Owning, supporting and sharing the journey

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5R Review Framework: Supporting the ePortfolio Transition

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Abstract

Many Australian higher education institutions have embraced electronic portfolios for enhancing graduate capabilities and employment skills. The technology provides a student-owned and managed canvas to create and curate evidence of student learning. The University of the Sunshine Coast (USC) adopted PebblePad™ as the University-wide electronic portfolio (ePortfolio) platform in 2013.

The University successfully implemented PebblePad™ into its repertoire of Educational Learning Technologies through a three-phase process: feasibility study, early adopters phase and an institution-wide ePortfolio Implementation Project (2012-2015). Since the conclusion of this project, USC has faced a range of contextual changes and challenges.

This paper sets out the current challenges USC is facing in this transition and the key factors in the approach taken in sustaining educational innovation with ePortfolios. In particular, how the University’s Centre for Support and Advancement of Learning and Teaching (CSALT) have employed a variety of people-centred and distributed support models to build staff capacity for using PebblePad™.

The key factors and the levels of support that facilitated success are framed and discussed using a 5R Review Framework: Readjustment, Rebuilding, Responsiveness, Reflective evaluation and Refocus.

The Readjustment required in the transition from strategic project to the operational phase; Rebuilding from a single point of support model; Responsiveness demonstrated in the variety of support models developed to build individual and team capacity; Reflective evaluation and refocus in the next stages of planning to improve student outcomes.

Key Words: ePortfolio, capacity building, support, learning-centred

Introduction

The University of the Sunshine Coast (USC) is committed to student success through developing and supporting strategic, innovative and distinctive curricula (USC Strategic Plan 2016-2020). The USC Curriculum Design Principles support such curricula and encourage a blended learning approach as the standard mode of delivery (Blended Learning Strategy 2017-2020). To support the curriculum design
principles of learning-centred and career and future focussed, an electronic portfolio (ePortfolio), namely PebblePad™, was introduced in 2013. The Centre for Support and Advancement of Learning and Teaching (CSALT) implemented an ePortfolio project and supported both the technology and the curriculum design. Hallam et al. (2010) noted that appropriate funding and staffing, along with academic scaffolding, IT support for students, good planning and appropriate staff development are critical success factors in ePortfolio initiatives.

USC is rapidly growing and expanding the use of ePortfolios whilst balancing resourcing constraints. Considerable research is available concerning the adoption of ePortfolios and the implementation within a funded project, however, little has been published about how institutions sustain and expand their use of ePortfolios against the landscape of resourcing constraints (Allan & Clelland, 2012; Coffey & Ashford-Rowe, 2014). A review framework is discussed that meets the ePortfolio needs of the University community in the post-project phase. The key factors in the approach to the transition phase and the levels of support that facilitate success are discussed using what emerged as the 5R Review Framework: Readjustment, Rebuilding, Responsiveness, Reflective evaluation and Refocus. Each of the phases of the transition are discussed further.

The 5R Review Framework

This model emerged through the reflective evaluation process undertaken within CSALT after the conclusion of the ePortfolio Implementation Project, providing a framework for the support of future ePortfolio initiatives across programs.

Phase 1: Readjustment

The project concluded at the end of 2015 and ePortfolios were operationalised and considered business as usual. However, an evaluation of the ePortfolio Project established a changed institutional and sectoral context with some crucial developments pertinent to the University's ePortfolio capability. In addition to this, increasing demand from within the health disciplines to utilise the ePortfolio technology in support of clinical practice courses in the Bachelor of Nursing Science (BNursSc) program, returned large-scale support to the CSALT agenda.

University context

The Blended Learning Strategy (2017-2020) identifies core focus areas in blended learning over the next four years and ePortfolios are an appropriate technology for actioning the curriculum design principles of:

- **Learning-centred** – 1. strengthen technology-enhanced learning, assessment and feedback practices 2. support staff and students to use a diverse range of personal devices for learning and teaching; and
- **Career and future focussed** – develop programs that include technologies for students to develop and apply skills in current and future contexts.

