so if they are in a group with other who expect them to adopt a technology they will do so. Therefore as far as women are concerned a group situation is most conducive to accepting and learning to use new technologies.



The responses from this sample of women also 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 achievement; more than young students do who have 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 do not appear to achieve. Perhaps most importantly from 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**

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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.

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