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**ePortfolio Use by University Students in Australia: A Review of the
Australian ePortfolio Project**

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ePortfolio Use by University Students in Australia: A Review of the Australian ePortfolio Project

Abstract

In October 2008, the Australian Learning and Teaching Council (ALTC) released the final report for the commissioned project *ePortfolio use by university students in Australia: Informing excellence in policy and practice*. The Australian ePortfolio Project represented the first attempt to examine the breadth and depth of ePortfolio practice in the Australian higher education sector. The research activities included surveys of stakeholder groups in learning and teaching, academic management and human resource management, with respondents representing all Australian universities; a series of focus groups and semi-structured interviews which sought to explore key issues in greater depth; and surveys designed to capture students' pre-course expectations and their post-course experiences of ePortfolio learning. Further qualitative data was collected through interviews with 'mature users' of ePortfolios. Project findings revealed that, while there was a high level of interest in the use of ePortfolios in terms of the potential to help students become reflective learners who were conscious of their personal and professional strengths and weaknesses, the state of play in Australian universities was very fragmented. The project investigation identified four individual, yet interrelated, contexts where strategies may be employed to support and foster effective ePortfolio practice in higher education: government policy, technical standards, academic policy, and learning and teaching. Four scenarios for the future were also presented with the goal of stimulating discussion about opportunities for stakeholder engagement. It is argued that the effective use of ePortfolios requires open dialogue and collaboration between the different stakeholders across this range of contexts.

Keywords

Community of practice, ePortfolios, Higher education, Australian ePortfolio Project

Introduction

The ePortfolio world is arguably multifaceted: ePortfolios, regardless of the actual software system or platform, can be used in many different education and employment situations, inevitably with an extensive spectrum of purposes and with a range of different audiences. Internationally, the professional literature highlights how ePortfolio policy and practice can draw together the different elements of integrated education and learning, graduate attributes, employability skills, professional competencies and lifelong learning, with the ultimate goal of developing an engaged and productive workforce that can support innovation and productivity to ensure ongoing national economic development and growth. ePortfolios have been recognised as an emergent technology in teaching and learning with the potential, when integrated into current and future eLearning strategies, to have a significant impact on academic policy within and across institutions. In 2007, the Australian Learning and Teaching Council (ALTC) commissioned a study of ePortfolio practice in universities in this country, which has led into further research, representing Stage 2 of the project, to examine the factors that contribute to the sustainability of an ePortfolio community of practice. While the Australian ePortfolio Project (AeP) culminated in the final report (Hallam, Harper, McCowan, Hauville, McAllister & Creagh, 2008) which was distributed to participants in the project, the present article seeks to present a summary of the first stage of the project to a wider audience in the higher education sector.

Within the broad context of education, there are many different terms that relate to the concept of ePortfolios: primary and secondary teachers often use terms such as ‘digital portfolios’, ‘digital storytelling’ and ‘digital learning portfolios’; higher education practitioners prefer ‘electronic portfolios’, ‘e-portfolios’, ‘webfolio’ and ‘efolio’; while in the corporate sector terms such as ‘performance management tools’, ‘career management tools’ and ‘personal development planning records’ refer to similar systems and processes. Even where the word ePortfolio is accepted, there are many different definitions. While these definitions undoubtedly encompass similar characteristics, there is no single, commonly accepted definition. Definitions are frequently dependent on the different academic contexts and objectives of their use.

The Centre for Recording Achievement (CRA) in the United Kingdom (UK) describes the general characteristics of an ePortfolio as being:

- A ‘repository’ for ‘artefacts’
- A means of accessing personal information, perhaps held in distributed databases
- A means of presenting oneself and ones skills, qualities and achievements to others
- A means of collecting and selecting assessment evidence
- A guidance tool to support review and choice
- A means of sharing and collaborating
- A means of encouraging a sense of personal identity.”

