

Innovative curriculum design for work-based learners in small to medium sized enterprises using e-portfolios: Mary's journey using a pensieve

Alison Edith Felce¹ and Emma Purnell

University of Wolverhampton, UK

Abstract

The University of <x> has achieved international recognition in its innovative use of e-portfolios within its mainstream full and part-time curricula. The knowledge and understanding that has been developed in these traditional courses has shown that the ethos of an e-portfolio should be transferable to support lifelong learning and the smaller units of learning that are likely to be required by work based learners. An e-portfolio provides a relatively open framework in which to not only record achievement and learning experiences but also to support reflection on practice and to build a lifetime of learning. The information and data that a learner inputs to an e-portfolio can be combined in a variety of ways to structure small units of learning into larger awards. Whilst a learner will have ownership of the e-portfolio and will be able to tailor it to their own specific needs experience has shown that a scaffolded learning experience is beneficial, at least in the early days of engagement with an e-portfolio to support its use to its full potential. In addition, the learning needs to be scaffolded to support reflective practice, building a community of practice and to combine learning into accredited modules and larger awards. This case will explore how an e-

¹ Corresponding author. Email: a.e.felce@wlv.ac.uk

portfolio is being used to develop an innovative curriculum to support and enable learners in the workplace and identify the key principles emerging from the initiative.

Key words: e-portfolio, scaffolded learning, small-medium enterprises, bite-sized learning, patchwork texts

Introduction

E-portfolios have been used across the curriculum at the University of <x> since 2005, primarily in full-time undergraduate programmes but also to support learners in work as part of their studies such as those on clinical placements, sandwich placements or teaching practice. The experience gained from five years use of e-portfolios has informed the design of an e-portfolio based pedagogy for a newer genre of learners: work based learners in small to medium sized enterprises (SMEs). This paper will start with an overview of the concept of an e-portfolio based pedagogy and then present a view of the innovative curriculum design through the eyes of a typical work-based learner within an SME. Theoretical concepts underpinning the pedagogy are summarised in the final section.

An e-portfolio based pedagogy: a 'pensieve plus'

Harry stared at the stone basin. ... 'What is it?' Harry asked shakily.

'This? It is called a Pensieve,' said Dumbledore. 'I sometimes find, and I am sure you know the feeling, that I simply have too many thoughts and memories crammed into my mind.'

'Er,' said Harry, who couldn't truthfully say that he had ever felt anything of the sort.

'At these times,' said Dumbledore, indicating the stone basin, I use the Pensieve. One simply siphons the excess thoughts from one's mind, pours them into the basin, and examines them at one's leisure. It becomes easier to spot patterns and links, you understand, when they are in this form.' (Rowling, 2000:518-519)

Dalziel proposed the *pensieve* as an analogy for an e-portfolio – a container into which one can put one's thoughts and memories and later reflect on them and, in the HE context, identify learning, skills, abilities and so on (personal comment made at PebbleBash conference, June 9, 2010). Rebbeck (2010) posits that an e-portfolio is an empty room that the learner can fill with whatever she wants to put in there. From the point of view of any learner a life-time's experiences can be added: formal learning, informal learning, sporting achievements, personal accomplishments, photos, videos, audio files, copies of certificates, almost anything that can be converted into a digital format. However, a stone basin or an empty room could also be likened to a blank sheet of paper – it is not enough on its own: learners will not know where to start, how to start, what to put in or why they are collecting 'stuff'.

Scaffolding and reflection

As I will elaborate later, most learners need some guidance to support their learning and reflection and that e-portfolios are well suited to this aim. Experience at the university has shown the value of designing a structure to provide trigger questions to support the learner in selecting and recording individual 'assets'. This structured approach is a form of 'scaffolded learning' (Bruner, 1956 and Wood, *et al*, 1976: scaffolding theory; Yelland & Masters, 2007: technical scaffolding using computers). Whilst Gerbic, *et al* (2009:327) recognise the possibility of using e-portfolios in lifelong learning through 'their potential ability to support reflection and learning and to respond to assessment and evaluation across a range of settings.'

