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What do I know how to do? Piloting the 'Student ePortfolio' as a reflective learning tool in the Bachelor of Regional Resource Management course

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The Bachelor of Regional Resource Management at the University of Tasmania, Cradle Coast campus, is an interdisciplinary course with a practical focus on building leadership in regional contexts. In 2008, 'Student ePortfolio' software was piloted in both a first and a second-year unit, in order to assist students to make the link between experiences and developing skills, both in the classroom and in workplace projects. The pilot emerged from a reflective process with students at the end of their second year in 2007 in which they indicated that they were struggling to articulate "What do I know how to do?" as a result of their classroom and workplace experiences. The results of the two pilots suggest that the ePortfolio tool can help students log their experiences and reflect on the specific skills developed as a result, thus making a more explicit link between experiences and learning over time. At the same time, the complex nature of interdisciplinary and applied learning, particularly in workplace contexts, suggests a need for greater flexibility in the portfolio tool, as well as potentially a more structured and directed reflective process.

Keywords: workplace learning, e-portfolio

Introduction

Moore (2005, p. 5) states that, "Regional universities can, and should, play a major role in the development of a region", and that "Regional universities succeed best where there is a strong positive engagement between the university and the regional community". These statements reflect a larger scholarly and policy interest in the role that universities can play in the social and economic development of their regions (see e.g., Garlick 1998, 2000; Charles, 2006, 2007; Allison & Eversole, 2008). As an attempt to strengthen the connection between university and region, and generate regional development outcomes, the Cradle Coast campus of the University of Tasmania developed and implemented a 'Bachelor of Regional Resource Management' course. The course was developed out of consultations with local government and industry leaders in North West Tasmania (Moore, 2005), and it was the first undergraduate course to be offered entirely at the Cradle Coast campus. Since 2006, the course has been coordinated and delivered through the North-West-based Institute for Regional Development, and auspiced by the University of Tasmania (UTAS) Faculty of Science, Engineering and Technology.

The Bachelor of Regional Resource Management course has an unwieldy name and an ambitious goal: to produce graduates who are both good, critical, interdisciplinary thinkers and who are capable managers, leaders, and problem-solvers in the workforce. Jacobs (1989, p. 8) describes *interdisciplinary* as "…a knowledge view and curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic, or experience". In the Bachelor of Regional Resource Management course, the central theme is the management

of all kinds of resources (e.g., natural, human, built, social, cultural) in the spatial and cultural context of *regions*[1].

Such an interdisciplinary and applied focus is still very new space for a university course. Even with the growing emphasis on generic graduate attributes such as critical thinking, increased interest in interdisciplinary research, and initial forays into a North-American-style "liberal arts" model (University of Melbourne, 2005), most university programs in Australia are still structured around the demands of a particular discipline. This course, by contrast, seeks to develop critical thinking skills that are not dependent on a single disciplinary framework, but rather, are able to be address real-world situations where the knowledge required crosses disciplinary boundaries, and in the recognition that the meeting-points of different kinds of knowledge can spark innovation (Amin & Cohendet, 2004). The course is intended to help students develop critical thinking skills in Paul and Elder's (2001, p.4) sense of critical thinking as, "…self-directed, self-disciplined, self-monitored, and self-corrective thinking", that crosses traditional boundaries and translates into real-world workplaces.

There is a disconnect, often still unrecognised, between university knowledge and workplace knowledge, university communication skills and workplace communication skills, problem solving approaches within an academic framework and problem solving approaches that must factor in political, organisational, and inter-personal considerations too. Pursuing graduate attributes is important, but translation is often necessary. Most people could probably think of a story, from their experience or someone else's, of a university graduate struggling in the workplace because they lacked some basic skill: the engineering graduate faced with a desk full of incomprehensible plans (no one had ever taught him how to read them); the development researcher trying to write a consultancy tender (what language is this, anyway?), the community development practitioner in government who has to balance community aspirations with political agendas, the architect who designed a building with no fresh air. All true stories.

Positioning itself as a course in the region, for the region, and with a regional development focus, the Bachelor of Regional Resource Management attempts to overcome this disconnect between the knowledge and skills learned in the university classroom, and those that are needed, and most often learned, in the workplace. At the most basic level, therefore, this course reflects a wider interest in the ideas of "applied learning" and "workplace learning". Many tertiary courses now require students to go out into the workplace for a period of time on placement, recognising that learning "in organisations" and "through practice" contribute greatly to students' future competencies (see e.g., Boud & Garrick, 1999, p. 5-6). The Bachelor of Regional Resource Management course has integrated this workplace focus with a work placement unit, and applied industry projects, but it has also gone further. It has aimed to be both *interdisciplinary* – unlike the professionally focused courses that have historically embraced the workplace focus – and *demand-driven*, designed in response to demands from regional employers for graduates who were knowledgeable, practical problem-solvers (Moore, 2005).

