Exploring the Pedagogy and Impact of Technology on ePortfolio Creation for Arts Students in Australian Tertiary Study

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Abstract

The creative application and development of an ePortfolio as a pedagogic innovation in learning and teaching in higher education lies in strategies acquired by students to select authentic evidence to document achievements and skills as a graduate. Many educators use ePortfolios as a learning tool and through the introduction of reflection, or reflective practice activities the ePortfolio has the potential to be a powerful tool for all learners. This paper reports the pedagogic and technological undertaking of ePortfolio development for creative and performing arts students at four tertiary institutions in Australia. It explores how the artist perceives her/himself and the choice of evidence selected to showcase development, thus highlighting aspects of artistic identity versus professional career identity.

ePortfolio development involves reflection, organisation and critical thinking by students developing a learning 'story' that accurately represents skills learnt and competencies developed during tertiary study. The creation of an ePortfolio often relies on a student's ability to collect, reflect and select material that is appropriate; and to exercise the management of their knowledge in such a way that contributes to linking pedagogy and technology. It can also involve students exploring their known ICT skills and, at times, extending these beyond their expectation.

This paper will review literature, in addition to reporting initial experiences of academics and students where the ePortfolio has been implemented into curriculum for creative and performing arts degree programs. Results show ePortfolios allowed students to achieve a demonstration of artistic capabilities and revealed that students have increased their ability to plan, implement and assess their learning reflectively; and to understand documentation relevant to Arts careers. Students developed a greater competency in their educational beliefs, pedagogical skills, University generic attributes, technological expertise and ability to address employment parameters required by employer groups and such professional bodies.

Key Words: pedagogy, reflective practice, knowledge management, graduate identity

ePortfolio as a pedagogic innovation in learning and teaching in higher education

ePortfolios[1] are used in a variety of ways across diverse settings. Functions include storage, information management, connections, communication and development (Duncan-Pitt & Sutherland, 2006; Walz, 2006). According to Banks (2004), the use of ePortfolios varies according to the types of information needing to be included, the stages of learning represented by the ePortfolio and the participants. The ePortfolio concept and functional requirements differ across various user groups (Jafuri, 2004). At an institutional level, ePortfolios may be used to demonstrate and assess student learning and therefore map teaching and learning outcomes (Jafuri, 2004). Institutions may choose to use ePortfolios as a central storage facility that may be accessed by large

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[1] Literature on this topic uses various terms to name electronic portfolios: ePortfolios, i-folios, iPortfolios, iportfolios, web-folios, etc. The institutions discussed here also use a range of names for this type of aggregation of student work. For this paper we have used the term 'ePortfolio' to cover all other names

numbers of people in various locations to guard against document loss through individual computer failure and as an interface with student assessment systems (Herman & Kirkup, 2008). ePortfolios provide an efficient and transparent means to archive and access student work, facilitate internal and external departmental review and broader institutional assessment for purposes, such as self-assessment and accreditation through collecting, archiving and reflecting on institutional output (Reese & Levy, 2009). Public accountability concerns are thus addressed (Lorenzo & Ittelson, 2005). At the same time, ePortfolios are seen to be a technological tool that enhances students ICT skills. As ePortfolio use pervades educational settings across primary, secondary and tertiary levels a growing body of literature addresses their use in the Creative Arts. Consisting mainly of case studies, existing literature describes the ways ePortfolios are used within arts disciplines, challenges to their successful implementation, and gives specific advantages of their use.

This paper reports on the literature and initial experiences of academics and students at four higher education institutions in Australia where the ePortfolio has been implemented into curriculum for a selection of creative and performing arts degree programs. The project described covers different types of students in four institutions (Curtin University; Queensland Conservatorium of Music, Griffith University; Sydney Conservatorium of Music, The University of Sydney; The University of Western Sydney), and includes a range of types, formats, uses and expectations of ePortfolios. Although differences between the institutions can be identified, the commonality between them is that through interactions with ePortfolios, and the processes of designing, constructing and critiquing them, students engage with their own learning in new ways; thus increase the personalization of their pedagogical and technological learning (Dunbar-Hall et al., 2013). Introducing ePortfolios into national tertiary music and creative arts education consciousness shows them to be innovative tools and a way to inspire learning amongst Arts students; to influence teaching practices; and as a new and important aspect of students' professional training in various areas of study - composition, creative writing, music education, music technology, theatre, musicology and performance. By combining performing and creative arts we allow the opportunity to both generalize about ePortfolio applications, and to single out

aspects of them which are specific to music and other types of artistic creation (Rowley et al., 2012).