This paper will now show how an e-portfolio, structured to scaffold learning and reflection, is being used for work-based learning, viewed through the eyes of a typical work-based learner, Mary. This fictitious learner is drawn from a composite of the learners who have studied on the pilot five credit units run as part of an action research project funded by JISC as part of its Institutional Innovation programme within the Lifelong Learning and Workforce development stream (JISC, 2008).

Profile of a typical learner in an SME

Our composite, fictitious learner Mary is a typical employee of an SME. Mary is in her late 30s, she left school when she was 16 with a few GCSEs, she thinks she got a B for English and maybe a C for Maths but she is not sure what else, as far as she can remember they were not very good. She got a job with a local fencing contractor as soon as she left school starting with a bit of filing, answering the phone and making tea and coffee (she was very good at that because she got lots of practice). Over the years her boss has given her more responsibility and she has been happy to take the chance to, as she sees it, get a better job and a bit more pay. She has been on a couple of courses at the local college, has learned to type and do simple spreadsheets on her, rather old, office computer as well as a bit of book-keeping so she now keeps the finances in the company ticking over. Mary contacts existing and potential clients, helps price up new jobs and negotiates with suppliers for the best prices on materials as well as keeping a note of the time sheets for the labour force and sorting out their weekly pay. She persuaded her boss to switch to paying the workers direct to their bank accounts, rather than in cash and was put in charge of getting all the details sorted with the bank to set this up.

Mary has two children, one is sixteen and the other twenty-two and they all live with her elderly mother. Mary's elder daughter has just completed a full-time degree course at the local university and is looking forward to starting her new job with a law firm in a few weeks time. Nobody else Mary knows has ever been to university. At one point she thought her daughter would drop-out because she was very unhappy in her first few months there and Mary did not know what to do, or who to ask to help her out. Despite not knowing what higher education was all about, Mary helped her daughter through her transition into HE, she even helped her with some of her assignments. Mary thinks she would like to learn more but she cannot afford to give up her job, nor afford the time to study part-time and her boss cannot give her paid time off or pay for her studies.

An interview with a consultant

One day Mary takes a phone call about a new initiative to design short university courses to meet the needs of local SME employers, like Mary's. Mary answered questions about how many people they employ, what sort of business they do, where they do business and who makes decisions about staff development. The caller arranged for a consultant to meet Mary and her boss and work with them to identify any performance needs the company may have and to offer small units of learning through the local university that would be designed to meet the needs identified. After discussing the telephone call with her boss and getting agreement to meet the consultant Mary arranged a convenient meeting. The meeting with the consultant lasted about an hour, the consultant asked lots of preset questions and noted down her responses. The consultant explained a bit about the initiative and what Mary could expect to happen next.

What happens with the interview information?

A team of consultants visit local employers as a follow up to an initial phone call; all the information obtained goes into a 'client database management system' (a DBMS). Using a DBMS means the consultants can keep a record of who has been contacted, whether or not they want to make an appointment now, in the future, or never, schedules of meetings planned, when a meeting goes ahead, follow up responses and so on. (Mary makes a note to herself to find out more about this system, it sounds like something she could use to help her do her job more efficiently). As the consultants collect the information from the questions asked at the meetings they start to collate data from all the interviews to see if there is any commonality in performance needs and skills gaps identified with the employers. The consultant tells her that the skills and performance needs are mapped against short courses at the university, sometimes suitable courses will be available already, sometimes they will need to be designed. The consultants also put in their DBMS how many people in each company they visit are interested in the same areas of learning and once they have identified at least sixteen people wanting the same short course they will arrange for those learners to start a study unit. Based on the

information Mary has provided at the interview the consultant suggests one of the available courses that would meet her needs, he tells her it is likely to start in the next 3 – 6 weeks and how much it will cost, but Mary needs a bit more information before going to her boss to see if she can do it.