Importantly, the small team that delivers the Bachelor of Regional Resource Management course has also attempted to understand and respond to demand from the students: what

[1] Core units are in the interdisciplinary field of Regional Science, and other units are drawn in from management, sociology, agriculture, economics and other fields.

they want to learn and how they want to learn. Overwhelmingly, students have indicated that they want to learn skills and knowledge that will help them navigate in and succeed in real-life workplaces and communities.

This paper describes one way in which the Bachelor of Regional Resource Management Course has attempted to hear and respond to student demand, focusing specifically on two units: the second year Workplace Internship, and the first year Introduction to Regional Science 1B unit. In Semester 1, 2008, in collaboration with UTAS Career Development and Employment Services, "Student ePortfolio" software was piloted, via the CareerHub interface, with a small group of second-year Workplace Internship students in the interdisciplinary Bachelor of Regional Resource Management course. The ePortfolio software was used to help students reflect on their experiences conducting applied projects in regional workplace settings and the skills they were learning as a result. In Semester 2, as this paper is being written, the same software is being trialled with first-year students in their applied Introduction to Regional Science 1B course, to reflect on their progress as they practice regional resource management skills in the classroom. This paper presents the processes and findings to date.

Why ePortfolio? Linking the classroom and the workplace

With reference to the role of technology in learning, Lang, Divaharan, and Wong (2003, p.3), state that, "Technologies are… used to provide platforms for conversing, representing and reflecting the learners' learning, beliefs and perspectives." For the University of Tasmania, the initial proposal to trial ePortfolios (University of Tasmania, 2006) focused on these processes as they pertain to the university's generic graduate attributes. The goal was to use electronic portfolios to "facilitate student needs in relation to recognition, acquisition, recording and assessment of UTas Generic Graduate Attributes" (University of Tasmania, 2006, p.1).

Lecturers in the Bachelor of Regional Resource Management course, in turn, saw ePortfolio software as offering a potentially important means of tracking students' learning across a set of broad, interdisciplinary skills that sat at the heart of the degree, and which were seen as key to become effective 'regional resource managers'. Though these were more specific than the UTAS Generic Graduate Attributes, like them they cross disciplinary boundaries, develop over time, and may require a certain amount of self-reflection to be aware of their presence and development. Given that students had articulated some specific concerns to the lecturers about their learning process, lecturers in the course also saw the ePortfolio as having potential to "facilitate student needs" in relation to recognising and articulating the skills that they were learning in the course.

As a result, in 2008, the ePortfolio tool was piloted in two units of the Bachelor of Regional Resource Management: the first-year Introduction to Regional Science 1B, and the second-year Workplace Internship unit. The choice of units was intentional, as there is a strong connection between them. Introduction to Regional Science 1B is structured around a set of applied Regional Science tools, building on analytical techniques learned in Regional Science 1A; these tools are then applied to a number of case studies, problems and issues, including a "wicked problem" (a piece of problem-based learning). Case

studies[2] are drawn largely from the Cradle Coast region of Tasmania to illustrate how Regional Science approaches inform policy development and practice in a real world context. Students then take these tools and techniques and practice them in their Workplace Internship in the following year. The Workplace Internship moves applied and problem-based learning from the classroom into a real workplace setting: including local government, state government, private businesses and non-profit organisations. The unit is structured around discrete projects, as determined by employer demand and student interest. The Workplace Internship is, in turn, a preface to the third year Industry Project A and B units where students conduct a year-long project in a regional industry of their choice.

In 2006, the first-ever cohort of, mostly mature-age, Bachelor of Regional Resource Management students from North-West Tasmania studied Introduction to Regional Science 1B. The following year, these students did their Workplace Internship projects. In this process, students gained confidence, practiced skills and produced, in some cases, quite impressive projects for regional workplaces. Importantly for the Institute for Regional Development's reputation and the credibility of the Bachelor of Regional Resource Management in the North-West region, employers were pleased with the students' efforts and outcomes, and communicated this in their evaluations and in their personal communications with the Unit Coordinator. As a group of students stated in an end-of-year public presentation, the Workplace Internship experience had been about "Assisting business, government and the community to find solutions and develop opportunities that will produce real benefits". Students were able to give a series of examples of how they had done so, employing their research and communications skills in real workplace projects.

Nevertheless, from a Teaching and Learning perspective, there was still a concern. The workplace projects were intended to give students the opportunity to 'practice' skills that they had learned in their first year of study, particularly in the applied Introduction to Regional Science 1B unit. The formal unit evaluation (Student Evaluation of Teaching and Learning - SETL) results for Workplace Internship, though positive, could not answer the deeper question: how effective was the current course structure at building skills across units, from the first year into the second year? Was the Workplace Internship unit fulfilling its intended role of helping students bridge the divide between theory and practice, and between the classroom and the workplace, early in their university career, as articulated in learning outcomes such as
"learning to bridge theory and practice"?