(Ward & Grant, 2007)

The complexity of the ePortfolio landscape is characterised by the different uses of ePortfolios. The IMS Global Learning Consortium (2005) has identified six major types of ePortfolio:

- assessment ePortfolios
- presentation ePortfolios
- learning ePortfolios
- personal development ePortfolios
- multiple-owner ePortfolios
- working ePortfolios.

The ePortfolio software platform PebblePad highlights the “myriad purposes [for portfolios] including assessment, advancement, appraisal, accreditation, application and articulation” (PebblePad, 2009).

In light of these purposes and applications, the information contained in the ePortfolio will inevitably include an extensive assortment of information, including personal information, education history, artefacts of recognition (eg awards and certificates), coursework (eg assignments and projects), instructor feedback and comments, reflective commentary, career goals and objectives, personal values and interests, volunteer and professional development activities. Beyond this, however, it must be remembered that the term ‘ePortfolio’ can refer to both the product and the process (Barker, 2006). An ePortfolio, as a product, provides a personal space where learners can collect the digital artefacts that present evidence of their experiences and

achievements, articulating actual learning outcomes. The ePortfolio, as a process, allows learners to move beyond *what* they have learned to consider *how* they have learned and to understand the connections inherent in the creative process of learning.

To depict the ePortfolio, therefore, as merely a technological tool is to deny the agency and input of its users and much of the pedagogical and other complexities of its use. It is the process by which the technological tools are used and combined that effectively defines the ePortfolio experience and captures its potential, often referred to as 'ePortfolio learning'. Reece and Levy (2009) place ePortfolios in the context of several international trends in higher education: that documentation of authentic learning experiences and accountability can be captured and archived in an ePortfolio, and that ePortfolios can contribute to the evolving technological landscape of communication utilised by contemporary learners who want to share their experiences (eg through MySpace, Facebook, YouTube, Flickr etc).

The Australian ePortfolio Project

In April 2007, the Australian Learning and Teaching Council (ALTC) (formerly the Carrick Institute for Learning and Teaching in Higher Education), commissioned a research study to examine the diverse approaches to ePortfolio use by students in Australian universities in order to consider the scope, penetration and reasons for use, as well as to examine the issues associated with implementation of ePortfolios in higher education. The nominated research team comprised four universities: Queensland University of Technology (QUT) as lead institution, The University of Melbourne, University of New England, and University of Wollongong. QUT already had a mature model of student ePortfolios across the different discipline areas, while the University of Wollongong had a growing number of student cohorts utilising a mixture of common and specialist ePortfolio tools. At the time, The University of Melbourne and University of New England were leading a consortium of 14 universities commissioned by the then Department of Education, Science and Technology (DEST) to determine the appropriate strategies for a National Diploma Supplement to align Australian higher education with international initiatives to coordinate the presentation of academic qualifications. As research partners, these two institutions provided valuable linkages between the National Diploma Supplement study and the ePortfolio research project. The National Diploma Supplement project presented its final report and recommendations in May 2008, with the key recommendation proposing the introduction of an Australian Higher Education Graduation Statement (AHEGS) (Centre for Higher Education and Management, 2008).

The Australian ePortfolio Project (AeP) extended over a twelve months period, with the final report released in October 2008 (Hallam *et al*, 2008). The report presented, for the first time, a comprehensive national snapshot of ePortfolio use in the Australian higher education sector. The ALTC subsequently invited QUT to apply for further funding to progress two of the recommendations: to establish, facilitate and encourage an Australian Community of Practice (CoP) for ePortfolio researchers and practitioners; and to introduce a regular Australasian conference to provide a forum in which to explore and discuss ePortfolio research and practice. This second stage of the project, commonly referred to as AeP2, will conclude in late 2009. The present

paper provides an overview of the first stage of the Australian ePortfolio Project, to summarise the main findings drawn from the quantitative and qualitative data collected about ePortfolio practice in Australian universities.