Creative application and development of ePortfolio

Electronic portfolios (ePortfolios) are more than just a technology: they represent an important learning approach that implies a process of planning, keeping track of, making sense of, and sharing evidence of learning and performance. Using ePortfolios well requires embracing a set of practices and an understanding of learning and reflection . . . (Stanford University, 2012, n.p.)

The project's aim was to link Arts students' learning and technology - by capitalizing on affinities with forms of digital social networking, such as Facebook and LinkedIn; and in this way to draw forms of music and creative arts education into a 'virtual classroom.' For students and staff, this necessitated a development of what has become known as '(ePort) folio thinking', the 'reflective practice that situates and guides the effective use of learning portfolios . . . (using) experiential learning, metacognition, reflective and critical thinking' (Dunbar-Hall et al., 2013).

Dillon (2007) reports on the use of Digital Media Asset Portfolio (DMAP) as an ePortfolio allowing discussion of music performance and composition in the presence of that music; with the added advantages of recall, review, comparison and annotation. Dillon views DMAP as a solution to problems in assessing the time-dependent nature of music, as it provides tools for evidencing quality in music making. Since music performance is time-de-pendent and ephemeral, problems have always existed in assessing and reviewing musical works traditionally car-ried out in abstract textual form after and away from the performance and presence of the music. DMAP was used to store artefacts of digital video and audio recordings so that composition students and their lecturers might recall, review, compare, annotate and assess while referring to critical moments. Dillon (2007) proposed that DMAP allowed teachers and their students to assess, evaluate or critique musical production or performance in the pres-ence of that music, via recordings. Thus, ePortfolios offered students and staff the opportunity to be more rigorous and accountable than traditional assessment methods, which are limited and filtered by their alphanumeric based analysis and evidence.

Image 1 *(Rowley sharepoint)*

Studies in the field of dance education also view ePort-folios as valuable repositories for archiving digital records of performance, as well as reflections, action plans and sources of inspiration (McGreevy-Nichols, 1999; Oliver & Sprague, 2007; Oreck, 2007). The impetus to incorporate technology in creative arts educational settings results partly from curriculum directives to implement Informa-tion and Communications Technology (ICT) across all learning areas, but also because ICT provides teaching and learning opportunities for the study of Creative Arts. Although the wide diversity in social, artistic and educa-tional values, together with varying attitudes and beliefs about ICT, sees technology being adopted in a range of ways and at differing rates, ePortfolio use appears to be increasing in creative and performing arts programs. This is possibly because they are becoming "the Information Age's version of the artist's portfolio" (Meyer, Abrami, Wade, Aslan & Deault, 2010, p. 84). A widely used strategy for the collection and assessment of student work, ePortfolios traditionally serve as a storage facility for students' creative products, and also show the learning path in reaching those achievements (Madeja, 2004). The supplanting of bulky traditional portfolios by digitized ePortfolios in primary, secondary and tertiary educational settings is documented in several studies. Negative features of traditional paper-based portfolios included repetition, inflexibility, lack of portability, difficulty viewing, expense,

limited exposure to the design community, financial burden to institutions in accessing qualified moderators, inability to include artefacts such as animations or video, ineffective format for seeking employment and lack of appropriateness for students living in a technological and connected world.

Creative Writing and In Theatre Studies students at Curtin University set out to discover whether an ePortfolio could be a means of exploring possible future selves within and beyond the professional world of the arts. A specific aim was to assist students in making the transition from student to graduate professional by encouraging the use of ePortfolios for showcasing relevant artefacts (such as animations or video) and for seeking employment by students demonstrating they live in a technological and connected world. The cohort was specifically first-year Performance Studies students enrolled in a core perfor-mance course, and thirdyear Professional Writing students in a work placement course. The development of a reflec-tive ePortfolio challenged students to think about the rela-tionship between undergraduate study and future careers. The task was for students to compile evidence of a broad range of skills and abilities gained through their studies and any related work placements. As part of the ePortfolio development, the Writing students were asked to blog (via Blackboard) about their internships and this acted as

collection of artefacts about skills and competencies that could be articulated through the newly created ePortfolio. The Curtin students were receptive to the development of an ePortfolio and could see the benefit of its use for their future Arts careers.