What does a study unit involve?

If Mary signs up for a unit she will have to do about five hours a week for 10 weeks. She will be in a cohort with about 16 other learners with a tutor from the university to help them with their studies. She can do the work anytime she wants to within that 10 weeks but it is better if she completes the weekly activities on a regular basis, rather than leave everything till the end. There will also be some activities that she will do with the rest of the group and she will get more out of the course if she can proceed at about the same rate as they do. Everything will be available through the internet, learners do not have to go into the university for lectures or to borrow books, in fact not for anything. This would suit Mary because of her commitments at home and at work but she is a bit worried about it being on the internet because she does not use it much. She tells the consultant that all she really does on the internet is her weekly shopping and her daughter showed her how to send cards once when she had forgotten a friend's birthday. The consultant reassures her that she will get help and advice about how to access the material and what she needs to do with it. He gives her a website address with an introduction video and an example of the sorts of things she might do in the first short course she studies. If she does that course and she wants to do more, she can sign up for more short courses either straight away or sometime in the future. Mary says she will talk to her boss and get back to the consultant in the next few days.

How did Mary get on?

Mary started off by looking at the introduction video and the example course on the internet. She talked to both her daughters about it and looked at the breakdown of the study unit she had been recommended. All three had some

misgivings about it but decided these were probably because it was new and unusual. Her younger daughter was interested in the different blogs in the unit – activity blogs, personal blogs and something called collaborative blogs. She had never used blogs for learning before the only ones she has seen were more social or for comments on things like news reports or other ‘stuff’ on the internet. Still the course was only for ten weeks and a few hours a week that she could do when she wanted – all in one block, or an hour here and there, she could do it at work, or at home and she would have access to a tutor to help out if she needed it. Nervous, but keen, Mary got the go-ahead from her boss – she sold him on the potential benefits to the company and the fact she would not have to take time off work to study; he even agreed to her being able to do her studies during work hours – as long as her work duties were given priority! Mary checked out the website again and followed the instructions for checking that the computers at work and at home had the up-to-date software on them so that she could do the course. This involved clicking a few buttons, as instructed on screen and having to download a newer version of something called ‘Flash’; Mary was not sure what she had done, or why, but it all work out okay so she was not too bothered about the reasoning behind it. Next, Mary signed up for the course on-line and started to study about 3 weeks later.

Studying on a unit

Getting onto the study unit was easy; she had to get an IT account with the university and then go into some software called an e-portfolio. Then she just had to click a few buttons, following the on-screen instructions, and she was ready to go. Everything she had to do was really well structured with step-by-step guidance either in the web-folio (the study unit) or in videos, or help screens or on the learner information web-site. Each week she had some reading to do, presentations or videos to watch, then some questions to answer. Sometimes she had to go into the ‘group blog’ and discuss things with the others on the unit. They did not have to do this at the same time as each other, they just had to keep an eye on the blog and respond to other people when they put something in it. She had got to know who else was on the unit in the first week – they all did an activity called an ice-breaker

where they introduced themselves and said a bit about their job and why they were studying the unit. One of the others worked about half a mile from Mary's office, for an accountancy firm – they had chatted a few times in the group blog and helped each other with queries about how to apply their learning back in the office. Mary particularly liked this aspect of the course because she could show her boss how he was getting a return on his investment.

At the end of the unit they had to write a short summary of what they had learned and how they had applied this, or could apply it at work. Mary found this short, reflective piece fairly easy to write and thought that it was a good way for her to get an overview of her learning on the unit. They were also recommended other units they could go on to study if they wanted to do more, or if they had some other learning needs. The tutor had explained that they would be working with the e-portfolio in different ways in any other units they studied. The first unit someone studies is always based on blogs so that it is easy for learners to start to work with the software and to help build their confidence to do their studies. In other units they would be doing things like action planning, profile building, creating web-folios (a bit like websites). They had been told that they would also be shown how to record other things they did and had learnt outside of these short courses and that they might be able to put these towards a degree or another award, something called APEL she thought. She was not too sure what it was but she liked the idea of getting recognition for all the work she had put in over the years. Mary had been reassured that she would be given very clear guidance on how to do all these strange sounding things.