Project goals

The overarching aim of the research project was to examine the current levels of ePortfolio practice in Australian higher education, with six specific goals:

1. To provide an overview and analysis of the national and international context related to the development of portfolios, particularly ePortfolios, in tertiary education and schools.
2. To document the types of portfolios, particularly ePortfolios, used in Australian higher education including the different approaches, purposes, audiences and infrastructure.
3. To identify any significant issues related to the approaches being developed in Australian education and the likely impact on what is happening in Australian higher education.
4. To examine the potential relationship with the National Diploma Supplement work being conducted by a consortium of universities led by the University of New England and the University of Melbourne.
5. To recommend ways to share excellent practice in the implementation and use of ePortfolios.
6. To identify areas in which further development could be supported and provide advice on how this might be achieved.

The project sought to investigate these six goals and to examine the key issues associated with ePortfolio practice in Australian universities.

Research methodology

The condensed timeframe for the AeP project meant that, ultimately, the picture produced would only represent a ‘snapshot’ of ePortfolio activity in Australian higher education at the time of the data collection (October-December 2007). The project itself stimulated considerable interest in ePortfolio learning, so that, subsequent to the data collection activities, a number of institutions embarked on their own ePortfolio initiatives. This has meant that the picture has continued to evolve and change: “it sometimes seems that the e-portfolio landscape is changing and coming into (and out of) focus week by week (Stefani *et al*, 2007, p.1). In order to develop an understanding of the anticipated diversity of practice, the research team used a variety of exploratory research approaches which were aimed at not only collecting a range of data to describe and interpret the extent of ePortfolio initiatives in Australian universities, but also to capture the key issues impacting on policy and practice. The research strategies sought to reach a broad spectrum of stakeholders in order to provide, as far as possible, a balanced picture of ePortfolio use in the higher education sector.

The key stakeholders within the academic context included the learners themselves, teaching staff, academic managers, ICT managers, learning technologists and learning designers, as well as careers and employment advisors. Beyond the university,

stakeholders included employers and professional bodies who were concerned about graduate qualities and employability skills.

The range of research approaches were undertaken in the project, including:

- A literature review and preliminary environmental scan to gain an overall understanding of the nature and practice of ePortfolios in education, both nationally and internationally
- A national audit of higher education institutions
- A series of regional focus groups
- Semi-structured interviews with key individuals
- Pre- and post-use surveys of student users of ePortfolios
- Surveys and interviews with previous students or graduate users of ePortfolios
- A national symposium to facilitate discussion on and engagement with ePortfolios in research and practice.

This range of data collection activities was effective in capturing the diverse perspectives and experiences of the different stakeholder groups.

The national audit

The data collected in the national audit represented a major component of the project findings to establish a clearer picture of current and emerging ePortfolio activities in Australian academic institutions. Given the very real time constraints for the project and the diverse range of stakeholders, an online (rather than paper-based) survey was considered the most efficient data collection activity. To adequately capture the range of perspectives from diverse groups of users, three questionnaires were developed to target the distinct areas of the higher education environment, with respondents asked to self-identify to determine the most relevant instrument to complete, using the following definitions:

- Learning and teaching survey – academic, academic support and general teaching staff, assistant deans, learning and teaching development and those generally involved with teaching design and development and/or supporting students in recognition of learning.
- Management survey – those involved in governance, policy, resource development, department managers, administration staff, assistant directors and careers and employment officers.
- Human resources survey – those involved in the professional development of university staff (professional and/or academic).

Responses to the surveys were received from all Australian universities. Multiple responses were received from most universities, with seven institutions submitting responses to all three surveys. The learning and teaching survey attracted 73 valid responses, the management survey resulted in 28 valid responses and the human resources survey had 12 valid responses.