In an attempt to answer this question, at the end of 2007, students who had completed the Workplace Internship unit were invited to participate in an open discussion forum with the Unit Coordinators for both Introduction to Regional Science 1B and the Workplace Internship units. The goal was for students to discuss and evaluate the effectiveness of the Workplace Internship unit as a learning experience, and to explore the links between the skills required in the workplace projects, and the skills learned in the Bachelor of Regional Resource Management course, particularly in Introduction to Regional Science 1B.

[2] Case studies include community economic development projects, strategic policy development for regional communities, community engagement projects and so forth.

Not surprisingly, students identified a disjuncture between the skills learned in the classroom and the skills needed in the workplace. More surprisingly, this went in two directions. In some cases, students saw they *lacked* key skills: some skills that were needed in the workplace projects and had not been taught or not taught explicitly enough. These skills (e.g., preparing project proposals, understanding political processes, and generating assessments and recommendations in the workplace) needed to find their way more explicitly into the curriculum. In other cases, students had the key skills but were not necessarily *aware* that they had them. Students went into the workplace, delivered the project, and came out of the process confused. Sure, they had done what was expected, but what had they learned? Often, they had mobilised skills (e.g., stakeholder analysis, communication, critical analysis, and their tacit knowledge as residents in the region) without being aware that they had done so. They did not necessarily see the value in their work or the skills they were bringing to it. The teaching challenge was to help these students recognise and articulate the skills they have.

The first set of observations challenged the Unit Coordinators to think, not just about the academically framed learning outcomes for the Workplace Internship unit (e.g., "ability to function effectively in a workplace environment", and "ability to link theory and practice"), but about the specific *skills* that the Unit Coordinators aimed for the students to develop across these two units. But what were these skills exactly? They weren't listed anywhere. The practical tools in Introduction to Regional Science 1B were called things like "Project Management" and "Asset Mapping"; but also things like "Community Development" and "Population and People". Students, not surprisingly, identified that they were having difficulty naming the skills they were learning, as some lessons taught clear "tools" for the workplace while others taught "concepts" that were, at times, vague in their real-world application.

Student reflections from the discussion forum gave the Unit Coordinators some valuable insights about the skills that students felt they most needed in order to successfully conduct workplace projects. Drawing on these reflections in the larger context of workplace evaluations, lecturer observations, and the overall background and goals of the course, the Unit Coordinators collectively developed a 'Regional Resource Management Toolbox' that grouped key skills under five headings (See Figure 1). The content and delivery style of both units, Introduction to Regional Science 1B and Workplace Internship, were then revisited to make the skills content more explicit.

In Regional Resource Management course, we can identify five broad categories of skills that make up our 'Toolbox'. These categories do overlap in practice, but they assist us to think about what we are learning how to do. They are:

Desktop Research and Data Analysis Skills – the ability to frame a research question and then source, understand, summarise, compare, analyse and interpret available literature and data in context to answer the research question.

Field Research and Regional Engagement Skills – the ability to identify the stakeholders and contextual factors that bear upon a regional question or issue, and then to source information and insights via participatory dialogue, interviews, focus groups, action research and other means; also, the ability to network, negotiate, and mobilize relationships effectively.

Policy Analysis and Problem-Solving Skills – the ability to understand how policies are made and applied at different levels of government and within industry and their consequences for different stakeholders; the ability to identify and name problem areas; and the ability to transform the findings of research and engagement activities into specific recommendations to improve policy and/or practice.

Project Design and Project Management Skills – the ability to scope, design and manage projects, and contribute to or lead project teams effectively in a range of contexts.

Communication and Presentation Skills – the ability to tailor effective written and verbal presentations to different audiences for different purposes, with attention to cross-cultural communication issues, power relationships, and professional standards.

Figure 1: Regional Resource Management Toolbox

These changes were an attempt to solve half of the problem: identifying the skills the students were meant to be practicing in their workplace projects, and which therefore needed to be embedded more explicitly in the students' first year. The next part of the challenge was to make students aware of this skills-building process. To meet this challenge, and to help students answer the question they posed in the discussion forum: *'What do I know how to do?'*, the lecturers considered reflective journaling processes to help students document and reflect on the skills they were learning and practicing in the workplace and the classroom. Reflective journaling is frequently used to encourage students develop an explicit awareness of their learning processes over time, reflecting on experiences and the learning that results from them (Moon, 2004). Rather than using a paper journal format, however, an electronic portfolio tool was selected, due to an opportunity to trial ePortfolio software for UTAS.[3]

