ePortfolios as evidence of standards and outcomes in work-integrated learning

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Electronic portfolios (ePortfolios) are a student focused tool which support and evidence work-integrated learning (WIL) experiences and capabilities in a tertiary education setting. Such settings are increasingly faced by a regulatory framework requiring evidence of student competency and skill acquisition. The commitment of educational institutions to integrate WIL in programs of study has driven the development of electronic portfolios using various platforms. This paper will discuss how the ePortfolio has evolved in response to the WIL agenda and its potential to capture authentic assessment and evidence competencies far beyond the traditional academic transcript. The value of an electronic repository of artefacts for students in the transition from institution to employment is highlighted, and the potential benefits of employers' involvement in the future direction of ePortfolios are discussed. A case study approach is employed to articulate the possibilities and challenges of achieving institutional acceptance, support and implementation of ePortfolios. *(Asia-Pacific Journal of Cooperative Education, Special Issue, 2014, 15(3), 269-280)*

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Electronic portfolios (ePortfolios) are gaining increased attention as a mechanism for students to collate and showcase artifacts which provide evidence of skills and attributes acquired through curricula and extra-curricular experiences (Herring & Notar, 2011). Furthermore, as universities transition into a standards-based, regulatory framework, the need to demonstrate student outcomes will become increasingly important as an accountability measure for employers and other stakeholders (Department Education, Employment and Workplace Relations, 2011). While work-integrated learning (WIL) is acknowledged as a strategy for integrating theory within a practice-based context, assessing WIL presents multiple challenges given its multi-dimensional and complex nature (Knight & Yorke, 2004). Developing workplace proficiency is dependent on a range of variables which include the nature of the work environment; personal self-efficacy; and individual skill sets. Arguably, evidencing the acquisition of workplace skills compounds the complexity given the traditional assessment protocols in universities which do not auger well for judging variable student outcomes (Hodges, 2011).

VALUE OF EPORTFOLIOS

Technology is having a profound effect on all facets of society and functions of everyday life. Arguably, the digital era is having the greatest impact on education where it is challenging traditional teaching and learning practices and approaches (Williams, 2011). Higher education institutions have an obligation to prepare students with lifelong learning skills and

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the global economy. Proficiency with technology clearly sits within the realm of skills necessary to be a functional and contributing member of society. The ePortfolio is instrumental to achieving this vision.

There are multiple benefits of using an ePortfolio to showcase artefacts which validate student learning outcomes in a WIL context (Voigt, 2009). Firstly, they provide incremental evidence through-out a degree program of different developmental phases and individual growth thereby demonstrating student work-readiness. The ePortfolio is an interactive platform that enables students to recognize personal strengths in skill acquisition and identify gaps in their development. The ePortfolio provides a visual record of progressive improvement and achievement of employability capabilities emerging from WIL experiences (Simmons & Williams, 2012).

In addition, there is potential for employers to benefit from student ePortfolios as they provide a ready source of evidence to ascertain the suitability of the student's skill set for prospective recruitment opportunities. For the vast majority of students, tertiary education is a path to gaining meaningful employment in a chosen profession (Halstead & Wheeler, 2009). The use of ePortfolios supports this aspiration by providing a rich source of information for potential employers and professional organizations. WIL pedagogy provides an important avenue for transition to the workplace for graduates. The ePortfolio complements this experiential approach to student learning by collating electronic evidence that demonstrates the complexity and diverse dimensions of graduate capabilities. Such an approach augments and consolidates students' proficiencies through providing a holistic portrayal of their competencies.

According to Race and Pickford (2007) assessment is considered the heart of higher education, driving student learning and engagement. Furthermore, Hersh (2007) claims that designing, executing and marking assessments comprises the majority of the teaching academic's workload and is a fundamental component of a quality student experience and institutional accountability. According to Edwards and Burnham (2009) ePortfolios provide a 'far richer, far more compelling picture of who we are and what we do' (p 89), and may, in part, address some of the concerns associated with assessment. The ePortfolio provides authentic assessment useful in both formative and summative assessment contexts and is an ideal tool for self-assessment (Knight & Yorke, 2004) with the potential to empower students to drive their personal learning journey. Given the highly contextual, individualized nature, and unpredictable outcomes of WIL assessments, ePortfolios potentially provide a viable solution for the problematic nature of assessing WIL.