The questionnaires were designed to address the project team's presumptions that the use of ePortfolios within individual institutions was likely to be fragmentary rather

than cohesive, with the result that various people at the same university might not only operate in different contexts but also have disparate understandings about ePortfolio usage. The questions posed in the survey were therefore deliberately open and exploratory, seeking to collect information on the different approaches in the use of ePortfolios, the various purposes of ePortfolios, the diverse audiences and the infrastructure in place. An opening question asked respondents to briefly state what they understood the term 'ePortfolio' to mean. Respondents in the area of learning and teaching presented their understanding of an ePortfolio as collections or tools for learning and reflection, providing evidence of learning and development for a particular purpose. Responses collected through the management survey, on the other hand, stressed the collection of evidence to demonstrate learning and personal achievement, principally for assessment and for managing learning. Those involved in human resources also referred to ePortfolios as collections, but with a strong focus on the future, with personal development, career progression and career planning as key elements.

Focus groups and interviews

A series of focus group discussions were conducted and semi-structured interviews were held with a number of key individuals, enabling the project team to engage directly with representatives of the different stakeholder groups, as well as with sectors beyond the immediate area of higher education, for example primary and secondary education, the vocational education and training (VET) sector, business, industry and the professions, and the community sector. The focus group process also proved to be very valuable in terms of providing an opportunity to disseminate information about the project beyond the immediate context of tertiary education. The focus groups were hosted by the four institutional research partners, in Brisbane, Melbourne, Wollongong and Armidale, with additional meetings held in Adelaide, Perth and Sydney. A total of 45 people attended the focus group meetings. The research team also identified seven individuals with both the integrity and depth of knowledge about ePortfolio practice to provide additional insights into the issues, who agreed to be interviewed. The focus group discussions and the semi-structured interviews were recorded, transcribed and subsequently analysed using transcript based analysis (Kreuger, 1994) to identify keywords and phrases that could be aggregated into themes. The narrative data was further examined using the data mining tool, Leximancer (2007).

Focus group participants and interviewees were asked to respond to a number of stimulus questions that aimed to uncover their understandings of ePortfolio use, the purpose of ePortfolios in their immediate context and what aspects of the project would be the most valuable to them. The discussions were effective in teasing out and expanding on a number of topics and issues that were only alluded to – or indeed, not actually raised – in the data collected in the surveys. The four principal themes that emerged from the discussions encompassed the significance of employability skills; the student experience in ePortfolio learning; the validity and authenticity of ePortfolio content; and interoperability issues.

The student voice

While evaluations of ePortfolio use by students has been published internationally, particularly in the UK and the Netherlands, the literature review and the initial findings from the national audit indicated that there was little information on the student experience in Australia. To capture the student voice, the AeP project developed two levels of data collection that focused specifically on the student experience: the 'new' student likely to be encountering an ePortfolio for the first time, and the 'mature' student who had been engaged with ePortfolio practice for some considerable time. The survey of 'new' students was two pronged: it involved a pre-course questionnaire at the beginning of the semester to capture their *expectations* about using an ePortfolio and a post-course questionnaire to capture their *experiences* of the ePortfolio process during the semester. The 'mature' user study also comprised two parts: a survey and a semi-structured interview. Student groups from six tertiary institutions completed the surveys over the course of a semester. There were 404 useable student responses to the pre-course survey, 87% of whom had not previously had any exposure to ePortfolios. 101 valid responses were received for the post-course survey, representing four of the initial six institutions in the pre-survey. 84% of these respondents believed that their ePortfolio had helped them evaluate and reflect on their learning activities. Nine people from two universities accepted the invitation to participate in the research as a 'mature user'. While this may be considered a small sample size, the respondents reported that their ePortfolio experience had been very positive, contributing to the understanding of themselves both as learners and as emerging professionals.