Nursing Program context

An ePortfolio was integrated into the clinical practice courses within the newly accredited BNursSc program in 2017 to support student learning and assessment and as a means of aligning with the Nursing and Midwifery Board of Australia’s
[NMBA] requirements for nursing practitioners to maintain a professional portfolio. Existing paper-based approaches were re-imagined using PebblePad™ as an innovative clinical learning platform with student workbooks modelled on the ‘Check In, Check Out’ (CICO) process, simulating the patient handover process within a hospital environment. Check-in (briefing) prior to, or upon entry to, the learning space requires the student to prepare for their clinical practice experience. Check-out (debriefing/student confidence) supports the student to acknowledge their accomplishments and learning experiences at the completion of each clinical practice session. This active learning process enables students to collect evidence of their developing skills in readiness to be a Registered Nurse.

Phase 2: Rebuilding

From 2014-2016 the project relied on a limited support model consisting of one Learning Designer dedicated to the project. The Learning Designer was an individual champion of PebblePad™ across the institution who developed customised pedagogical resources, assessment and professional accreditation resources for academic staff on an individual basis. Slade et al. (2017) highlighted the potential risks associated with the short-term nature of projects only building limited capacity, which is lost when resources cease. As the project came to an end the potential risk materialised and support became unmanageable as the resourcing of the position was not continued. The project lost sight of the programmatic approach of mapping an ePortfolio through the curriculum and focussed on individual course development. In the absence of this key position and with numbers growing, this way of supporting ePortfolio use across the institution was no longer sustainable and a significant knowledge gap became apparent that needed to be filled expeditiously.

A distributed leadership approach informed a sustainable model of support and the ongoing implementation of ePortfolios. Jones et al. (2012) identified the need for a cross-functional collaborative approach in building leadership sustainability in higher education. Consequently, CSALT Educational Technologies and Curriculum Support team members collaboratively built their knowledge and capacity to support PebblePad™. The distributed support approach enabled the entire team to draw upon pedagogic and technical expertise to support users, in context and at the point of need.

Phase 3: Responsiveness

As all nursing clinical courses implemented an ePortfolio for the first time, CSALT invested in agile planning and responsiveness by building team member capacity, upskilling course coordinators and sessional academic staff teaching into the clinical courses.

CSALT Staff Training Implementation

Six face-to-face group sessions focussing on supporting academics with the design and creation of workbooks and technical troubleshooting took place. The topics covered in each training session are shown below in Figure 1.
Course Coordinators Training Implementation

PebblePad™ was introduced to replace the existing paper-based approach across four courses in Semester 1, 2017. This initial implementation focussed on evidencing clinical competencies using workbooks and feedback templates and acted as the first step in launching a suite of undergraduate nursing courses implementing ePortfolios.

Training provided targeted 'just in time' support to scaffold learning. For example, rubric development and marking training was provided prior to and within the first 3 weeks of the teaching semester when staff were required to provide formative feedback. Academics reported informally that it is important for them to access support when they need it most, often when students are submitting online assessment and post submission when they are marking student work.

Nursing academic staff were offered support both prior to implementing PebblePad™ into their courses and during semester times via face-to-face training sessions, drop-in sessions and through the provision of technical assistance. The timeline of support and training instances across the semester are shown in Figure 2.
Training for course coordinators comprised of a suite of four face-to-face group sessions focussing on creating sets, developing rubrics and marking in PebblePad™ with an additional two videoconferencing training sessions for staff groups based at remote campuses. Customised and contextualised ‘how to’ tip sheets to support both themselves, students and tutoring staff were provided.

Course coordinators had the additional responsibility of acting as the support ‘touch point’ for clinical facilitators across fifty placement sites. These external facilitators were briefed on the use of PebblePad™ by course coordinators prior to students commencing their placement. The brief included a demonstration on how to complete both the formative and summative workbook assessments and outlined student and clinical facilitator responsibilities. Facilitators were provided with a customised tip sheet and support was made available during the placement to troubleshoot any potential problems.

Although online technical support via PebblePad™ was accessible to staff throughout the semester, this ‘one size fits all’ approach to academic technology support was not the preferred mode of seeking assistance. Informal feedback from staff supports the findings from Fisher and Hill (2015) that they have a preference to be supported by a person rather than proceed via online help. Most academic staff had the same permissions within the system as CSALT technical support staff yet most times they did not troubleshoot issues within PebblePad™ via these channels.