DEFINITION

While there is no one accepted definition for an ePortfolio (also variously known as electronic portfolios, webfolios, or e-portfolios) there are some generally agreed upon characteristics. Beetham (2006) listed six such characteristics including: a collection of digital resources; providing evidence of an individual's progress and achievements, from formal

and informal learning activities; personally managed; used for review, reflection and personal development; and can be accessed by other interested parties. Sutherland and Powell (2007) state ePortfolios are a "purposeful aggregation of digital items . . . with evidence of a person's learning and/or ability" (para. 2). Typically an ePortfolio utilizes a software product that assists in the organization and display of these digital artifacts that may include examples of university assessment tasks, evidence of non-university achievements, reflective pieces, and showcase items using a variety of formats including graphics, text, video, and sound bites.

EPORTFOLIOS IN THE HIGHER EDUCATION CONTEXT

The ePortfolio has emerged within the Australian and global higher education contexts. The higher education sector is characterized by a number of key elements which includes the growing focus on WIL as an initiative for facilitating work-ready graduates who contribute to a productive and robust economy. It is well recognized that student learning and competency attainment is not restricted to the university classroom or solely evidenced by traditionally assessable tasks of a degree program (Johnsons, Beckerm, Estrada, & Freeman, 2014). The NMC Horizon Report (Johnsons et al., 2014) attests that society is becoming increasingly mobile requiring students to be responsive, agile and creative in their pursuits. It is paramount that a university education promotes life-long and life-broad learning in response to societal demands (Chen, 2009). Such characteristics are rarely captured in traditional academic transcripts, instead requiring artefacts that evidence critical thinking and problem solving.

Increasingly, graduates are globally mobile, requiring competency demonstration that is similarly mobile and speaks to an international audience. A recent report indicates that 12% of undergraduate students in Australia had an international mobility experience during their study program (International Education Advisory Council, 2012). ePortfolios are ideal platforms for managing and administering assessment; providing robust and timely feedback to students; and maintaining regular and constructive communications when students are dispersed throughout the world during the course of their studies.

An increasing number of professions recognize university entrance pathways and have established clear competency frameworks for both initial and ongoing professional registration. Some of these professional bodies have opted for an ePortfolio to provide evidence for the demonstration of such competencies. An example of this is the accreditation requirements mandated by the Australian Nursing Board (Andre, 2010) which includes the compilation of student artefacts using an ePortfolio platform.

Employers have increasingly expressed a desire for potential employees to demonstrate generic skills commonly referred to as 'soft skills' such as communication, critical thinking and team work. These attributes are perceived as vital skills and complementary to professional knowledge and expertise (Jackson & Chapman, 2012; Mitchell, Skinner, & White, 2010). Such skills are rarely overtly captured in academic transcripts nor are their

acquisition restricted to the classroom environment or traditional assessment tasks (Knight & Yorke, 2003). The ePortfolio is an ideal tool for the provision of multiple points of evidence that exhibit generic attributes.

Skill enhancement and achievement is progressed through extra-curricular activities in which students participate. While not a formal component of the degree requirements, the learning can be equally rich and constructively build on curriculum content. The ePortfolio is a ready source of evidence of accomplishments related to both curricula and extra-curricular activities. Furthermore, it has the potential to present the evidence in a connected and integrated way, thereby providing an overarching view of a student's skill set. This is a particularly pertinent capacity in a competitive employment market where employers are increasingly seeking evidence of community engagement during recruitment.

AUTHENTIC ASSESSMENT

Definitions of authentic assessment generally have a common understanding that at its core is the integration of theory and practice where assessment tasks are designed to reflect real-world scenarios (Shavelson, Klein, & Benjamin, 2009). Wiggins (1993) expressed this as "Engaging and worthy problems or questions of importance, in which students must use knowledge to fashion performances effectively and creatively". The tasks are either replicas of, or analogous to, the kinds of problems faced by adult citizens and consumers or professionals in the field" (Wiggins, 1993, p. 229). Mueller (2012) describes this more simply as a form of assessment in which students are asked to perform real-world tasks that demonstrate meaningful application of essential knowledge and skills.