Australian ePortfolio Symposium

The research team hosted a forum to promote and extend the research activities. The Australian ePortfolio Symposium (AeP, 2008) was held over two days in February 2008 at QUT in Brisbane, with two satellite events: a policy meeting attended by key academic and government partners, and a showcase of currently available ePortfolio software tools. The symposium was promoted through the project partners, through the research activities such as the national audit and the focus groups, and from the project website. The event attracted a number of international speakers, including Angela Smallwood from the Centre for International ePortfolio Development (UK), Rob Ward from the Centre for Recording Achievement (UK) and Darren Cambridge, with the Inter/National Coalition for Electronic Portfolio Research (USA). The program included enquiry-based group workshops which generated the delegates' key questions and facilitated panel presentations to provide responses to these questions.

Key findings from the research

The AeP report presents a detailed analysis of the research findings, to consider the different understandings of the concept of 'ePortfolio', the extent of ePortfolio practice in Australian universities at the time of the study, the types of ePortfolio technology used in different settings, and the diverse ways that ePortfolios were being used in academic programs.

A snapshot of ePortfolio practice in Australian higher education

Principally, the research findings revealed that there was a high level of interest in the ePortfolios in the context of higher education. It was broadly acknowledged that

ePortfolios had the potential to assist students become reflective learners, conscious of their personal and professional strengths and weaknesses, as well as to make their existing and developing skills more explicit, with an associated value apparent in the graduate recruitment process. In addition, there was a strong understanding about the need for interoperability across the different areas of education and employment, which resonated with the current government policy focus on integration between vocational and higher education and the articulation of employability skills.

As part of the national audit the three spheres of respondents (Learning and Teaching, Management, Human Resources) were asked to briefly describe, in their own words, what they understood by the term 'ePortfolio'. Respondents in the learning and teaching survey primarily reported their understanding of ePortfolios as collections or tools for learning and reflecting and also as providing evidence of learning. Respondents in the management survey interpreted the ePortfolio as a collection of evidence that demonstrated learning and personal accomplishments for assessment and for the management of learning. Human Resource respondents also viewed the ePortfolio as a collection of evidence, but were more attuned to personal development, career planning and progression.

The extent of ePortfolio use in Australia's tertiary sector was found to be patchy. Respondents were very aware of the concept of ePortfolios, reporting that there were plans in place at their institution for either the investigation into or implementation of ePortfolios for learners. Where already implemented, the principal use of ePortfolios was centred in coursework programs, ie subject-specific or program-based, rather than in faculty- or university-wide activity. Responsibility for the implementation of ePortfolios generally rested with the individual teaching units, sometimes supported by teaching and learning and/or ICT support areas or by careers and employment services. There was an emerging sense of collaboration, with ePortfolio projects regarded as a joint activity shared by a number of players, for example with combined committees of academic staff, learning support and IT services, or partnerships between academic staff and eLearning.

The audit also indicated that a wide range of tools was being utilised in these experimental stages of ePortfolio practice. While some institutions were looking at ePortfolio programs, learning management systems were also commonly utilised, with some respondents reporting that web pages, blogs, wikis and paper-based systems also featured. Learners, as the primary users of ePortfolios, used the tool for collecting evidence and reflecting on their learning.

Identifying the issues around policy and practice

The issues to be considered by those planning to implement an ePortfolio project are acknowledged to be very varied and highly challenging. The AeP report presented the key issues associated with ePortfolio use in higher education, focusing on the two critical areas of policy and practice.

Policy issues encompass questions of both government policy and academic policy within the institution. The report argues that, if the higher education sector is to successfully fulfil its role in producing skilled professionals who will play a significant role in the future success of the Australian community and economy, then

the potential of ePortfolios to bring together educational technologies and quality learning processes, and to provide evidence of individual achievement and employability skills should not be ignored. The issue of student mobility underpins the necessity for the transportability of academic credit across institutions, as well as the transition into and out of secondary and vocational education. The report on the Australian Higher Education Graduation Statement (CSHE, 2008), the Federal Government's Digital Education Revolution policy (DEEWR, 2008) and the recent Bradley Review (Bradley *et al*, 2009) underscore the value of policies that might encompass the development and management of ePortfolios. If, in the future, ePortfolios become embedded in learning and teaching in schools, then learners will bring with them specific familiarity with and expectations for the ePortfolio process as they enter vocational or tertiary education. The report stresses that clear policies and strategies are required at both the sector and institutional levels to take advantage of the opportunities for connectivity and cohesion in the development and delivery of education services.