**Sessional Staff Training Implementation**

Training for sessional staff was provided prior to, and early in the teaching semester with a strong focus on ensuring the consistency of messages for students from all teaching staff across courses. Training comprised of two face-to-face group sessions in computer labs for a hands-on learning experience. The session prior to the commencement of the teaching semester provided an overview of PebblePad™ and instructions on how to use the nursing CICO workbook. The second session focussed on marking and providing feedback using a rubric with an additional one videoconferencing training session for staff groups based at remote campuses. Staff were provided with customised ‘how to’ tip sheets to support both themselves and their students.

**Phase 4: Reflective evaluation**

Informal training surveys and feedback from academic staff were used to evaluate the effectiveness of the distributed model of support. All CSALT staff members agreed that their level of knowledge of PebblePad™ had increased as a result of
taking part in the six training sessions with most also indicating their levels of self-confidence with the platform had increased. They indicated that the training sessions were timely and valuable in ensuring that they were prepared enough to support academics. Feedback from course coordinators acknowledged the significant effort required to provide both group and individual support to a large volume of staff in rolling out ePortfolios across the new program. Feedback determined that a hands-on collaborative approach was deemed to be the most valuable. Sessional staff also responded positively to the training and resources offered and discussed their increased level of confidence.

**Phase 5: Refocus**

The rapid expansion of USC highlights the need for clear implementation processes to ensure quality outcomes with ePortfolios for staff and students alike. Slade et al. (2017) suggest a critical reflective approach should be taken to achieve an effective integration of ePortfolios into multiple programs across an institution. A critical reflective approach guided by Marshall’s eLearning Maturity Model (Marshall, 2010) provided an evaluation of the effectiveness of the 5R Review Framework.

Recommendations emerged for the ongoing implementation and support of ePortfolios in the curriculum:

1. Foundational values established in ePortfolio project – particularly around staff ownership and self-efficacy in using PebblePad™. There were fewer support issues from academics involved in the building and creation process alongside educational designers as opposed to those who had workbooks created for them. The success of an implementation is far more likely to be achieved when the whole team, including the academics, are involved and are using the system themselves from the initial build and design steps.

2. Program level approach – instead of designing for individual courses we need to investigate how ePortfolios will be threaded through the curriculum and signpost the key opportunities over a degree program. Also, taking into account First Year Experience, large student cohorts, and expanding campuses.

3. Recognition of the resourcing and lead time required in preparing teaching teams and sessional staff for PebblePad™ use.

4. Revisit ongoing iterative evaluative processes to gather feedback to guide the planning for the next phase of the cycle.

5. Raising awareness and building interest – showcasing our own customised resources and exemplars (when academics see other real-life examples then they can see how such a tool could be implemented in their own courses), monthly Q&A sessions.

There are several considerations for CSALT in supporting and advancing the next phase of ePortfolio use at USC. With a number of schools across the University including ePortfolio related goals in their 2017/2018 Blended Learning School Plans and the continued uptake of ePortfolios institution wide, support and capacity building of staff will continue to be a priority for CSALT. The distributed approach ensured a greater number of CSALT staff are skilled in the use of PebblePad™
allowing the training of new academic and teaching staff to be achieved on a greater scale than in the past.

The training of student support 'touch points' beyond direct teaching staff into other areas within the institution such as library, IT services, academic skills support and career guidance services will be included in the next phase. With the introduction of any new technology it is crucial that students are advised, guided and instructed through the portfolio development process (Chow, Herold, Choo, & Chan, 2012). To support students, we will assist by increasing the ePortfolio support network which will additionally alleviate the troubleshooting workload from course coordinators.

With the expansion of ePortfolios into a greater number of courses in the BNursSc program, planning for the next iteration is focussing on several key considerations: the refinement of content in existing workbooks, particularly in first year courses, support for the development of reflective and self-assessment skills in students; and finding a balance between assessment driven tasks and the compilation of a professional portfolio. Additionally, a further level of training will assist with supporting external facilitators as placement sites expand.

Conclusion

The 5R Review Framework provided a way to support a large-scale implementation in the post-project phase. The distributed approach and responsiveness of the team to support ePortfolio use enabled the success of the nursing clinical courses to ensure a learning centred and career and future focussed approach to the curriculum. A phase of reflective evaluation enabled us to make recommendations and refocus our support for future implementations. Recommendations included the re-establishment of foundational values and a programmatic approach, recognition of resourcing and raising awareness throughout the institution. Ensuring that the 5R Review Framework remains agile beyond sustainability, offers the institution a strategy which continues to effectively support ePortfolio engagement at USC.