It is almost two decades since the term authentic assessment first emerged and debate on both refining the definition and its practical implementation continue. Wiggins has more recently proposed that `authenticity' refers to the realism of the setting such that assessment should simulate professional doing, not just demonstrating knowledge (Wiggins, 2011). This builds on earlier work by Stiggins (1987) in discussing "performance assessments (which) call upon the examinee to demonstrate specific skills and competencies, that is, to apply the skills and knowledge they have mastered." (Stiggins, 1987, p. 34).

'Wicked' problems first defined by Horst and Webber (1973) and applied to social planning referred to complex, interdependent issues with no simple solutions. Wicked problems informed the concept of 'wicked competencies', those competencies that encompass the so called 'soft' skills such as creativity, critical thinking and initiative representing complex achievements (Knight & Yorke, 2003). Much of WIL seeks to explore and evidence such real-world complexity.

'Wicked' competencies by definition are hard to measure or quantify which tends to result in the use of easily administered assessment frameworks (Knight & Yorke, 2003). These authors attest that while these competencies are often judged, appraised and evaluated, this does not translate into more objective measurement tools. Authentic assessment, performance

assessment, and wicked competencies are important concepts to support assessment that strives to capture the essence of WIL.

The ePortfolio has the potential to provide for a less traditional approach to assessment and capture assessment outcomes and competencies that are personalized and unpredictable. Authentic assessment is pivotal to a broader WIL-based curriculum with the capacity to evidence soft or 'wicked' competencies. This is frequently considered as being in opposition to traditional approaches to assessment although this should be seen as a continuum rather than a strict binary opposition (Mueller, 2012). Drawing on the work of Mueller the key elements of these two approaches are summarized in Table 1.

TABLE 1. Comparing traditional and authentic assessment types

Traditional	**Authentic**
Selecting a response	Performing a task
Contrived	Real-life
Recall/recognition	Construction/application
Teacher-structured	Student-structured
Indirect evidence	Direct evidence
Convergent assessment	Divergent

Adapted from Mueller (2012).

Traditional assessment as outlined above is likely to result in a more passive teacher directed student learning experience. Authentic assessment requires more active participation by the student in a student directed learning experience that is more likely to reflect a real-world scenario.

While ePortfolios provide a platform to capture a student's learning experience in an authentic way, recognizing a broad based WIL agenda requires a move from traditional assessment. This paradigm shift in assessment is not without tensions. These tensions in part arise through such factors as the multiplicity of audience and purpose (Wilhelm et al., 2006). Table 2 highlights some of these tensions.

The tensions highlighted in Table 2 may not always be present, however, they present challenges for teaching staff who may be discouraged from exploring authentic assessment opportunities such as those which use an ePortfolios. The tensions and challenges in the use of ePortfolios for assessable tasks are well documented. Shavelson et al (2009) listed the last three items in Table 2 as being prominent challenges in the assessment of ePortfolios. They encourage an individual, student directed, evidence-based endeavor and as such represent a range of experiences and broad learning not restricted to the confines of traditional teaching modes. Shavelson et al (2009) argue that this individuality results in a lack of

standardization of student productions making cohort comparison, traditionally achieved through standardized assessment tasks such as an exam, more challenging.

TABLE 2. Tensions of using an ePortfolio for student assessment

Developmental space	⟷	For evidence of achievement/showcase space
Reflective, private space	⟷	Public showcase space
Individually constructed site	⟷	Site architecture defined by institution
For specific employer viewing	⟷	Open for any potential employers
Use to write job applications	⟷	For defined university assessment tasks
Proscriptive, structured format	⟷	Creative and individual interpretation of use
Tailored specifically to assist with a job application process	⟷	More broadly capturing reflection/developmental /assessment work
For a known and identified and invited audience	⟷	For an unidentified and unknown audience
Student engagement driven by assessable tasks	⟷	Student self-directed use
Capturing authentic assessment	⟷	Being used for more traditional assessment
Accommodation of cultural difference and cultural response to portfolio	⟷	Little scope for cultural difference
Allows for demonstration of IT competency and creativity	⟷	Content driven
Lack of standardization of assessment	⟷	Very standardized assessment
For large-scale class cohorts	⟷	More individual, student centered approach
Viewer bias e.g., like the 'look' of the portfolio over content	⟷	Marking for content only