The key advantage of the ePortfolio tool was *not* that it was computer-based, sounded cutting edge, or even that, in theory, it permitted students to keep a portfolio of their work that might later assist them when looking for employment. Indeed, the latter functionality, which has often generated the most interest in writings on ePortfolios (Acker, 2005), was not available in this pilot.[4] For the purposes of the Workplace Internship, the key feature of the ePortfolio that attracted the attention of the Unit Coordinator was the software's

[3] The 'Student ePortfolio' tool, a web-based computer interface being trialled by the University's Centre for the Advancement of Learning and Teaching

[4] It would have been feasible to do so only by requiring all students to provide their own World Wide Web space with functionality enabling them to upload and store documents.

ability to assist students to name and reflect on both *specific experiences* in the workplace and *specific skills* – and then to explicitly link the two.

Barrett (2004) distinguishes between the use of ePortfolios to document progress against competencies (positivist paradigm) and their use to encourage critical thinking and deeper learning (constructivist paradigm). The approach taken was primarily constructivist (Biggs & Tang, 2007), aiming to build knowledge and skills, yet with a focus on Regional Resource Management "Toolbox" competencies. These provided a practical focal point for students' more iterative learning process. First, students were asked to both describe, and reflect on, *experiences* in the workplace or the classroom; then they were asked to link each experience to a specific *skill* they felt they were developing (or needed to further develop) as a result. Unlike a paper journal, the ePortfolio software provided an explicit link between experiences and skills: this was its chief appeal to the lecturers.

The ePortfolio in workplace learning

In Semester 1, 2008, the Student ePortfolio software was piloted in the Bachelor of Regional Resource Management's Workplace Internship unit (KAA201). Many other courses at the University of Tasmania have workplace learning components; thus, the experience of using ePortfolio in a workplace learning context raises issues of broader interest. KAA201 students used the ePortfolio to log workplace experiences and skills outcomes over the first 11 weeks of the semester, while they were planning and executing their workplace projects. "Experiences" in this context were defined as discrete workplace undertakings such as a planning meeting with a workplace team, preparing a project brief, designing a survey instrument, or conducting a desktop audit of documents. No minimum number of entries was required, nor was the ePortfolio checked until the date the assessment was due (worth 10% of final mark).

Students were introduced to the ePortfolio tool in a workshop in Week 1, where the lecturer emphasised its purpose: to make explicit the link between what they did in the workplace, and the skills they were developing in the Bachelor of Regional Resource Management course. Students were shown a sample portfolio, and given a detailed handout explaining both technical details (how to access it, how to use it), the rationale, and desired learning outcomes (see Appendix One). Due to technical limitations, there was no true 'Portfolio' component to the ePortfolio, as there was no capacity to store work samples online during the pilot. The ePortfolio exercise was structured simply as a way for students to record their workplace experiences, reflect upon them, and then consider what kinds of skills they were developing as a result.

There were only five students in the cohort, and only two completed a formal evaluation of the ePortfolio pilot (though the others gave informal feedback over the course of the semester). Despite this limitations of this pilot, there were some interesting results. First, there were the student reactions to the process of reflective journaling. This was a new experience and met a bit of resistance at first; one of the male students suggested it felt a bit too much like keeping a diary. Later, however, the same student noted that the process had been useful. Of interest to the Unit Coordinators, was that students found the "Experiences" entries most useful as a project log: these entries were "*helpful when looking back at what was discussed*" in project meetings and "*allowed me to record experiences which would otherwise have been forgotten*". The reflective component of

Experiences, however, sat less comfortably with the students: reflections felt too informal and "*yakkety*" for some. Rather, it was the formal logging of workplace experiences that was most valued, both as a project management tool, and as a memory aid when students looked back on their workplace experience.

Next, were the findings related to the process of explicitly linking experiences with skills. Here, the ePortfolio software seemed to deliver, despite some technical limitations and the fact that at least one student didn't like the way the software linked experiences and skills. One student noted that the process was "*a good way to ascertain your skill developments*":

> *"It is easy to develop a skill and not really know it and this system offers a structured way to focus on new skills. Just the process of putting down experiences and skills in black and white allowed me to develop a more structured mental picture of new capabilities."*

At the same time, there were a few limitations; specifically, the software did not allow customised skills categories (e.g., Regional Resource Management skills as per Figure One) to be loaded into the pull-down list; students had to select 'Course-specific Skills' and then enter skills by hand. This made the system less easy to use. Interestingly, however, it also meant that students often described their skills in their own words (rather than using the "Toolbox" words provided by their lecturer): making this more of an iterative process. Students' "skill words" were not always the same as the lecturer's. For instance, while students spoke of "*problem-solving skills*", "*field research and regional engagement skills*", "*communication skills*" and so forth, they also listed "*articulation*" of ideas in written form (e.g., in a project brief), "*networking skills*", "*negotiation skills*" and "*pooling ideas*" as important skills they had developed in their projects. Opening up the skills categories to students' own words illuminated some of the nuances of the workplace learning process.