Evaluation

About half way through the unit Mary and her fellow learners were asked to give some feedback to the tutor about how they were getting on. They were asked some different questions at the end of the unit about how things had gone and her boss was later asked if his expectations had been met and if he was satisfied that the

identified learning need had been met. At the mid-unit evaluation Mary had asked for more group interaction so the tutor had facilitated discussions between the group for the next couple of weeks – for the last few weeks the group was motivated enough to work together without needing more tutor intervention. At the end of the unit both she and her boss fed back that they had got more than they expected out of the unit and would be looking for Mary to study the next unit straight away and to work with the consultants to develop study units for other people in the organisation to start to grow the business. Mary also said that she liked the way the course was planned to loop back on previous weeks learning because she found that this reinforced the concepts that were being covered and helped her to remember ideas and think of different applications within her workplace.

Mary's journey using a pensieve has enabled us to extrapolate the pedagogic lessons and hence identify some principles for the e-portfolio based pedagogy for SMEs. In the following section these key principles will be discussed.

Principles for an e-portfolio based pedagogy for SMEs

Scaffold the e-portfolio

It was stated earlier that an e-portfolio can be regarded as a pensieve, or an empty room into which a learner can add as much, or as little, as they want. Experience, through projects and anecdotally from practitioners, has shown the benefits of providing a structure within the technology to give some degree of guidance to learners, particularly in the early stages of their HE studies when they are moving from being dependent learners to becoming independent learners. Structure can be provided in a number of ways: within the software tools provided to create assets there are prompt questions to help students think about the sort of information needed to develop a deeper approach to learning. Likewise, structure can be provided for learning activities as well as formative and summative assessment tasks. The primary structure is achieved through a web-folio; this is similar to a web-page in appearance and is likely to be an environment that most

learners are familiar with. The web-folio contains five elements: information about the unit of study, learning content, individual activities, group activities and space for personal reflections and dialogue with the tutor. In the first unit that a learner studies, whatever the subject area, learning is further scaffolded through a series of blogs to support the individual activities, group activities and personal reflections and dialogue. These are embedded within the web-folio: activity blogs are attached to each weekly content page into which learners type their responses; a personal blog which can only be seen by the individual learner and the tutor and can be used for reflection and feedback as well as for communication between learner and tutor; and a group blog for collaborative activities to share practice and to develop a camaraderie that may have an impact on reflection (Treadwell, as cited in Goldhill, 2010: 63). The tutor can comment on three types of blog; all learners within a cohort can comment and share thoughts in the group blog but cannot otherwise see what another learner has input. The three types of blog map onto the three domains identified by Garrison, Anderson and Archer (2000): the social is achieved through the group blog, the cognitive through the personal, reflective blog and the teaching through the weekly activity blogs whilst the asynchronous nature of these methods of 'text-based communication provides time for reflection' (Garrison *et al*, 2000:90). Blogs are a familiar environment for many and have been recognised as effective learning and teaching tools to engage learners and to develop reflection and collaborative learning (Davi, *et al*, 2007; Drexler, *et al*, 2006; Rourke & Coleman, 2009; Williams & Jacobs, 2004). Scaffolding can also be used to support learners in transferring their learning from work into HE and vice-versa. Mestre (2002:4) notes that 'knowledge is not readily transferred from one domain to another' and recommends that 'attention to initial learning is very important' to facilitate transfer.