Shavelson et al (2009) go on to discuss the challenges of assessing the complexities of diverse artifacts that comprise an ePortfolio. The sheer size of some ePortfolios make them time consuming and unrealistic to assess for large class groups. Ideally students are given freedom to construct and present ePortfolios in an individualized manner with design, photo and content decisions made by the student. It is unrealistic to expect assessors to be totally unbiased when viewing and assessing these elements. In contrast, traditional marking encompasses content as the primary objective to be examined. In concluding, Shavelson et al state that these features may render the ePortfolio inappropriate in a tertiary education setting. The intention of ePortfolios in an educational setting is that they encompass student directed learning which engages students to autonomously reflect, learn, and evidence competencies. However, in reality the ePortfolio, like much of tertiary learning, is driven by assessable tasks and traditional approaches in higher education settings. Student use of ePortfolios is predominantly driven by assessable tasks required for credit rather than

student initiated independent work (Woodley & Sims, 2011). Sustaining and maintaining independent student engagement is a key challenge for implementing ePortfolios as a repository for evidencing authentic assessment outcomes (Shepherd & Skrabut, 2011).

THE CURTIN EXPERIENCE OF EPORTFOLIOS

Curtin University's experience in developing and implementing a bespoke university-wide ePortfolio system called iPortfolio, are well documented (Oliver, 2010; Oliver, von Konsky, Jones, Ferns, & Tucker, 2009; Oliver & Whelan, 2011; von Konsky & Oliver, 2012). In short Curtin University's ePortfolio was developed in-house and piloted in 2009. The ePortfolio system was introduced to the University community in February 2010. Initial enthusiasm resulted in buy-in of some teaching staff who perceived its value in establishing evidence of learning achievement for both students and staff. Support was provided to encourage widespread adoption which saw it embedded into some teaching and learning practices, notably within the common first year of the health science faculty curriculum. The ePortfolio was viewed by institutional leaders as a mechanism for responding to a changing tertiary educational environment where lifelong and life-broad learning were valued; students should be active participants in their own learning and not restricted to classroom-based activities; the integration of WIL activities were desirable; and that innovative ways of evidencing competencies was essential. The ePortfolio emerged as the Tertiary Education Quality and Standards Agency (TEQSA) was established which specified institutional requirements for evidencing learning.

Initially the system was built on several premises, notably that all students would develop an ePortfolio and they would recognize the benefits of ePortfolios as a mechanism for supporting reflective practice with the ultimate aim of facilitating transition to employment. It was anticipated that the inception of an ePortfolio would be embraced by students, staff and alumni of the university and expand through a committed core of teaching and learning champions as part of teaching innovation underpinned by evidence. Curtin's ePortfolio was perceived as a valuable tool for all stakeholders including employers who had the potential to access evidence of student proficiency relevant to the profession

Curtin's Graduate Attributes were supported by a specialist 'my rating' tab in the ePortfolio where students rated their level of expertise against each attribute. Through identifying when and how they were addressing the Graduate Attributes, familiarity with the generic skills improved and students developed expertise in determining what constituted evidence of skill acquisition and where they needed to focus their energies for capacity building.

While there were many successes with the use of the ePortfolio at both an individual teacher level (Bathgate, Harris, Comfort, & Oliver, 2011), and at an individual student level (Almberg, Comfort, Harris, & Oliver, 2011; Bathgate et al., 2011), from a University-wide perspective the success was more limited. The reality of the implementation of the ePortfolio system indicates that several of the initial premises were not realized. There were significant shifts within the University setting resulting from internal and national drivers that impacted

on the success of implementation. The barriers that emerged can be considered under the following seven broad categories: approaches to assessment; ePortfolio post-graduation; rethinking assessment; staff professional development; technical support infrastructure; graduate attributes; and impact of internal and external changes to the educational environment. Each of these will now be discussed.