Overall, the ePortfolio delivered both a useful project logging tool in Workplace Internship, and a way for students to begin to iterate the skills they were developing in their workplace projects. Ward and Ellis (2007, p. 4) have previously suggested that the ePortfolio could be a useful tool to record skills acquired in work placements. The trial conducted by the KAA201 Unit Coordinator suggested that this does work in practice. It did, however, require students to make time to use the ePortfolio; for this reason, it was valuable to include the ePortfolio in assessable work. Even then, students varied in the extent to which they used the tool as an ongoing log (making various entries over the 11 week period) or as a retrospective assessment (e.g., filling it in right before the due date). Students also noted that the tool being web-based limited accessibility where web access was not easily available, and that slow speeds between pages and lack of direct access via the UTAS website all made the tool less easy to use. A PC-based version of the software might assist in overcoming these issues.

Ward and Ellis (2007, p. 4) also suggested that ePortfolios could be used to *assess* the skills developed in work placements, with supervisors able to view student portfolios and give feedback as part of the assessment process. The Unit Coordinators have identified this as a project to explore in future semesters, but given the pilot experience, several issues need to be kept in mind. First, the intended audience for the Portfolio needs to be clear to students (see also Ward & Ellis, 2007, p. 3), and the technology needs to be suitable for this audience (e.g., students highlighted the need for tools such as spell-check).

Second, if materials are to be presented, the ePortfolio needs to have the capability to store these materials, and issues around access and ownership need to be addressed (Acker, 2005). Finally, workplace review is not easily compatible with a reflective journaling process.

There is the risk that if the portfolio process moves too close to a positivist skill-assessment paradigm, there is will be a reduction in the desired constructivist and iterative learning process. The students in the pilot clearly expressed that they wanted to ensure that their frank reflections, part of their process of discovering how organisations work, would not be seen by their workplace hosts. Yet many of the skills being developed required both self-reflection on practice, and feedback from workplaces. Assessing skills and reflective learning can no longer be thought of as separate processes (Barrett, 2004), because so many of the skills that contemporary workplaces require are about critical thinking, learning, and knowledge-sharing (Boud & Garrick, 1999; Amin & Cohendet, 2004). If these skills are to be assessed then there is a need to come up with innovative, and indeed collaborative, ways to do so.

The ePortfolio in applied classroom learning

In Semester 2, 2008 the ePortfolio software was piloted again, this time in a classroom context: in the Introduction to Regional Science 1B (KAA101) unit. In this unit, students develop the skills that they will later practice and apply in the Workplace Internship unit. Thus, Introduction to Regional Science 1B is seen a key unit to commence the use of ePortfolios for the Bachelor of Regional Resource Management degree.

The use of the 'Student ePortfolio' interface in Introduction to Regional Science 1B aimed to assist students to document and better understand the regional resource management tools and techniques learned in the classroom, so that they could be applied to the 'wicked problem' assigned to them for assessment in this unit, as well as to the future workplace engagements in the second and third year of the degree. The process of using the software was different to that in the Workplace Internship unit, in that the students could participate at their own discretion. There was no manditory requirement to participate in the pilot, and it was not assessed as part of their final grades. This approach was taken in an attempt to explore how attractive the use of the interface might be in the early stages of academic study.

Students were introduced to the ePortfolio pilot in Week 4 of the semester and were asked if they wished to proceed to a formal training session in its application. Two students opted to take part in this training[5]. The students who did not participate cited reasons such as not having enough time, not being interested, or not seeing the relevance of an ePortfolio so early in their degree study. This final reason was similar to student responses to a trial of ePortfolio software in the classroom context in UTAS's School of Engineering in 2004 (Sargison, Tatham, & Apstitis, 2005).

The two students who participated in the trial were asked to use and analyse the software to see how effective it would be to their study and to reflect on what they had learned.

[5] There were nine students in the cohort with six students choosing not to participate (one student studying via distance so participation was deemed too difficult for the pilot) and one student commencing the unit after the introduction of the ePortfolio.

The students were given a supporting handout similar to the one used in the Workplace Internship unit (see Appendix 1) and were asked to asked to trial the software in their own time. They were surveyed four weeks later in an attempt to identify, explain and reflect on how they had used the ePortfolio software and how they felt about its usefulness and functionaility.

Feedback on the use of the ePortfolio was positive but with numerous functional caveats. The ePortfolio, as a concept, was generally accepted as a useful tool and something that would be solidly utilised throughout their time at UTAS. One student claimed that it was "…useful to reflect on skills and experiences so that they sink in and you can build on these in the future". She stated that using ePortfolio was "very comfortable, and a great opportunity for future reference", for instance in job applications, as well as being useful for reflecting on and analysing current subject matter. The other student had similar observations, noting that: "I feel that ePortfolio is going to be a useful application not only in University life but also in the future as a better way of submitting a resume."