Practice issues focus on the learning and teaching context in institutions, which includes the interaction between academic staff and learners, as well as academic development and support. The introduction of ePortfolios as a learning or assessment activity requires academic staff to consider the learning goals for the subject and to subsequently evaluate the congruence between learning activities, assessment and learning outcomes (Aalderink & Veugelers, 2005). Benefits to teachers using ePortfolios in their teaching include the capacity to gain deeper insights into the learner as a person, so that the process of providing academic advice becomes richer and deeper (DiBase, 2002). Nevertheless, this is countered by concerns about the increased workload for teaching staff undertaking, implementing and supporting their students using ePortfolios. Institutions need to consider the need for effective support, including pedagogical support from academic peers and teaching development teams, technological support from ICT services, and administrative and managerial support at a faculty or unit level.

The successful implementation of ePortfolio projects can encompass, and potentially integrate, the broad spectrum of issues that are fundamental to learning and teaching. It has been argued that current trends in education in Australia see technological change impacting on many different levels: pedagogy, curriculum, policy, infrastructure, organisation and governance, at the institutional levels as well as at system levels (Owen & Moyle, 2008). As academics seek to engage students in their learning and work towards productive learning outcomes, universities require a strong foundation of learner-centred models of learning that offer flexibility, personalisation, and support individual, social and collaborative processes.

Recommendations for the further development of ePortfolio practice

Policies and strategies are required at both the sectoral and institutional levels to ensure that advantage is taken of the opportunities for connectivity and cohesion in the fragmented world of eLearning, flexible delivery, social networking and mobile technologies. The project investigation identified four individual, yet interrelated, contexts where strategies may be employed to support and foster effective ePortfolio practice in higher education:

- Government policy
- Technical standards
- Academic policy
- Learning and teaching.

On a practical level there needs to be open dialogue and collaboration between the different stakeholders across this range of contexts. The AeP report presents ten key recommendations emerge from the Project to progress ePortfolio practice in the higher education sector. The research team recommended that:

1. The government departments with responsibilities for education engage with peak industry, professional and employer bodies to develop a shared understanding of the potential of ePortfolio practice to articulate employability skills;
2. Governmental policy recognises ePortfolio practice as a strategy to build an integrated relationship between higher education and the vocational education and schools sector, in order to support the individual's lifelong and life wide learning needs and to increase the potential for career progression;
3. The higher education sector acknowledges the role of the Australian Higher education Graduation Statement as an authenticated document reporting student achievement, compiled and verified by the academic institution at the time of graduation, while further acknowledging the value of the ePortfolio process to articulate the integrative aspects of student learning;
4. Australian ePortfolio stakeholders continue to develop the collaborative relationship with partners in the eFramework for Education and Research initiative in order to ensure that aspects of ICT in education and research are developed and implemented strategically;
5. The international information standards for ePortfolio practice be adopted as an Australian technical framework, in order to facilitate the exchange of information and data across institutional, sectoral and jurisdictional boundaries;
6. Academic policy in higher education institutions recognises the value of ePortfolio practice as a component of different pedagogies that enhance the quality of learning and teaching across the institution;
7. The various stakeholders in higher education who are interested in ePortfolios utilise the ePortfolio Toolkit (available via the AeP website) to guide and inform their practice;
8. ePortfolio stakeholders establish a Community of Practice to share learning and experiences of quality ePortfolio practice in higher education, in order to foster scholarship and research and to provide a forum for dissemination about good practice;
9. A regular Australasian conference be convened to explore and discuss ePortfolio research and practice; and
10. The ALTC adopt a leading role to foster and support further research into the educational benefits of ePortfolio practice.

