Supporting successful learning pathways using e-portfolios and mobile devices

Allison Miller, Australian Flexible Learning Framework and Owen ONeill, e-Works

Abstract:
Successful learning pathways enable people to obtain skills and knowledge needed to gain employment and manage their careers (Harris et al, 2006). The vocational education and training (VET) sector has been set ambitious targets to ensure Australia maintains its economic prosperity through increased productivity and improved adult language, literacy and numeracy (COAG, 2009; Skills Australia, 2010). These targets will only be met when there are effective learning pathways, improved learner support systems and better ways of helping learners gain credit and recognition of prior learning.

VET qualifications offer national portability, empowering individuals to gain expertise to travel to regions where their skills are in demand. The VET sector's wide geographical reach enables it to provide learning pathways into higher education.

Curyer, et al (2007) identified e-portfolios as a way to support successful learning pathways by providing learners with a means to manage their lifelong learning records. To support the use of e-portfolios for successful learner pathways VET training providers were funded to participate in E-portfolios Implementation Trials in 2009 and 2010. These trials investigated the way e-portfolios prepared learners to manage, control and present their information to demonstrate minimum course entry requirements, receive recognition and credit transfer for prior learning and existing skills or gain the appropriate support mechanisms to ensure course completions.

This paper will discuss the key findings of these action research trials to demonstrate how e-portfolios are helping to: achieve access and participation targets (Wallace, 2010); support personalised forms of learning (Joyes et al, 2009); and provide learners with mechanisms to better manage their learning pathways.

Introduction

Effective learning pathways provide people with the skills and knowledge needed to gain employment and manage their careers (Harris et al, 2006). The Australian vocational education and training (VET) sector has been set ambitious targets to increase the number of working aged Australians who have a formal qualification. This is to ensure Australia maintains its economic prosperity through increased productivity and improved adult language, literacy and numeracy (COAG, 2009; Skills Australia, 2010). To meet these targets existing barriers to entering and participating in VET will need to be overcome (Wallace, 2010).

It has been identified that e-portfolios can provide a mechanism to overcoming some of the barriers to successful learning pathways by providing learners with the skills to manage their own lifelong learning (Curyer, et al, 2007, Joyes et al, 2009). During 2009-10, the Australian Flexible Learning Framework (Framework) provided seed funding to a number of VET training organisations to trial the use of e-portfolios with their learners. These trials investigated the way

e-portfolios can support learners successfully gain a qualification through: recognition of prior learning (RPL); fast tracking apprenticeships/traineeships; and/or help learners transition into further education and training or employment.

The evidence gathered through these trials has provided information so that teachers/trainers, learners, workplace supervisors/management and VET training organisations can better support learners to manage their own learning, demonstrate their existing skills and knowledge and/or to achieve their personal, career or educational goals through the successful implementation of an e-portfolio system.

Background research and related literature

In 2006, Curyer et al (2007) conducted an environmental scan into the use of e-portfolio systems in the VET sector. This investigation identified that e-portfolios provide an effective way of supporting learners move between training, other forms of learning and employment. Joyes et al's (2009) analysis of various e-portfolio implementations identified e-portfolios as offering more personalised learning environments to suit a range of learners and learning styles.

Bevan et al's (2009) report presents potential solutions and further work required for implementers of e-portfolios to consider around ownership, privacy, verification, access control and security. Perry's (2009) investigation into the use of e-portfolios to support RPL in VET raised points for further consideration when using mobile devices and e-portfolios to collect workplace evidence.

In 2009, the Framework (2009a) produced a national strategic document called the VET E-portfolio Roadmap (Roadmap). The Roadmap contains nine national goals which will result in national guidelines for managers of learner information; functional specifications for e-portfolio system implementers and developers; and provide strategies for teachers/trainers to embed e-portfolios into their training, as outlined in figure 1 below:

Figure1: The VET E-portfolio Roadmap – Nine National Goals and Key Outputs

One of the implementation strategies to achieve the Roadmap's 'Transition' Goal suggested conducting pilot projects within the VET sector to develop the necessary underpinning pedagogical, technical and policy approaches required for implementing e-portfolio systems which support learner pathways or "transitions" (Framework, 2009a). During 2009-10, six VET training organisations were funded to conduct pilot trials known as the "E-portfolios Implementation Trials" (EITs) (Framework, 2009b). The EITs aimed to identify the contributing factors and resources required to support the use of an e-portfolio system in the verification of an individual's current skills which would enable them to quickly and effectively gain a qualification. The VET training organisations involved were required to implement an e-portfolio system which enabled their learners to generate, manage and validate their learning. The use of mobile devices such as mobile phones, digital cameras, videos, smart pens and point of view (POV) devices were encouraged to capture 'live' workplace evidence of learners performing tasks to demonstrate specific skills and competencies.