Approaches to Assessment

Student and staff use of the ePortfolio was driven by compulsory assessment tasks that incorporated mandatory use of the ePortfolio. However, assessment tasks were not always well integrated across a subject or a degree program and hence were often conceived as an add-on to traditional teaching and assessment approaches and perceived as an isolated occurrence rather than a continuum of skill acquisition. A minority of students recognized the transferability of the ePortfolio to support transition to employment, however, this was not explicitly communicated to students. Consequently, students were unaware of the long term benefits of the ePortfolio which ultimately demotivated engagement with the platform.

The ePortfolio Post-Graduation

Many students expressed concern about the applicability of the ePortfolio after completion of their studies. Despite the system being designed to allow students access to their ePortfolio post-graduation, other contemporary portfolio products were considered to have broader buy-in and applicability in a global context. Products such as LinkedIn (http://au.linkedin.com/) were perceived as being more useful, accessible, and conducive to establishing and maintaining professional networks as graduate employees.

Rethinking Assessment

The lack of a university-wide pedagogy that supported embedding the ePortfolio within the broader teaching and learning agenda, impacted negatively on the level of uptake. Successful implementation of ePortfolios requires a rethinking of assessment profiles and approaches. The ePortfolio platform needs to be embedded across a degree program with a developmental approach to learning where experiences are scaffolded across the curriculum. Students need to be actively engaged in performance-based tasks where feedback is frequent and constructive. While the University promotes an outcomes focused approach to teaching and learning, many teaching staff were ill-equipped to make the transition from traditional assessment methods to creating and assessing artefacts in an ePortfolio.

Staff Professional Development

Integral to successful and sustainable implementation of an ePortfolio system are teaching practices that embrace educational philosophies that underpin WIL pedagogy. While designing a WIL curriculum is a key feature of authentic learning experiences, the manner with which that curriculum is enacted is central to the connectedness and relevance of the

learning. During the initial ePortfolio implementation phase, it emerged that many teaching staff were unfamiliar with the concept of WIL and how it translates into curriculum and integrates with the student experience. Ideally, the roll out of the ePortfolio should be coupled with a well-executed professional development program that supports staff in integrating the ePortfolio across the curriculum in a holistic and relevant manner. With both external and internal agendas promoting advancement of the WIL agenda, it is timely to release a contemporary version of the ePortfolio supported by simultaneous WIL professional development for teaching staff.

Technical Support Infrastructure

The initial ePortfolio project was driven by a partnership between Curtin teaching and learning staff and the Information Technology department who were instrumental in the final product design. While enthusiasm was evident, the capacity and features of iPortfolio were not based on a robust pedagogical understanding. Some identified technical inadequacies were not easily remedied resulting in user dissatisfaction. For example, the system was unable to deliver sufficient capacity to a large first year cohort; was not integrated for use with the learning management system leading to academic staff frustrations; and technical limitations meant that uploading of video content was problematic. Being an in-house product, maintenance and trouble-shooting was the responsibility of the University IT department. However, the capacity to manage the considerable workload was not factored into resourcing requirements. Such shortfalls hampered the user experience of both students and staff, culminating in reputational damage.

Graduate Attributes

Curtin Graduate Attributes define student, staff and employer expectations of graduate capabilities. As such they cover both discipline specific content and soft or 'wicked' competencies and are an imperative component of the ePortfolio system and the WIL agenda. They allow for evidence of achievement from both within the classroom and beyond – the lifelong, life-broad aspects of the student experience and student learning. In the evaluation of the ePortfolio implementation, it emerged that some curricula were ineffective in articulating graduate capabilities in outcomes and assessment and failed to recognize the nature of adequate evidence to substantiate achievement of outcomes. Assessment tasks tended to address individual subject requirements rather than a whole of degree perspective, resulting in disconnected and poorly integrated assessment profiles. Typically a strength of an ePortfolio and certainly a prerequisite for authentic learning, is the validation of a continuum of the development of generic skills.