References


**Biography**

**Angela Hansen**

Angela Hansen is an Educational Designer with the University of the Sunshine Coast’s Centre for Support and Advancement of Learning and Teaching (C~SALT). Angela has 13 years’ experience as a teacher within Queensland State Schools in Early Childhood and Primary classrooms and in the higher education sector, as a sessional academic in the School of Education. In her current role, Angela provides learning and teaching support to academics to design curriculum and utilise educational technologies that enhance the student experience across a variety of teaching and learning environments.

**Ruth Greenaway**

Dr Ruth Greenaway is a Senior Academic Developer at the University of the Sunshine Coast leading the Curriculum Support team. Ruth works with academics to design curriculum that attends to the University priorities, including first year transition pedagogies. She also supports academics by offering professional learning opportunities that support student learning. Ruth’s current research interests include innovations in learning and teaching, the integration of educational technologies and the work of educational designers.
A Multi-Pronged Approach to the Enterprise-wide Implementation of a Personal Learning Environment

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Abstract

This paper describes the multi-pronged approach Griffith University has been undertaking in its implementation of an enterprise-wide ePortfolio platform (i.e. Personal Learning Environment). At the heart of the multi-faceted approach is a culture of collaboration between academic groups, the central learning and teaching unit, technology services, careers and employment and student success. A key principle guiding this approach has been facilitation of the sharing of ideas and resources from the identification of user requirements, to the integration across courses and programs. Together, four streams of activities have been implemented which include: embedding within the curriculum by academics, enhancing University employability strategies, engaging students through extracurricular connections and embedding into professional activities of staff. This approach is being evaluated, allowing for qualitative and quantitative data collection. The systematic nature of both the implementation and evaluation is providing evidence that will benefit the current implementation and that of other programs.

Keywords: personal learning environment, institutional, implementation, collaborative, employability

Introduction

Across the higher education sector there has been a shift in the scope of ePortfolio / personal learning environment (PLE) implementations from a discipline or degree level, to institution-wide (Posey, Plack, Snyder, Dinneen, Feuer, & Wiss, 2015). These platforms now integrate with learning and teaching technology ecosystems to provide easy movement between them and systems such as learning management systems (LMS). The maturation of these technologies make them accessible to more than just the risk-agreeable early adopters.

At Griffith University, three forces joined, making the timing right for an enterprise adoption. First, an institution-wide vehicle was needed to enable the University learning and employability strategies (Griffith, 2012). Second, in the academic groups, a growing number of academics were asking for this type of tool and lastly, ePortfolio /PLE platforms now integrate almost seamlessly with learning management systems. Integral to the implementation of the Griffith PLE, as recommended within good practice literature, was the establishment of guiding values, including collaboration, to enhance the project impact (Slade, Murtin and
With the potential for all staff (~5,000) and students (~50,000) to use the platform, embracing a collaborative approach in all aspects of the implementation is vital. During the journey from selection to implementation, a variety of questions regarding governance, integration, and support emerged. This short paper describes the multi-pronged approach Griffith took to address these questions.

Collaborative Selection Process

Encouraging transformative change across programs and courses was a key consideration in the identification of an ePortfolio platform. To meet the leadership vision and specific ePortfolio needs of the four Academic Groups, i.e. Arts, Education and Law, Griffith Business School, Griffith Health and Griffith Sciences, a five-stage collaborative approach was implemented. These include:

- **Stage 1 - Identify Requirements**: The submission of “must have” and “desired” features to the Centre for Learning Futures (CLF) by Deans of Learning and Teaching (L&T) aided in ensuring the needs of all academics would be met.
- **Stage 2 - Conduct Desktop Audit**: Desktop audits were conducted by the Office of Digital Solutions (technical requirements) and the Centre for Learning Futures (L&T requirements) on the three platforms identified by stakeholders along with the tool provided within the Griffith LMS.
- **Stage 3 - Write Authentic Scenarios**: Five scenarios were developed by teams across the Groups and within the CLF to provide vendors with authentic uses to address within demonstrations. Vendors created video tours of the learning experiences they created to address the scenarios.
- **Stage 4 - Solicit Stakeholder Feedback**: Seventy stakeholders from across the University provided written feedback on the resources that vendors demonstrated.
- **Stage 5 - Recommend to Leadership**: Stakeholder feedback combined with the desktop audits indicated clear use cases for the adoption of one of the two platforms. A recommendation to purchase was submitted to leadership.