Research method

Seed funding to participate in the EITs was allocated through a competitive funding process, with successful applications selected by an independent panel against a range of published selection criteria. As part of the application process applicants were required to articulate a real life situation which was affecting their learners gaining a qualification that they believed could be solved through the use of an e-portfolio.

Successful applications formed the basis for the individual trial team's Project Plans. Trial teams participated in an online induction to provide them with the necessary information about the trial requirements. Trial team members were then left to their own accord to manage their projects at a local level, however, team leaders were encouraged to undertake pre- and post-trial surveys of participating teachers/trainers and learners to evaluate the learning outcomes which occurred during the trial, especially in terms of digital literacy skills. They were also encouraged to use an action based research methodology of *plan, act, observe and reflect,* using either a group wiki/blog or their own individual e-portfolios to record this process. Trial teams were advised to collect anecdotal evidence from their learners and teachers/trainers throughout the trial to support the reporting process. Trial teams were also expected to share resources developed during the trial which were made available to the wider VET sector through the Framework's E-portfolios Resource Bank (Framework, 2010a).

Each trial team was required to provide a mid-project and final written report, as well as a short presentation to a reference group, stating the successes and barriers of their trial, based on pre-set discussion points. Teams were specifically asked to consider which pedagogical, technical and policies enabled (or created barriers to) the implementation of their e-portfolio trial. In the 2010 EITs, trial teams were also asked to test and provide feedback on draft VET E-portfolios Privacy Guidelines (Framework, 2010b). Informal and individualised interviews were conducted with each trial team leader following the submission of their mid-project reports. Questions and discussion points based on the information contained in each of the trial teams' mid-project report was used to guide these individual interviews and allowed additional anecdotal evidence to be captured.

The VET training organisations involved in the 2009-10 EIT were:

- **Coonara Community House, Victoria (2009)** – working with child care workers seeking RPL for the Diploma of Children Services
- **Fire Protection Association Australia, Victoria (2009)** – working with sole-trader Fire Service Technicians seeking on the job assessment
- **TAFE NSW - Sydney Institute, New South Wales (2009)** – working with apprentice and experienced hairdressers seeking workplace and RPL assessment for the Certificate III/IV in Hairdressing
- **Centre for Adult Education (CAE), Victoria (2010)** – working with disengaged and at risk youth prepare online individual learning plans for their Certificate II in Retail
- **Polytechnic West, Western Australia (2010)** – working with regionally dispersed Certificate IV in Laboratory Techniques trainees aiming to fast track their qualification through workplace and RPL assessment
- **Royal District Nursing Service (RDNS), South Australia (2010)** – working with Diploma of Nursing learners aiming to find employment or go onto further study

Findings and discussion

Based on the evidence gathered during these trials as well as the background research and related literature mentioned above, the following key points summarise some key considerations for teachers/trainers, learners, workplace supervisors/managers and training organisations when implementing of an e-portfolio system which supports effective learning pathways:

Teacher/Trainer considerations include:

1. Providing training for teachers/trainers in how to best present and manage information in an online environment like an e-portfolio. This training needs to be well structured and allow for 'just in time or as needed' training. Considerations in the development of the teacher/trainers' (and the learners') _digital literacy skills_ including an understanding of privacy, ownership and security issues as well as the pedagogical approaches to learner-centred training and self-assessment (self-reflective) practices in relation to e-portfolios is very important (AMES, 2010).

2. Providing teachers/trainers with the opportunity to create their _own professional e-portfolio_ which showcases their teaching and technical competencies as well as houses their professional development plans and reflective journals. These e-portfolios can serve as good templates/examples/exemplars for their learners as well as provide a place to record their own e-portfolio learning journey and/or act as useful tools for performance management and/or continuing professional development.

3. Providing teachers/trainers with on-going support to develop their understanding around _e-assessment_. This includes developing their professional judgement in determining suitable, reliable and valid evidence in a digital environment. Teachers/trainers need to feel comfortable that digitally recorded evidence (eg photos, video, audio) is verifiable and flexible (eg that photos, video and/or audio can allow a teacher/trainer to actually hear or see their learner undertaking required tasks without them being there in person to observe the tasks being doing and/or offering their learner the opportunity to gather evidence at a suitable and appropriate time ie in the natural course of their employment).