Build in opportunities for reflection on workplace learning

Perhaps the most important principle for using an e-portfolio, such as the one used at University <x>, is that it can support, enable and develop a reflective approach to learning where the scaffolded input and output opportunities and the dialogue with tutors, peers, mentors and others can lead the learner towards a

deeper approach to learning and develop autonomous and independent learners. A qualitative research study into the impact of work-based learning (Nixon, 2008) identified the importance of a reflective practice based approach, benefits to learners and employers and the role of bite-size 'chunks' as catalysts to further study. Blake and Worsdale (2009), Cox (2005) and Smith, *et al* (2007) note the importance of reflection for workplace learning whilst Moon (2006) identifies blogs or weblogs as an alternative to learning journals to facilitate learning from experience, to support understanding and develop critical thinking, to increase ownership of learning and as a means of assessment. Whilst work-based learners often do not have formal qualifications they do have a wide range of experience, informal learning and tacit knowledge which can be built upon to support the learner and build their confidence (Ahlgren & Tett, 2010; Eraut, 2000).

Design the e-portfolio to meet the context in which it is to be used

Care needs to be taken in ensuring that the technology used meets the needs of the learners. Joyes *et al* (2009) looked at case studies of effective practice with e-portfolios and identified successful implementation tended to be supported by: aligning the use of e-portfolios to the context, designing and supporting learning activities to the purpose and context, understanding technical and pedagogic support needs and ensuring student ownership of the processes and outcomes. This reinforces the approach of an e-portfolio based pedagogy as it will enable a holistic approach to be developed.

Design the e-portfolio to be easy to use / intuitive

Work-based learners are busy people and have commitments both inside and outside their workplace, they are likely to have limited experience of using computers and lack confidence in their use. Peng *et al*(2009:177) recommend that: 'the design of a mobile interface should be intuitive enough so that mobile learners can interact with it in a short period of time' and that 'learners should learn 'with'

technology and use technology as a mind tool that supports active, constructive, co-operative, authentic and intentional learning' (Peng *et al*, 2009:179).

Make use of the e-portfolio to record formal and informal learning experiences

Learners can choose what to put into their 'pensieve' and can include both formal learning, as may be required to show achievement of a module's learning outcomes, as well as informal learning and additional information outside of the specified module requirements but that add to the wider learning of an individual.

An e-portfolio can be used to support learning in 'bite-size chunks'

Short courses (five credit units) can be designed to meet identified employer/learner needs for asynchronous engagement by the learner within a flexible time frame to suit work place, and other demands. The learners can build their knowledge gradually and add to that learning at a pace to suit themselves. The Department for Business, Industry and Skills (BIS, 2009) and Carter (2009), both recommended broadening the range of course models and opportunities for more work-based learning. Carter (2009:12) also suggests that 'appropriately designed and delivered level 4 qualifications could potentially meet a critical skills need in many sectors. If delivered flexibly such ... qualifications could also help stimulate and respond to a demand from vocational learners and employers for bite sized learning programmes'.

An e-portfolio can be used to structure learning into larger awards

The pedagogy has considered how to build the learning from individual five credit units towards a summative assessment within a 20 credit module and on towards larger awards. Davies (2009) discusses the potential use of patchwork texts for work-based learning where five credit units are assessed in 20 credit blocks and this is the method that is being adopted for the e-portfolio pedagogy. Scoggins and Winter (1999:488) state that patchwork text is a selection from a collection of writings 'presented within an interpretive reflective framework which brings out and

explores the overall theme in relation to the individual pieces of writing' and that 'the final assessment task is likely to be less daunting because the material used to inform the assessment will have been accumulated gradually, learners will have received initial formative feedback on their work and there is also scope for an individualised approach'. In addition, Winter, Buck and Sobiechowska (1999:66) identify the potential for patchwork texts to allow for a 'plurality of voices' which fits well with the context of the work-based learner whilst Smith and Winter (2003:161) posit that 'a more reflective, synthetic, cumulative and open-ended assessment would lead to better learning'.

Learners are recording individual assets and reflections throughout their studies through the blogs used within the unit web-folios. At the conclusion of each five-credit unit they summarise their learning, its application in their work context and any change of practice as a result of that learning (the precise assessment task will vary). If the learner chooses to submit a summative assessment, once they have completed sufficient five-credit units they will bring forward the learning from the smaller units through a final reflective summary, the format of which can be chosen by the tutor, the learner, or possibly the employer (in negotiation with the learner).