Providing multiple opportunities for users from across the University to participate in the selection process, led to broad acceptance of the purchased enterprise ePortfolio platform. In addition, the value of collaboration was embraced during the formation of the ePortfolio Working Party: the institution-level governance body for the implementation consisting of representatives from each Academic Group and staff from central units.

Implementation Governance

The University Employability Sub-Committee, which reports to the University Learning and Teaching Committee, tasked the ePortfolio Working Party with providing advice to the Project. Membership included over 30 representatives from across the University, including:
• technical implementation and support staff;
• academic representatives from each Group;
• learning and teaching support staff from central units (e.g. Careers and Employment Services, Student Services and Library) and academic Groups; and
• the core project team facilitating the implementation.

The working party has been critical to the success of the project through providing insights into the use of the PLE to create ePortfolios and other learning resources in each of the Groups; identifying key support challenges; and recommending effective communication strategies to staff and students. The Working Party collaboratively identified the four streams of activity being undertaken throughout the implementation.

Four Prongs of Activity

Members of the working party co-authored the living implementation plan. Central to this plan was the need to optimize the value of the ePortfolio platform in terms of student engagement and economics of scale, by promoting its use by students and staff within and outside of courses and programs (Posey, et al, 2015). To support this aspiration, the following four-pronged approach to the implementation was designed.

Embedding within the curriculum by academics

A key component of the implementation plan was to support academics in embedding the use of the platform within curriculum. A range of strategies were adopted to provide this support, including the creation of an Innovators Program, hands-on workshops and the development of online resources. As articulated by Haines-Wasson, Wakeling and Aldred (2014), in the implementation of technological platforms, both face-to-face and online support resources were critical to success.

The goal was to encourage student-centred design of teaching and learning practices that included reflective, active, collaborative and authentic learning. Student-centred, cross-course and program-level learning activities were developed to support: integrative and/or interdisciplinary interactions, program-level assessment, feedback from multiple providers and collection of program-wide evidence of learning.

Innovators program

An Expression of Interest process called for Program Directors and Course Conveners (including their teaching teams) to become the first round of adopters from the Academic Groups.

The Innovators Program was a collaborative effort between the CLF and Group L&T professionals. Together they provided design and development support as well as hands-on training with the ePortfolio platform. A sense of community among the “trailblazers” has developed as these Innovators and the supporting staff, innovate, experience and iterate together. This manifests as continued participation in both
informal and formal gatherings during which continued training is provided, solutions to challenges are created and resources are shared.

The Innovators Program provided:

- invitational workshops and events;
- co-construction of learning experiences with Educational Designers and Blended Learning Advisors;
- advice and support throughout the teaching period; and
- formal evaluation of the use of the PLE in their teaching.

**Staff workshops**

A series of four workshops (i.e. Introduction to the PLE, Supporting Reflection, Building and using Activity Sheets for Class-based Learning and Building and using Workbooks for Formative and Summative Assessment) were provided to address various levels of understanding of the PLE functionality (from beginner to advanced). In the first teaching period over 100 people attended the workshops. In Figures 1 and 2 the roles of those attending are shown. The mix of roles supports the collaborative culture valued by the implementation project.

![ACADEMIC / GENERAL STAFF](image)

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Figure 1: Academic/Non-academic staff attendees of May 2017 workshops
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Advanced workshops and online drop-in sessions were run for L&T professionals and other advanced users of the PLE. These focused on collaborative problem-solving, sharing resources and experiences.

**Online resources**

A support site was developed for Griffith staff and students, providing tip-sheets and videos customised for the Griffith context. These resources were created in priority order informed by feedback garnered from Innovators and L&T support staff.

A separate online space was created for L&T professionals to share use cases, exemplary assets, sample instructional text and videos. This site provided a rich resource for supporting staff across the Groups and central elements. Additionally, staff and students were encouraged to use the platform Learning Centre materials and administrative support pages, owned and updated by the vendor.