Impact of Internal and External Changes to the Educational Environment

The higher education sector is in the midst of relentless and profound change (Thomas, 2012). While change presents both opportunities and challenges, the impact on institutions is

significant. Institutions respond to external demands by restructuring key organizational areas; reshaping teams to address priorities; reallocating staff resources; and refocussing strategic directions. These major institutional adaptations geared to meet external requirements frequently impact on the continuity and viability of initiatives. As a result of reshaping university departments, some dedicated staff were reallocated to other tasks which caused gaps in service delivery. It was imperative that support staff and technical champions remained stable for continuity of service and valuable corporate knowledge.

CONCLUSION

While ePortfolios have been used in the tertiary education sector for many decades, their uptake in Australia has not been universal nor has it been without challenges. The case of Curtin University illustrates how a desire to evidence students' acquisition of Graduate Capabilities and an increasing emphasis on WIL across all teaching areas resulted in the design, development and implementation of a custom built ePortfolio system. The outcomes from this visionary initiative have been mixed with success and abundant challenges. This large scale project highlighted several approaches pertinent to successful implementation of an institutional-wide ePortfolio system requiring further investigation, discussion, development, resourcing and support.

There is substantial evidence that ePortfolios provide an ideal platform to evidence program-wide WIL achievements (Edwards & Burnham, 2009). It provides a setting for students to clearly demonstrate that they not only 'know' discipline content but that they can 'do' by applying the knowledge in a professional context. This opens up authentic assessment task options in preference to traditional assessment methodologies thus providing rich contextual demonstrations outside the limitations of customary assessment paradigms. Employers have expressed interest in this mode of assessment (Cai, 2012) as they have more confidence in the overt demonstration of the achievement of authentic learning experiences which transcend the classroom environment.

While there is clearly a synergy between the use of ePortfolios and WIL, there are potential challenges which need to be addressed at an institutional level. First and foremost the university community must appreciate and support the relevance and philosophical foundations for this shift from knowledge recall to evidencing of achievement that aligns with real-world scenarios. Universities need to support WIL practitioners to acquire the skills required to incorporate WIL into the student experience and scaffold skill development across curriculum. Professional support and adequate resourcing are integral to instilling a cultural shift that supports pedagogical approaches for embracing WIL as a student engagement strategy. Graduate capabilities aligned to experiential learning outcomes evidenced by authentic assessment are indicative of curricula that enhance global employability. Traditional assessment profiles are inadequate for assessing experiential learning and workplace proficiency. Teaching staff need encouragement to explore new approaches where assessment reflects the real-world and has relevance for an emerging

professional. Resources in the form of both funding and expertise are critical for promoting the use of the ePortfolio. Sustained and innovative leadership is necessary for successful development, implementation and evaluation of an ePortfolio platform where there is institutional-wide uptake culminating in substantial benefits for students, staff and employers.

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Typically, authors receive the reviewers' comments about a month after the submission of the manuscript. The Journal uses a constructive process for review and preparation of the manuscript, and encourages its reviewers to give supportive and extensive feedback on the requirements for improving the manuscript as well as guidance on how to make the amendments.

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Types of manuscripts the Journal accepts are primarily of two forms; *research reports* describing research into aspects of Cooperative Education and Work Integrated Learning/Education, and *topical discussion* articles that review relevant literature and give critical explorative discussion around a topical issue.

The Journal does also accept *best practice* papers but only if it present a unique or innovative practice of a Co-op/WIL program that is likely to be of interest to the broader Co-op/WIL community. The Journal also accepts a limited number of *Book Reviews* of relevant and recently published books.

Research reports should contain; an introduction that describes relevant literature and sets the context of the inquiry, a description and justification for the methodology employed, a description of the research findings-tabulated as appropriate, a discussion of the importance of the findings including their significance for practitioners, and a conclusion preferably incorporating suggestions for further research.

Topical discussion articles should contain a clear statement of the topic or issue under discussion, reference to relevant literature, critical discussion of the importance of the issues, and implications for other researchers and practitioners.

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