The different stakeholder groups have been invited to consider these recommendations to determine how, when set against the analysis of the issues of policy and practice, they might serve as a reference point for the possible future directions for ePortfolios in higher education.

Scenarios for the future

Four brief scenarios are presented in the report to stimulate thoughts about the type of stakeholder strategies required, if the optimum opportunities are to be realised.

A national ePortfolio model

This national model assumes a single ePortfolio system for all learners, and potentially workers and citizens. The model assumes that it will be government-owned and government-driven, thus supported by relevant policy and strategy at a national level and that interoperability is completely assured. The implications around the development of this model include gaining consensus – consensus on government and institutional priorities and the adoption by the various stakeholders. Concerns around ownership, funding and sustainability also come to the fore.

A locally driven model

This model is developed within the higher education sector but is aligned with cross-sectoral interests accommodating both institutional autonomy and the multiple purposes of ePortfolios themselves, with audiences including the individual learner, peers, teaching staff, mentors and employers. The platform for this provided by individual institutions, or potentially by a university alliance, with the understanding that the ePortfolio itself is student-owned. Institutional support needs to encompass academic policy and strategic direction through ICT infrastructure, academic development and the university careers service. The focus here is on embedding ePortfolios into the curriculum and facilitating student ownership.

A Web 2.0 model

In this model, the focus is on the emerging developments in Web 2.0 and social networking technologies, rather than on any ePortfolio products or tools. The model is characterised by the absence of any formal systems development, with the Web 2.0 approach offering the opportunity for a very high level of innovation, but this is completely dynamic and unguided. Universities will need to re-visit their internet usage policies and while there is a high chance of stakeholder engagement (inclusive of employers) it may be difficult to align the portfolio process with specific learning objectives. Portfolio activities will be completely user-owned.

A zero action model

In this model, the status quo ePortfolio situation in Australia can continue. While pockets of interest and activity would survive, along with the emergence of innovative ‘champions’, there would be an absence of policy and strategy that would prevent progress on international standards or interoperability.

Reese and Levy (2009) recognise the challenges around the adoption of ePortfolios and stress the slow diffusion of new technologies, the costs involved with adoption, along with reluctance on the part of the learner to embrace the tool or see the relevance of using it. However, learning, in both theory and in practice, has changed dramatically over the past decade, challenging and enabling universities to consider the opportunities for new ways of delivering their education programs. Developments in ICT have changed the way we think about learning theories, strategies, activities and outcomes. Learner-centred models of pedagogy can offer accessibility, adaptability, flexibility and personalisation and support individual, social and collaborative processes.

The four scenarios offer 'food for thought'. The easiest option is inevitably to adopt the zero action model and do nothing. However, the AeP report seeks to stimulate the diverse stakeholder groups to consider the position that holds the greatest value to them. One response to the report highlights the value of a blend of these models:

...perhaps the one thing I would like to consider would be the hybrid model. National schemes can be problematic for us in some ways however I think there is a place for certain types of eportfolio services that could be made available nationally or systemically. The Graduation Statement for example, would make a great plugin service that an eportfolio application could integrate with and I am sure there are plenty of others. If we do nothing (the zero-action model), the Web 2.0 model will have an impact as learners (that means potentially, all of us) seek to fill in the gaps in existing eportfolio implementations (the Web 2.0 model is with us anyway and for many, is seen as a more attractive alternative to institutionally bound offerings).

(Leeson, 2008)

The research activities that have been central to the Australian ePortfolio Project have revealed that a significant number of people was interested in the use of ePortfolios in learning, in transition into employment and in career development. However, comments from the research subjects indicated that many of these people felt that they were currently working in isolation and were keen "to make meaning or sense of their situation and ways in which to negotiate their professional identity in the new context" (Churchman & Stehlik, 2005). A major outcome of the AeP project has been the opportunity to engage the Australian higher education sector in that "sense of joint enterprise and endeavour" (Smith, 2003).