Reflective practice strategies acquired by students to select authentic evidence to document achievements and skills as a graduate

A number of research studies in the ePortfolio literature compare traditional and electronic portfolio features and practice. Siegle (2002) notes that ePortfolios provide a possible solution to the inclusion of artefacts previously considered difficult and cumbersome to incorporate into portfolios, for example three-dimensional objects and musical or dramatic performances. Other proposed benefits of using ePortfolios are the sharpening of technology skills, a heightened sense of accomplishment, the active involvement of students in their creation and the easy sharing of digitally captured works.

ePortfolios at Griffith University, Queensland Conservatorium of Music (QCM), are integrated across the three-year undergraduate Music Technology degree and they are introduced in the first year. The process of embedding the ePortfolio into the curriculum is a well documented strategy (Hitchcock & Draper, 2008; Rowley, 2011; Rowley & Dunbar-Hall, 2011, 2012) where students receive critical feedback on the ePortfolio assessments at regular points. Each student at QCM maintains one institutional ePortfolio as an intended lifelong, professional tool. Each student's ePortfolio is associated with a single course subject as an assessment item. The connection is that each component of the ePortfolio recognizes the assessment and coursework activities and learning in all other subjects. This is in line with Music Technology's emphasis on whole program thinking (Hitchcock, 2009). QCM encourages students to locate, learn, and use platforms (e.g. Google, YouTube, Sound Cloud and Flickr) suitable to their own learning and technological requirements and not to use a commercially dedicated ePortfolio platform. Students, therefore, do not discuss their ePortfolios in a techno-centric manner but instead the focus is on generic concepts, such as the social impact of ePortfolio use, networking, interdisciplinary owner image, personal identity creation and development, etc. (Dunbar-Hall et al., 2013). The concept of identity - both of an individual and applied across music students' multiple skills and identities - is a specific application of ePortfolios in this context. The creation of the ePortfolio at QCM encourages learner reflection in their choice of evidence to support the specific learner achievements. It allows students to create and re-create multiple times over the period of the whole

degree program and to demonstrate an understanding of what the learning means to them as individuals.

Barrett (2007) argues that evidence in an ePortfolio is not only measured by the artefacts that a learner places there, but also by the accompanying rationale or reflection that a learner provides. Student ePortfolios may contain coursework, assessment work, artefacts, records of achievement, accreditation, planning, reflection, skills and competencies, outcomes of appraisals and interviews, images and entries shared with peers (Banks, 2004). As a vehicle for academic advisement they may demonstrate progress towards academic or professional goals, and serve as a virtual adviser between meetings (Reese & Levy, 2009). They may contribute to the development of students' critical thinking, writing and multimedia communication skills and ICT skills (Lorenzo & Ittelson, 2005). Alumni ePortfolios may continue to evolve and support professional growth past graduation.

Learning or Process ePortfolios, on the one hand, include reflection, analysis, critical thinking and connections; evidencing learning over time (Hallam & Geogh, 2010). A distinction is noted between ePortfolios that are process driven, rather than product driven, with critical reflection acknowledged as the deep level of learning that allows students to apply learning to practice (Jensen, 2011). Assessment e-Portfolios, on the other hand, offer evidence to demonstrate learning outcomes, and may include rubrics, templates or benchmarks (Owen, 2009). Access is controlled by the student, who may invite feedback from faculty and/or peers, thereby encouraging collaborative learning, and self- and peer-based assessment (Welsh, 2008). This management of knowledge by the students through creating the ePortfolio is a demonstration of their ability to think critically.