**Enhancing employability strategies**

The institution-wide implementation of the ePortfolio platform provided a vehicle for enhancing many of the University employability initiatives. An illustrative example of this is the adoption of program-level approaches to employability which enable students to track their development over the lifespan of a program. Usually with the aim of resulting in a comprehensive ePortfolio in the final year. Starting in the first year of their program, students can systematically collect evidence of the Griffith Graduate Attributes, transferrable skills, content knowledge and professional standards.

Work Integrated Learning (WIL) experiences are considered a key component of a student's learning experience. The PLE can enhance the effectiveness of these experiences by scaffolding the preparation for these experiences; streamlining communication between the academic, student and supervisor; and facilitating feedback and task validation by all parties. The functionality of the mobile
application in capturing timely on-the-job documentation and reflections was a key benefit for students. The University of Edinburgh (The University of Edinburgh, 2016) articulated well the benefit to students for using an ePortfolio is the optimisation of their WIL experiences by the assembling of personal reflections and evidence in one online space.

Engaging students by making extra-curricular connections

The practical side of the implementation team and ePortfolio working party knew that all academics would not be able to implement the use of the PLE right away. To address this, strategies were identified for using it outside of courses. The About Me ePortfolio creation challenge (originally called the Remarkable Me Challenge) was one strategy identified during a review of implementation strategies from across the sector. Two universities, one in the England (Plymouth University) and one in the United States (Portland State University), identified a similar offering as part of their outreach to students outside of courses. The design of the About Me challenge was influenced by good practice strategies highlighted by these institutions. At the end of the first year, a total of three cumulative challenges (one per teaching period) will be offered to expose students to the functionality available within the ePortfolio platform and to support them in developing their sense of professional identity.

Outreach to a variety of student programs, services, organisations, associations and clubs has begun to increase awareness of the About Me challenges and ePortfolios in general. To identify opportunities for collaboration in meeting the needs of their membership, the implementation team met with leaders of organisations.

Collaboration with Student Services provided additional opportunities to increase awareness of how students may leverage ePortfolios and the platform outside of their courses. Student-led workshops enabled students to create and curate, an organised electronic ‘evidence base’ of their work. From these curated collections, students are then encouraged to harvest valuable content to create a LinkedIn ‘showcase ePortfolio.’

Embedding the ePortfolio platform into professional activities

While the ePortfolio platform was implemented expressly for student use, it also can serve as a platform to facilitate the professional learning of staff. Providing a flexible and robust suite of functionality, the platform reinforced professional learning practices, integrating reflective practice, professional journey planning and evidencing of capability. It is hypothesised that providing academics with opportunities to engage with the platform, allows them to experience the value and ease with which these types of activities can be implemented. To assist with embedding the ePortfolios into professional practice, a range of strategies can be adopted including: individual professional development planning and reflections or team-based activities to assist in the understanding of others’ skills, strengths and identify opportunities to mentor.

Evaluation of the ePortfolio platform implementation

Evaluation of the implementation is currently ongoing with ethics approval being obtained by the Implementation Team to collect various types of data (i.e. surveys,
interviews and work samples) to inform the evaluation of the ePortfolio implementation. Two sets of student survey questions were approved for ethics, a core set and an optional set that could be used at the discretion of the academic. These questions were developed and refined by members from the working party to ensure that academics using the ePortfolio platform could conduct their discipline-specific research. Ethics approval was also granted for various types of student data which allows the students to opt in to participate, allowing their academics and the research team access to work samples as well as other student data. These data types include enroute data, demographic data and student electronic artefacts submitted in a course. The Implementation Team will conduct focus groups and interviews with students and academics in the future. Finally, qualitative data is being collected from the learning and teaching professionals (i.e. Blended Learning Advisors and Educational Designers) who have collaborated in the implementation and who play a valuable role in supporting academic staff. This data collection will allow for a well-rounded baseline view of the implementation within the University.

Discussion

An implementation of this scope promises to deliver many lessons learned at the University, Group, program and course level. These learnings cover technical, pedagogical and motivational aspects. A few of the key lessons learned are described here. These include:

- Technical - Providing a variety of support channels for students and staff is critical, as they look for assistance in different ways.
- Pedagogical - ‘Think programmatically implement incrementally’ is a phrase that has emerged from the implementation. This means start with small ‘bite-sized’ chunks for the first iteration to build confidence before going bigger.
- Pedagogical - Support from learning and teaching professionals in all Groups is imperative to success.
- Motivational - Provide ample opportunities for innovators and L&T Professionals to share and learn together, and to support and inspire others.
- Motivational - To improve the reach of the extracurricular About Me program we learned that it is beneficial to leverage University social media channels, promote the incentives that are offered for participation, ask implementing academics to promote this program, and provide more hands-on information sessions in campus libraries.