The concept of an ePortfolio community (or communities) of practice was identified as one of the mechanisms that would be of significant value to encourage the sharing of good practice as well as lessons learned. The recommendation of sharing of good practice has resulted in the development of a series of *ePortfolio Concept Guides* to contextualise ePortfolio practice for learners, teaching staff, ICT and teaching and learning support staff, institutional managers, and employers, professional bodies and careers services. The concept guides form part of the Australian ePortfolio Toolkit (AeP, 2009a).

Stage Two of the Australian ePortfolio Project

In November 2008, the ALTC announced further funding for Stage Two of the Australian ePortfolio project (AeP2), which seeks to build on and continue the momentum of the work undertaken in Stage One of the project. AeP2 provides an

opportunity to further develop the relationships already established with stakeholders across the school, vocational, business and professional sectors, as well as with international ePortfolio communities.

Specifically, the AeP2 project addresses recommendations 8 and 9 of the AeP report, and aims to:

- Establish, facilitate and encourage an Australian Community of Practice for ePortfolio researchers and practitioners; and to
- Introduce a regular Australasian conference to provide a forum in which to explore and discuss ePortfolio research and practice.

Under the auspices of the AeP2 project, a virtual forum is currently being developed within the ALTC Exchange to support an ePortfolio community of practice, along with collaborative work being undertaken with colleagues in the VET sector to establish a cross-sector ePortfolio community of practice (Australian Flexible Learning Framework, 2007, 2008). In February 2009, a second Australian ePortfolio Symposium (AeP2) was held to disseminate the project findings, to further explore innovative practice in ePortfolio use in higher education and to stimulate discussion on international ePortfolio issues. The AeP2 Symposium (AeP, 2009b) demonstrated to the higher education sector how quickly substantial progress had been made in terms of new initiatives in ePortfolio practice in Australian universities. A series of papers emanating from the Symposium will be published in a forthcoming special issue of the online journal *Learning Communities: International Journal of Learning in Social Contexts*. As associated events at the Symposium, the providers of ePortfolio platforms such as PebblePad, Mahara, Desire2Learn and CareerHub presented their products at the AeP2 Showcase, while technical issues associated with standards and interoperability were discussed at the Technical Issues and Opportunities in ePortfolio Practice Forum.

Conclusion

The Australian ePortfolio Project has revealed that ePortfolio practice is growing and developing in Australian universities, with considerable cross-sector activity evolving. The research activities, through the surveys, focus groups and the Australian ePortfolio Symposium, have not only raised awareness within the higher education sector about ePortfolios as both product and process, but also intensified the interest of academics in engaging with and deepening their understanding of the contribution of ePortfolios to learning, both within and beyond university. There is immense scope for further research into and analysis of the impact and potential of ePortfolios in higher education, so that a better understanding can be developed about many aspects of ePortfolios, such as the diverse dimensions of knowledge construction, student attitudes, new teacher roles, employer expectations, eLearning-supported pedagogies, emerging technologies, interoperability etc.

While the data collected between late 2007 and mid 2008 around ePortfolio practice in the Australian higher education sector can be considered a snapshot in time, it was effective in capturing the views and experiences of the different stakeholder groups. The specific range of research methodologies ensured that the reach was as broad as

possible, enabling the research team to consider the different perspectives of those new to ePortfolios and those with considerable experience with them.

The ALTC has played, and continues to play, a vital role in facilitating collaborative research in the area, specifically around investigation into how ePortfolios might be used to achieve transformation in key areas of educational and workforce policy. The second stage of AeP continues the momentum of the inaugural project to encourage the promotion of resources and the continued engagement of stakeholders and dissemination of good practice around ePortfolios.

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