4. Helping teachers/trainers connect with other educators experienced in using e-portfolios through local and more widely dispersed *communities of practice*. This will enable them to support their new and continuing learning and development through professional conversations and/or accessing or developing collaborative support resources.

Learner considerations include:

1. Learners are generally willing to create an e-portfolio and using related technologies (eg mobile devices) provided they are given the *right level of support*. Some learners are quick to pick up the skills required while others take some time to get used to the new technology and the new approaches to teaching, learning and assessment. The younger 'Facebook' generation are not automatically engaged in creating an e-portfolio just because technology or the internet is involved. The maturity of the learner may require different kinds of support ie younger learners may need help to organise themselves and/or their evidence over ICT support, whilst older learners may require support to learn how to use the technology while already having the skills to organise themselves or present their work/evidence. Useful steps in supporting this process include:
   a. Determine the purpose and the audience of the e-portfolio;
   b. Provide step-by-step instructions (written and/or video)
   c. Prepare templates/examples/exemplars to present a clear picture of what the final e-portfolio product will look like;
   d. Start slowly and look for easy successes such as finding and uploading existing evidence/files;
   e. Link the use of the e-portfolio to the learning/assessment and/or workplace requirements;
   f. Involve Teaching and Learning or additional support staff for in class teacher/trainer/learner support, especially in the early stages of e-portfolio implementation;
   g. Develop 'champion learners' who can support other learners throughout their e-portfolio journey.

2. Learners need to be introduced to the e-portfolio as early as possible in their course/qualification. This will provide them with the time to learn how to use the technology as well as understand what is "*appropriate information/evidence*". This will also allow learners to add information/evidence along the way as well as help them understand how to present themselves in a digital environment and for different audiences eg teachers/trainers, potential employers etc.

3. Learners need to understand the *benefits of their e-portfolio* beyond the training and assessment process and how the e-portfolio can support their learning pathways. They need to understand the intrinsic value or '*what's in it for them*' in creating an e-portfolio. Some ways of using e-portfolio beyond the training and assessment process include:
   a. a digital or 'living' CV/Resume;
   b. helping them gain a job, a promotion or entry to another course;
   c. setting and achieving personal, educational or career goals;
   d. supporting continuing professional development (CPD);
   e. supporting workplace performance management and/or workforce development;
   f. professional and/or social networking with colleagues/friends;

g. housing treasured memories or experiences;

4. Learners need to understand the _explicit connection_ of how developing their e-portfolio is supporting what they are doing in their training/workplace/lives and/or other parts of their qualification so that the e-portfolio is not just seen an 'add-on' or 'extra work' for the learners to undertake on their own accord.

5. Learners need to feel that they can trust their peers and that they are working in a '_safe sharing environment_' before they will be willing to share their learning/assessment and/or workplace experiences with other learners or other people. This requires activities to be incorporated into the learning process which provides the learners with the opportunity to build this trust.

6. Learners may not always feel comfortable about _being digitally recorded_ (eg via photos, video or audio recordings) doing tasks or answering questions. Nor may they feel comfortable about asking others in their workplace to record them doing workplace tasks. There may also be employer/client confidentiality considerations when collecting digital images/recordings in a workshop (eg recording children or defence industry workplaces etc). Signed permission forms help to explain to employers/clients how these recordings are being used to support the learning/assessment process. Training in the use of mobile devices and the management of any related recordings or files will need to be provided.

7. Learners are very concerned about their _privacy and the ownership_ of their information. They need to know exactly who can see what parts of their e-portfolio before they will be willing to fully engage in this space. Likewise, how long the learner will have access to their e-portfolio or whether they can export and take their e-portfolio with them after their connection with the training organisation has ended will also have an impact on the learner's engagement with their e-portfolio.

Workplace considerations include:

1. Workplace supervisors/managers need to understand how the e-portfolio and mobile devices are _supporting the learner's training and assessment._ They also need to understand that their employee(s) will need time during business hours to collect and upload their workplace evidence into their e-portfolio, as well as have access to appropriate technologies (eg computers, internet, mobile devices etc) to undertake these tasks.