An e-portfolio can be used for lifelong learning

Learners may want to undertake learning at other institutions, move to another employer or engage with professional bodies. One of the considerations in developing the pedagogy is the transferability and portability of the learning. This can be achieved in two ways; firstly, learners can export their e-portfolio, with all associated assets and artefacts, so that they can refer to it in the future, although they will not be able to alter or add to its content. Secondly, they can export their e-portfolio to another application because the software application used is 'Leap2A' compliant (JISC, 2010).

Future developments

In order to make the transition into HE as smooth as possible for this genre of learner the web-folio approach with embedded blogs, as outlined was adopted. It is recognised by the development team that this does not make use of the full capabilities of this particular e-portfolio to provide a personal learning environment and also that the learner will need to be supported in engaging fully with the tools within it. This wider engagement will be enabled through scaffolded activities in subsequent units that a learner studies, once they have completed their initial five-credit unit. Another planned development is to use the e-portfolio to support negotiated learning through the development of shell units and negotiated learning contracts.

The e-portfolio pedagogy broadly adheres to recognised practice in e-learning design posited by Salmon's five stage model (Salmon, 2002): access and motivation, online socialisation, information exchange, knowledge construction and finally development and that of Johnson and Aragon, 2003 (as cited in Bromley & Moss, 2009:48) that 'on-line learning environments contain a combination' of the following 7 principles: address individual differences, motivate the student, avoid information overload, create a real-life context, encourage social interaction, provide hands-on reflective activities and encourage student reflection

Conclusions

The pedagogy is being informed by research and practical experience and has led to a solution that incorporates key points of learning from other uses of e-portfolios, e-learning principles and educational theory. Transition into and through HE is supported by information provided via the internet, step-by-step video guides and through peer and tutor support within a unit of study. Learning is scaffolded through a structured web-folio that provides opportunities to record formal and informal learning experiences. Activities are designed to develop a reflective approach to learning which are built on reflection on work practices. Formative

assessment is incorporated through blogs and interpersonal dialogues and summative assessment achieved using a patchwork text methodology that brings together the smaller elements of learning into a broader reflective summary. The evaluation phase is now underway; the results of this will further inform the pedagogical development for work-based learners in SMEs and will be the subject of a future paper.

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Author biographies

Alison Felce is based in the Institute for Learning Enhancement and is the University's Co-ordinator of Work-based Learning. This post was created in Summer 2008 to develop the Work-Based Learning strategy of the University and to work with curriculum teams across the university and in their collaboration with employers, to develop work-based learning programme models and delivery skills. She is a tutor on the PGCert in Learning and Teaching in Higher Education which is for 'new teachers' in HE.

Alison's primary area of interest is in curricula models for work-based learning and the analysis of the learner experience through different models. She is developing cross-university collaboration and communication around work-based

and placement learning and chairs an HE/FE network to share knowledge and experiences.

Alison is also Project Director for a Joint Information Systems Committee (JISC) funded project developing an e-portfolio based pedagogy for small to medium sized enterprises, ePPSME (www.wlv.ac.uk/eppsme).

Emma Purnell is a Blended Learning Advisor at the Institute for Learning Enhancement. She completed a PGCE in the School of Education before joining ILE and has also worked in the School of Art and Design as an e-learning Co-ordinator and as a Research Assistant in the School of Education. As part of BLU team Emma supports staff in the use and potential of technology, and with IT services and software development teams to try to provide a united effort in supporting staff with technology and pedagogy.

Emma has been involved in a number of e-portfolio projects including the Higher Education Academy funded Pathfinder project and is working currently on the JISC funded ePPSME project. She has presented at number of conferences about e-portfolio practices at Wolverhampton and chairs the University e-portfolio user group.

Emma's research interests are in the impact of e-portfolio and student perceptions of e-portfolio.