The creation of the ePortfolio involves reflection, organisation and critical thinking by the student in how to develop a portfolio that accurately represents their skills learnt and competencies developed during their program of study. Schön's (1983) reflective practitioner demonstrates an approach towards metacognition, where the learner is scaffolded by the teacher into a process of thinking about their thinking in a critical and evaluative manner. In addition, the work of Schön (1995) can be seen as a process for students' reflection on how the ePortfolio can develop personal competencies that are traditionally not emphasized in an academic context. Schön's (1995) theory of reflective practice encourages students' reflection on their practice and knowledge at the same time as reflecting in the knowledge and actions experienced during and after the learning. Through a carefully scaffolded reflective process, students are able to create new knowledge and practices based on their actions. Purposely designed tasks for inclusion in the ePortfolio, and determining what

could actually be learnt from the students' knowledge and action is usually determined by mutually negotiated learning outcomes. For example, this process of reflection involves students exploring their known ICT skills and, at times, extending these beyond their expectation. Students manage to synthesise and evaluate the new knowledge and apply it to real world problems and then transfer this understanding to their ePortfolios (Piihl, Rasmussen & Rowley, 2013).

A study by Gearing and Forbes (2012) reported on the adoption of a 'workshop model' at the University of Southern Queensland in a bid to enhance students' abilities to adapt to a wide range of professional situations in the Arts. ePortfolios played an important role in implementation of the workshop model, being used for reflective analysis and self (and peer) assessment of ensemble activities. Findings evidenced that students consistently updated their ePortfolios, but engaged in little online interaction with peers. Many students required mentoring on technical aspects while creating their ePortfolios, and on the rationale and purpose of reflection in and on their learning. An interesting observation in this study was that students developed good musical vocabulary in both oral and written workshop tasks, but relied heavily on colloquial social media language conventions in their ePortfolios. This supports the use of social media skills for students to assist in creating their ePortfolios.

Knowledge management: linking pedagogy and technology

Most universities currently require academics to engage with several technology approaches – for example, lecture recordings and slides are online, assessments are submitted and marked electronically etc. This movement has seen the sharpening of technology skills for many teachers and in turn has sent an expectation to students to meet similar technological skill levels. At the University of Sydney, Sydney Conservatorium of Music (SCM), Music Education students had ePortfolios embedded into their degree program across four years. The platform, selected by the University of Sydney for all its students, was PebblePad. Music Education ePortfolios acted as a capstone object and were originally intended for demonstration of achieving graduate standards for accreditation as teachers and ultimately for use in job applications. The ePortfolio was introduced as a means to address the requirements of a State based professional teacher accreditation board and their implementation has been analyzed for their advantages to student learning and self-reflection (Rowley, 2011); and the implications for curriculum design and the relationships to assessment and accreditation (Dunbar-Hall, et al., 2013).

Composition, Musicology, and Performance students at SCM did not have the ePortfolio embedded into their degree program, and so, the ePortfolio use was sporadic and applied to enhanced student learning. The results demonstrate 'differing levels of student engagement with ePortfolios, ambiguities over their value in music as a profession, a range of student desires to engage with ePortfolio and the technology required to work on and through them, and a spectrum of possibilities for their use' (Dunbar-Hall, et al., 2013, p.84). Students reported that they viewed the development of an ePortfolio with regard to job seeking which results in students being more inclined to use the ePortfolio creatively.

An ePortfolio was designed and tested in consultation with student artists at the University of Arts, Berlin (Buehler, Hafer & Blankenburg, 2007). In order to design an effective ePortfolio user needs were linked with technical feasibility, requiring team members to translate between the languages of art and technology to create a viable product. The ePortfolio, named the "Competence Portfolio" - the first in Germany specifically tailored to the needs of artists and art students - was designed to support artists in documenting, analyzing and presenting competencies developed during formal education and working experiences; and builds on the traditional artist showcase portfolio by offering a variety of publication modes. The Competence Portfolio was designed to be internationally compatible through following Europass guidelines. It was also designed so that users might analyse and reflect on their work. According to van Tartwijk and Driesen (2009), reflection is stimulated as learners are compelled to look back on what they have done and analyse what they have and have not yet accomplished. Buehler, Hafer & Blankenburg (2007) also contend that the ability to systematically develop and demonstrate knowledge and competencies is crucial to increasing employment opportunities in the "knowledge economy" (p. 141). Thus, the Competency Portfolio was designed to include elements of personal knowledge management, a history of design and growth, planning and goal setting, shared content areas, assistance in making connections between formal and informal learning, and meta-elements and information to support career planning. For students involved in professional practice, the ePortfolio is seen as an interpretation of case-based learning as students develop the ePortfolio in tandem with the complex real life situations. The design of professional practice (or internship) programs ensures that students can emphasise the application and development of generic knowledge and competencies in settings that are not purposely designed for traditional academic learning, like the written case (Piihl, Rasmussen & Rowley, 2013).