These responses highlight that the students felt that the ePortfolio could have benefits beyond the study program, especially to prospective employers. These results are similar to the results of the UTAS School of Engineering trial where it was found that "…it is apparent that students found the system to be useful and a helpful way to store information." (Sargison et al., 2005, p.6). At the same time, students in the Introduction to Regional Science 1B trial felt that the software in its current form was unable to adequately capture the kinds of information that employers would require. They clearly stated that they would have liked to have the capacity to upload profile photos, age and sex, past achievements, non-University qualifications, hobbies and memberships as well as having storage capacity for media and other documentation.

As in the Workplace Internship unit, the ePortfolio was piloted in the Introduction to Regional Science 1B course to help us address students' question of '*What do I know how to do?*' and particularly, the link between experiences and skills. The software prompts students to enter 'Experiences' as a pathway to both documenting and reflecting on actions and their link to Skills. "Experiences" thus provide an entry point into reflections on "what I know" and "what I can do". However, this was not a straightforward or easy process for the first-year students to grasp. One student claimed that "experience is hard to define". This was, most likely, due to two reasons; (1) that the term "experience" as used in the ePortfolio software was not fully understood by the student or conveyed well by the unit coordinator, and/or (2) that the ePortfolio interface made it difficult to prompt and capture specific experiences. As the "Student ePortfolio" software has been designed primarily as a resume builder, it has limitations in its effectiveness as a reflective tool.

From the classroom to the workplace, and back: what we know how to do

This paper describes the experience of using the ePortfolio as a tool for reflective learning and for documenting skills and competencies acquired both inside and outside the classroom. The Unit Coordinators had a particular interest in exploring the potential of the ePortfolio software to assist students to become conscious of the skills that they were learning in the classroom and in the workplace, and to track both skill acquisition and skill deepening over time.

While the initial UTAS proposal to trial ePortfolio focused on using the ePortfolio to "facilitate student needs in relation to recognition, acquisition, recording and assessment of UTas Generic Graduate Attributes" (University of Tasmania, 2006, p.1), the specific focus for this pilot was on course-specific graduate attributes and skills – specifically, the Bachelor of Regional Resource Management Toolbox. Skills such as research, regional engagement, policy analysis, project management, communication and problem solving sit at the heart of our interdisciplinary course, and are central to the course's mission of regional relevance. Like generic attributes, they are developed through time and in a range of contexts both inside and outside the classroom. Equally, they require students to develop an awareness of these skills and how they are deepening over time.

Although the UTAS Generic Graduate Attributes were not directly captured in the pilot, the survey results from first-year students in the pilot indicate that the ePortfolio, if structured more effectively, could be a valuable tool for tracking experiences and skills across students' university experience. Nevertheless, first-year students do not necessarily see the relevance of keeping a portfolio, as discussed above. In addition, there is a broader issue. Beyond a straightforward documentation of competencies and knowledge acquired, developing generic graduate attributes requires students to develop their analytical and reflective capacity. Students need to be able to reflect on their work and develop an awareness of themselves and their skills through their university career. ePortfolios can potentially be used to facilitate this process, but to do so effectively, their interface with end users must actively encourage reflective and analytical responses. In turn this raises questions and potential contradictions about the intended audience for the portfolio (Ward & Ellis, 2007, p. 3); students may need a dedicated space for personal use, to be brutally honest and work through issues (e.g., frustrations with host workplaces or lecturers!); and a separate space to share their insights, achievements, and learnings with lecturers, colleagues, workplace mentors, or future employers. The ePortfolio also needs to be more engaging and appealing as a tool that students would want to use regularly: students suggest a less corporate interface with smoother functionality.

These challenges and opportunities are highlighted through our experience in the Bachelor of Regional Resource Management, a course which aims to equip students to bring interdisciplinary academic tools to diverse, applied contexts. Graduates of the Bachelor of Regional Resource Management are taught to be problem-solvers, multi-skilled, inter-disciplinary and grounded in "real world" application of knowledge. Yet the question of "What do I know how to do?" and perhaps the deeper question, "How do I know what I know?" remains. The trial of the ePortfolio in this course highlighted that ePortfolios, to be effective, must be able to cope with the complexities, inter-connectedness and diverse learning processes of students in different contexts, across different theoretical and cultural divides, and beyond neat categories of competency.