2. Workplace supervisors/managers are more likely to support these requests if they can see the _wider benefits_ of their employee(s) creating an e-portfolio such as:
    a. Potentially supporting the wider workforce development of their staff through utilising the e-portfolio in professional development planning, performance management and/or continuing professional development processes.
    b. Potentially raising the quality of their organisation's practices through the transparency of allowing their employee(s) to share the workplace information/evidence they have captured as part of their training and assessment process with fellow learners from outside of the organisation and/or through their employee's developing reflective skills to improve their own work practices through self-assessment.

Training organisation considerations include:

- Establishing an *implementation plan* which has been collaboratively developed by key stakeholders (eg teachers/trainers, employers, ICT support staff etc) to provide better long-term buy-in and sustainability of the implementation. Other useful activities include:
    1. Holding regular team meetings during the implementation stage;
    2. Documenting the successes and barriers of the process and the progress of the implementation;
    3. Involving the key stakeholders (including the learners) in the reflection and evaluation phases of the implementation process.
- *Gaining the support* of senior management and the organisational technical staff is very important. This is crucial in getting the e-portfolio system set up and running, and ensuring the long term accessibility of the system in and out of the organisational firewall. They can also help to make connections between the use of an e-portfolio to improve learning pathways and the organisation's strategic and operational plans.
- Training organisations need to let learners know the types of information in their e-portfolio which can be viewed by others and/or can be generated through the e-portfolio system's activity logs. Even though it may be useful for the training organisations to collect data about which parts and when their learners are accessing the e-portfolio system to evaluate the effectiveness of the system, these activity logs can also 'paint a 'picture' about a learner eg employees using the e-portfolio system's CV builder may indicate to an employer that the employee is looking for other work when they were supposed to be using the e-portfolio to support their workplace learning and assessment. Informing learners of what information is being collected and/or viewed is good *privacy of learner information practice*. This will not only help the training organisation meet their privacy obligations but can also encourage the effective use the e-portfolio system in which the training organisation has invested their time and money. Other RTO privacy considerations can be found in the draft VET E-portfolios Privacy Guidelines (Framework, 2010b).

Conclusions

The VET sector is required to meet targets to increase the number of Australians with a formal qualification to help the growing demand for skills in Australian workplaces. In order to achieve these goals existing barriers to gaining a qualification requires more efficient RPL and workplace assessment processes and better learner support systems. E-portfolios have been identified as providing a means to achieve these processes and support effective learning pathways.

In order to enable the wider adoption of e-portfolios, VET training organisations were funded through the 2009-10 EITs to investigate the requirements for successfully implementing an e-portfolio system to help learners gain their qualifications and/or achieve their learning pathways. These trials, together with the background research and related literature, have distilled useful information for VET training organisations when considering implementing an e-portfolio system.

The trials have demonstrated that the implementation of an e-portfolio system requires substantial up-front investment by a training organisation to ensure they plan and provide adequate training and support for teachers/trainer and learners to gain the additional technical skills and digital literacies to create an e-portfolio. This training not only involves understanding

how to use the e-portfolio system, but also requires that teachers/trainers and learners knowing how best to 'lay out' or 'present' their work/evidence for assessment and/or for a variety of audiences in an online environment. It also requires the buy-in of a range of key organisational staff, and where appropriate, workplace supervisors/managers. Templates, exemplars and examples, especially while first learning how to use the e-portfolio system, can provide the structure to presenting effective work/evidence for both the learner and the teacher/trainer. Consideration of good privacy practices is important to ensuring the training organisation is meeting their privacy obligations as well as ensuring their learners feel comfortable enough to use the e-portfolio system effectively.

Better understanding is required by VET teachers/trainers in providing training and assessment in a digital environment like an e-portfolio, including what constitutes 'acceptable evidence' for e-assessment. Getting teachers/trainers to create their own e-portfolio and participating in e-portfolio communities of practices have been identified as useful ways of developing these skills. Research into e-assessment in the VET sector has been undertaken by Callan and Clayton (2010) through the Framework's Benchmarking and Research business activity which teachers/trainers are encouraged to investigate and monitor - http://www.flexiblelearning.net.au/content/research.

In order for learners to invest their time and energy in developing new digital and multimedia skills they must understand how developing their e-portfolio will help them beyond gaining a qualification. They also need to know how this process can help them achieve other personal, educational and/or career goals. Making the explicit connection between their training and the creation of the e-portfolio is important. The learner must know who can see what parts of their e-portfolio and their e-portfolio activity, and how long they can use their e-portfolio, before they will feel comfortable enough to invest a lot of time and energy.