Another study concerned with preparing students for employment in the Arts field was conducted at the University of Oregon (Hager & Schiff, 2007). The three-year initiative focused on developing students' skills in applying technology to improve employability and to increase the technological capacity of the Arts sector. ePortfolios were created to provide students with a storage system for artefacts such as visuals, anecdotes, video and written materials generated from multiple community projects. The ePortfolios enabled students to manage, represent and archive their multidimensional learning in the Arts. Ongoing evaluations by students and their teachers informed future directions, and a website developed to house the complete ePortfolios was envisioned as

> a community bulletin board, a communication hub between pre professional arts students and the professional community through student

eportfolios, internships, and job opportunities, peer networking and peer review; . . . a project gallery and virtual gallery space where students' best course work and projects are exhibited and can be searched and archived (Hager & Schiff, 2007, p. 271)

Prompts were used to stimulate reflection and learning and to manage the knowledge via technological learning environments. The emphasis was not on the technology training but on the use of technology supported learning. This demonstrates an inquiry-based approach to using ePortfolios.

So far this paper has reported on the use by students and staff at three of the four institutions and has looked at the literature that surrounds the adoption of ePortfolios for Arts students. Table 1 represents the types of activities that can be seen created by Arts students in the ePortfolio and the rational for the learning.

Table 1: Summary of ePortfolio activity and outcome for Arts students

ePortfolio ACTIVITY	ePortfolio OUTCOME
Sound file	Demonstration of practical skills
Blog	Apply specific theory or procedures to develop specific solutions to specific problems in specific contexts
Reflective journal	Milestones reached and Reflection-in-action Transdisciplinary problem solving
YouTube clip/video	Demonstration of practical skills
Career objective	Philosophy and vision for future learning and work placement
Resume (awards, achievements, qualification)	Summary of personal skills and competencies for employability
Assessment tasks	Application of literature to knowledge and analysis for future learning

Table 1 demonstrates how the ePortfolio process has the potential to encourage personalised learning for students through reflection and metacognition through the collecting of artefacts/evidence for inclusion in the ePortfolio. This creation of learning 'story' gives evidence to the ePortfolio becoming a personal learning environment for students through the carefully scaffolded approach by teachers.

Artistic identity versus professional career identity

The use of ePortfolios within the undergraduate Music degree at the University of Western Sydney (UWS) was new and the tasks were structured so that an ePortfolio of multi-media materials was to be assembled over a semester (12 weeks). In addition, students were required to collect and reflect on written material built up over a semester. In a third-year capstone unit at UWS the ePortfolio

was intended to build a professional portfolio for potential employers as the unit has a professional practice focus and required students to take their music practice into the community. The ePortfolio for Arts students at UWS saw students creating artefacts and evidence for documenting music therapy sessions; arranging music for a school band, or performance, or song writing workshops in schools (for example). The particular ePortfolio task required students to complete a CV, compose a one-page introductory letter to a potential employer, write a reflective essay on the community project and present the project itself in short form through text, photographs, video clips and mp3 sound files. The benefit of the ePortfolio in this instance was the electronic nature to draw together these multimedia items into a site from which files can be withdrawn or added to for a prospective employer.

Another use of ePortfolio at UWS was with second-year Music Performance students where they undertook a written task to complement their music practice. This

was a strong learning experience for Music Performance students as they were required to reflect on, analyze and write about the performances of professional performers. The ePortfolio tool provided a direct medium for web access for students' own analysis and for access by a teacher who was to mark the task. The reflective task required students to write an essay for which they selected a video (from YouTube, for example) with specific performance criteria given to analyze, examine and discuss. In addition, the students wrote two reviews of in-house concerts featuring performers from outside UWS; focusing on specific performance criteria. These 'e-written' tasks were made accessible to peers and staff through the use of an ePortfolio tool, making it an inter-active platform for collaboration and multi-media use.