As students move back and forth from the classroom to the workplace there are rich learning opportunities, but also the need to find ways to name, reflect upon, deepen and assess what is learned: particularly when the lessons are difficult to articulate and the skills may have, as yet, no agreed name. Sargison et al. (2005, p.7) state that, portfolios are "invaluable tools in the modern work environment, where an individual's skills are not solely recorded by educational qualifications and the skills desired by employers are often not documented." Such observations begin to hint that "*skills*" – for the workplace or for the region – is not necessarily a straightforward, defined category, and that new ways of

articulating and demonstrating them may be needed. The findings of the pilot support the potential of ePortfolios to work in this space, but they also raise a bigger question.

Not all skills that employers "want" – or that the region and its communities "need" –are, indeed ever documented, articulated, or even completely understood. Yet one of the key drivers of ePortfolio policy and practice internationally is about seeking "to draw together the different elements of integrated education and learning, graduate attributes, employability skills, professional competencies and lifelong learning, ultimately to support an engaged and productive workforce." (AEP, 2008, p. iii). The subtle contradiction is that while some kinds of skills and competencies in the "productive workforce" (or even the "successful community") can be easily categorised and measured, others are less obvious, vaguely put, undocumented, unnamed, perhaps even undiscovered. As students make sense of different and even conflicting knowledge-sets through their experiences inside and outside the classroom, they may find themselves constructing new categories of competency, even the seeds of new fields of expertise. As Amin and Cohendet (2004) have observed, the intersection of different *kinds* of knowledge, such as codified knowledge with group knowledge, possessed knowledge, and practiced knowledge, can spark innovation. And many of today's job titles were unheard of two or three decades ago.

So the question becomes: what is the ultimate role of an ePortfolio? Will it remain a simple tool for documenting achievements and naming and proving skills in pre-established categories, or can it become a much more flexible, iterative tool for encouraging "self-directed, self-disciplined, self-monitored, and self-corrective" critical thinking (Paul & Elder, 2001, p.4)? If the goal is to help students *think better* (as "reflective learners" who are "conscious" of strengths, weaknesses, and skills: AEP 2008), then the latter focus would seem appropriate. Yet the results of the pilots indicated that, while students found keeping a log of their work useful for both present and future uses, they did not necessarily see the value in writing unstructured reflections on their experiences. This implies that the links needs to be more explicit between reflection, the learning process, and the skills or attributes that are ultimately presented and represented through the portfolio. If the goal is to facilitate learning across classrooms, workplaces and other diverse environments, ePortfolios must move beyond a collection of artefacts to more flexibly and creatively facilitate the learning and discovery *process* (see JISC, 2008 p. 7). Such a tool could potentially serve to guide an iterative process of understanding experiences, what they mean, the discoveries and skills that emerge from them, and the way these might be named and communicated with others.

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Appendix One: Handout from E Portfolio Workshop

The E-Portfolio

1. Why an E-Portfolio?

This year in KAA201 (Workplace Internship), we are piloting the E-Portfolio as a tool to strengthen workplace learning outcomes. We are hoping that the E-Portfolio tool will assist your learning process in three ways:

1) By helping you become aware of the particular skills you are learning in your workplace project *('What I know how to do?'*) and how these skills fit into your overall course experience.
2) By helping you to reflect on your own practice ('*How well do I do it?')*and deepen your skills over time.
3) By helping you learn how to document your experiences and skills and articulate them to others with evidence ('*Here is what I can do!')*.

Your E-Portfolio will be stored under password protection on UTAS's CareerHub site and you will continue to have access to it throughout your time at UTAS (and possibly beyond). It can be used as a cv-builder as well as a tool for reflective practice.

Students in KAA101 second semester 2008 will also be using e-Portfolios to document the Regional Science tools they are learning in their first year of study.

2. How Do We Access It?

Access to the E-Portfolio software is via CareerHub. It is necessary to register as a student with CareerHub and then login directly at http://careerhub.utas.edu.au/

Once you log in, you will be taken to your personal CareerHub site. Paste in the following URL: http://careerhub.utas.edu.au/StudentPortfolio/Default.chpx
This will take you to the E-Portfolio page.

Confidentiality Your E-Portfolio is your own space. No one can access it unless you send it to them (directly to their email). While you will be asked to send your E-Portfolio to the lecturer once during the semester (as part of your assessment), *you* choose how much personal/reflective material you include, or don't include. Any E-Portfolio material which you send to the lecturer will be treated as confidential and will not be seen by anyone else.

3. What Do we Put in It?

For the purposes of this unit, you will only need to use two sections of the E-Portfolio:
1. Experiences
2. Graduate Attributes/ Skills

3.1. Experiences

You will use the Experiences section to document specific activities that you undertake as part of the Workplace Internship, and your reflections on these activities. These activities may include things like:

- Preparing a Project Brief (everyone will do this!)
- Conducting a desktop audit
- Analysing quantitative data
- Doing a literature review
- Consulting with industry/ government/ community groups

- Conducting interviews with key stakeholders
- Facilitating a workshop, etc!