Although mobile devices such as mobile phones and video provide an effective way of capturing workplace and practical evidence, they do require: good digital and multimedia literacies; the consideration of others' privacy and ownership of information; that learner understands how to collect appropriate digital evidence; that the learner is willing to be digitally recorded; and that the learner has sufficient digital file management skills and can compress and/or edit different file types.

Through the experiences gained and the evidence gathered during the 2009-10 EITs, significant information has been collected to better understand what is required by teachers/trainers, learners, workplace supervisors/managers and training organisations to embed the use of e-portfolios. This evidence will be used by the Framework to support future EITs and other training organisations effectively implement an e-portfolio system to support their training and assessment practices to enable learners to gain a qualification and/or successfully support their learning pathways.

Acknowledgements

information about these trials to support this research through their practices, evaluations, reports, interviews and reflections.

References

Australian Flexible Learning Framework (Framework), (2009a), *The VET E-portfolio Roadmap: a strategic roadmap for e-portfolios to support lifelong learning*, Australian Flexible Learning Framework on behalf of the Commonwealth of Australia, Canberra, http://www.flexiblelearning.net.au/files/VETePortfolioRoadmap_web.pdf

Australian Flexible Learning Framework, (2009b). *E-portfolio Implementation Trials*, http://www.flexiblelearning.net.au/content/e-portfolios-funding

Australian Flexible Learning Framework, (2010a). *E-portfolios Resource Bank -* http://www.flexiblelearning.net.au/content/e-portfolios-resources

Australian Flexible Learning Framework (Framework), (2010b), *Draft VET E-portfolios Privacy Guidelines*, Australian Flexible Learning Framework on behalf of the Commonwealth of Australia, Canberra, http://www.flexiblelearning.net.au/content/e-portfolios-resources#VPDG

Bevan, A., Hendrick, G. & Leeson, J., (2009), *Managing Learner Information: Important considerations for implementing e-portfolios in VET*, Australian Flexible Learning Framework on behalf of the Commonwealth of Australia, Canberra, http://www.flexiblelearning.net.au/files/Managing_Learner-Information_FINAL.pdf

Callan, V. & Clayton, B., (2010), *E-assessment and the AQTF: Bridging the divide between practitioners and auditors*, Australian Flexible Learning Framework on behalf of the Commonwealth of Australia, Canberra, http://www.flexiblelearning.net.au/files/Eassessment_AQTF_final.pdf

Council of Australian Governments (COAG), (2009). *National agreement for skills and workforce development*, Commonwealth Government, Canberra

Curyer, S., Leeson, J., Mason & Williams, A., (2007). *Developing e-portfolios for VET: Policy issues and interoperability*, Australian Flexible Learning Framework on behalf of the Commonwealth of Australia, Canberra, http://e-standards.flexiblelearning.net.au/news-older-items.htm#a5

Harris, R., Rainey, L. & Sumner, R. (2006). *Crazy paving or stepping stones? Learning pathways within and between VET and higher education*, NCVER, Adelaide www.ncver.edu.au/publications/1722.html

Joyes, G., Gray, J. & Hartnell-Young, E,. (2009). *Effective practice with e-portfolios: how can the UK experience inform practice?* Ascillate, New Zealand http://www.ascilite.org.au/conferences/auckland09/procs/joyes.pdf

Perry, W., (2009), *E-portfolios for RPL assessment: Key findings on current engagement in the VET sector*, Australian Flexible Learning Framework on behalf of the Commonwealth of Australia, Canberra, http://www.flexiblelearning.net.au/content/e-portfolios-resources#ERPLA

Skills Australia, 2010, *Australian Workforce Futures - a national workforce development strategy*, Commonwealth of Australia - http://www.skillsaustralia.gov.au/PDFs_RTFs/WWF_strategy.pdf

Troupiotis, D., (2010), *e-Portfolios for adult ESL learners in AMES - Elearning Innovation Project 2010*, Australian Flexible Learning Framework, http://www.flexiblelearning.net.au/content/e-portfolios-adult-esl-learners-ames-elearning-innovation-project-2010-0

Wallace, R. (2010). *The Enacted Learner Identities Framework: The Potential to Improve VET Delivery*, AVETRA 2010, http://avetra.org.au/wp-content/uploads/2010/04/64.00-Ruth-Wallace.pdf