Although portfolio use has traditionally been less common in other areas of the Arts, ePortfolio use is now being adopted in the fields of music, dance and drama. A study carried out by Upitis, Abrami, Brook, Troop and Catalana (2010) investigated the use of the ePortfolio, ePEARL, as a means of closing the gap between learning to play the piano in a studio context and other forms of music making. ePEARL, the core of a suite of learning tools called "The Learning Toolkit", was developed as a bilingual (English/French) web-based, student-centered electronic portfolio. It focused on the development of self-regulation by offering three cyclical phases that include both metacognitive and motivational components (Meyer, Abrami, Wade, Aslan & Deault, 2010). In this study ePEARL was used by young beginner pianists in studio settings to personalize portfolios, set both general and task-specific goals, create new work, reflect, edit and share work and to respond to feedback from teachers, peers and parents. To enhance lessons, teachers used ePEARL to communicate and set expectations, as well as to contribute teacher-recorded demonstrations. Students created artefacts that included the recording of a section of a piece being studied, along with goals, strategies, motivation and difficulties. They were encouraged to incorporate a broad variety of musical interests. Findings evidenced students developing skills suiting and challenging musical tastes and interests in an enriched learning environment, which in turn fed their interests in music. ePEARL allowed the students to find relationships, patterns and themes in content by interacting and supporting one another, as well as receiving support from the teacher and parents. The authors concluded that the most promising aspect of ePEARL use to support music learning was its potential as a tool to allow a community of learners to form around their shared musical interests. Given the complex nature of careers across the creative sectors, the development of employability skills is a high priority for both students and staff. Graduates from the creative arts transition to a complex work environment, featuring multiple concurrent roles and a continuous cycle of work and learning. As individual students in creative and performing arts have different needs and expectations of their future, an ePortfolio is a way to assist students to reflect on their present and dream about their future (Rowley & Bennett, 2013).

Image 2 *(Rowley sharepoint)*

Conclusion

Through exploring each of the four institution's uses of ePortfolios, we conclude our discussion of ePortfolios by outlining aspects of their use that point towards an increased integration into tertiary music and creative arts learning contexts. The outcome of ePortfolio introduction has shown that ePortfolios allowed students to achieve a demonstration of artistic capabilities in performance, music technology, composition and writing. It appears from the investigations that the students have increased their ability to plan, implement and assess their learning reflectively and to understand documentation relevant to Arts careers. Students have developed a greater competency in their educational beliefs, pedagogical skills, university generic attributes, technological expertise and ability to address employment parameters required by employer groups and professional bodies.

The ePortfolio is a valuable tool to document students' learning journey as creative and performing artists and to use this for future employment as graduate Arts students.

The literature and case study descriptions from each of the four institutions involved in the project demonstrate that there is an overall agreed intention to utilize ePortfolios with students working in music and the creative arts. The ways in which ePortfolios are implemented, their usefulness, and ways they are conceptualized are beneficial to students in many ways, although the approach differs at each institution. Within individual subjects, ePortfolios tend to be a tool for assessment; for encouraging student interactions and/or for collation of small, discrete tasks through which achievement of the objectives of a subject can be demonstrated from a student perspective. Used as capstone artefacts, they have other implications - they provide a longitudinal view of a student's learning over their degree program in a scaffolded way that encourages the student's interpretation of their learning as incremental. The ePortfolio outcomes in this project show that the process of developing electronic portfolios promoted a technology-enriched environment for Arts students to cultivate their identity, learning and knowledge. It can be shown that exploring real world experiences through the ePortfolio allows Arts students to engage with technology in a way that enhances learning and strengthens their creative identity. Through exploring the Arts students' own identity provides students with options, opportunities and a space to continue their learning in a reflective way. A dream can be a reflection and the ePortfolio is a powerful reflective tool, particularly given that the real world of professional practice is often a long way from the work in which creative arts students will engage once they have graduated (Bennett, 2012).

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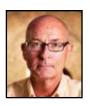
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