In general, the specific tasks that you list in your Project Brief (*Workplan*) can provide a rough guide as to the activities to list here; however be aware that other activities that emerge along the way (e.g., 'briefing staff on project progress') may also be well worth including.

Type is where you indicate that the experience is part of your Industry Placement.
Title describes the experience, e.g., 'Preparing a project brief'
Organisation is the organisation or group you were working with (usually but not always your workplace host)
Start date and end date are useful to include.
The other fields (**contact, email, phone, fax**) are not necessary to fill in every time.
Under **hours,** indicate N/A (not applicable)
Description is where you describe what you did.
Reflection is where you self-assess your performance and learning with reference to each specific task.

The 'reflection' space may be used to record your impressions at different points in time – before the experience, during (if applicable), and afterward. Ask yourself: *What did I expect to happen? What went well? What was unexpected? What was I pleased/ displeased with? What skills did I use? What skills did I lack or need to improve?* This is not meant for public consumption; rather, it is part of your own process of development as a *reflective practitioner*.

3.2 Graduate Attributes/ Skills
This section is where you make sense of what you have done, in terms of how the experiences in your Placement Project have added to your skills base. You will 'link' your specific project experiences to particular skill categories, in order to indicate what particular skill or skills you are developing from each experience.

In Regional Resource Management course, we can identify five broad categories of skills that make up our 'Toolbox'. These categories do overlap in practice, but they assist us to think about what we are learning how to do. They are:

Desktop Research and Data Analysis Skills – the ability to frame a research question and then source, understand, summarise, compare, analyse and interpret available literature and data in context to answer the research question.

Field Research and Regional Engagement Skills – the ability to identify the stakeholders and contextual factors that bear upon a regional question or issue, and then to source information and insights via participatory dialogue, interviews, focus groups, action research and other means; also, the ability to network, negotiate, and mobilize relationships effectively.

Policy Analysis and Problem-Solving Skills – the ability to understand how policies are made and applied at different levels of government and within industry and their consequences for different stakeholders; the ability to identify and name problem areas; and the ability to transform the findings of research and engagement activities into specific recommendations to improve policy and/or practice.

Project Design and Project Management Skills – the ability to scope, design and manage projects, and contribute to or lead project teams effectively in a range of contexts.

Communication and Presentation Skills – the ability to tailor effective written and verbal presentations to different audiences for different purposes, with attention to cross-cultural communication issues, power relationships, and professional standards.

In addition, in this unit, there are six learning outcomes that we are aiming to achieve. At the completion of the unit, you should be able to:

- Engage productively and creatively in a workplace environment
- Apply theoretical and technical knowledge to real-world problems
- Write a project brief
- Undertake independent research under academic and workplace supervision
- Present key learnings effectively in written and verbal formats
- Learn to work collaboratively in two distinct but aligned environments with multiple objectives and goals

Achieving these outcomes requires learning and exercising the skills listed above. This space allows you to keep a record of the development and deepening of your Regional Resource Management skills.

Under **Skills Category**, choose **Course/ Unit Specific Skills**.
Under **Education or Experience Record**, choose the title of the Experience that you would like to refer to.
Under **Title**, list the name of the skill that you are developing. Choose from the list above, or if none of these fit, suggest your own name for the skill. For instance, the experience 'Preparing a Project Brief' would clearly involve developing your Project Design and Project Management skills. It may also involve Communication Skills with the workplace host. You can do more than one 'Skills' entry for each experience.
Briefly describe how the experience improved your proficiency in this skill. What was required? What did you do?
Personal rating and **Link to documents** are optional.
Reflect on how strong you feel your skills in this area are. What did the experience show you about your skills in this area, where they are strong, developing, need improvement?

4. What Happens Then?

You can view, print and email selected sections of your E-Portfolio. You will need to email me a 'view' of your E-Portfolio for your E-Portfolio Assessment, due on Friday 2 May. Ensure that whatever you send, you are happy for the lecturer to read (in confidence). Use **My Portfolio** to create a portfolio view, and use **Contacts** to add in my name and email address, then **Send** your portfolio view to me. This is the self-assessment component of your mark (10% of final mark). If you would like to share Portfolios among the group, you can also **Send** your portfolio views to each other using the same process. Again, this is completely optional, and no other student can see your portfolio unless you send it to them.

The mark from the lecturer will simply reflect the extent to which your E-Portfolio demonstrates that you have undertaken a self-assessment process, in the form of:

- documenting work undertaken in your project
- documenting your personal performance, and reflecting on the process and outcomes
- linking these to professional competencies and reflecting on the impact of your project experiences on the development of these competencies

You can then keep your E-Portfolio as a record of your work, and continue to add other experiences and reflections to it throughout the course.