Conclusion

As the implementation continues, the University, Academic Groups, academics, ePortfolio Working Party, central units and the Implementation Team will continue to collaborate. Together we continue to build on our experiences by:

- evolving the Innovators Program into a community of practice for sharing implementation ideas and research approaches;
- nurturing enterprise wide collaboration;
• broadening the offering of workshops for academics at varying levels of complexity;
• researching the impact of increased professional use on student exposure to the platform; and
• broadening outreach to more student programs, clubs, organisations and associations.

The intent is for this paper to a valuable contribution to the literature as it describes a well-rounded and multi-pronged university-wide implementation that may assist other institutions with various aspects of their own. The various stages in this implementation and the inclusion of a large number of staff from across the university has assisted with the development of processes necessary to implement across the University.

References


Biography

Professor Heidi Blair

Professor Heidi Blair has served as the Deputy Director of the Centre for Learning Futures at Griffith University since October 2015. In her role, she leads projects that support academics in the design, development and implementation of student-centered learning experiences as well as professional learning opportunities. She is passionate about leveraging existing tools and designing new ones to transform the experiences of learners and educators. Having taught from kindergarteners to doctoral students, she has a broad understanding of learning contexts and needs. Heidi has led the development of a multitude of solutions to meet a variety of learning needs. Prior to moving to Australia, Heidi served as the Director of Educational Technology for the Mary Lou Fulton Teachers College, Arizona State University. During this time she led the design, development, and implementation of the Professional Learning Library (PLL) - an online ecosystem in which educators learn and share with one another.

Dr Chris Campbell

Dr Chris Campbell is a lecturer in Learning Innovation at the Centre for Learning Futures, Griffith University. As an emerging research leader, Chris has been involved in numerous grants and projects around emerging and new digital technologies. Her skills in implementing and trialling new technologies are documented in numerous publications where she has conducted research in online tools in educational settings, including LAMS, Second Life and Assistive eXtra Learning Environments as well as research in technology integration, mobile learning and augmented reality. Chris has previously taught pre-service teachers and trialed interactive and emerging technologies in lectures. In 2016, Chris was a Queensland-Smithsonian Fellowship holder where she investigated the Smithsonian Learning Lab and implications for teachers.

Megan Duffy

Megan Duffy is a Project Manager in the Centre for Learning Futures Griffith University. Megan is leading the implementation of PebblePad across the university, and tapping into her experience in large-scale learning systems implementation and change management over her 15 years at educational institutions.
University-wide implementation: Supporting the innovators program and working collaboratively with faculties

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Abstract

Griffith University has undergone a university-wide implementation of PebblePad as the ePortfolio system to facilitate students engaging with, and learning 21st Century skills and to compliment employability. Although wide-scale university implementations are not new, the use of an innovation model adds breadth and depth to the implementation. As part of the model, the central teaching unit supported the implementation and also provided staff resources specifically for the innovators program. These include a project manager, educational designers and specialised technically trained staff who worked closely with the group of innovators. This group consisted of approximately 60 academics who were trained and supported by both central staff and faculty based staff to build capacity and then allow them to have champion status in their school or academic group. This paper will outline the implementation of this university-wide program and how the innovators group have been supported by a central teaching unit through collaborative work within and across the academic groups. Lead by both the Science and Health groups, the implementation was across all of the university’s academic groups. Early results at the completion of trimester one show the uptake of PebblePad can be tracked through the innovators courses and that these cohorts make up a significant number of overall PebblePad users across the institution.

Keywords: university-wide implementation, innovators, academics, ePortfolio, PebblePad, early adoption

Introduction

At Griffith University, the PebblePad implementation is university-wide spanning all five campuses with a combined total of over 45,000 students and 5,000 staff. This is a large implementation project involving courses and programs across all four academic groups. The implementation is being led by the central teaching unit (Learning Futures) and further supported by collaborative work within and across the academic groups. This paper will outline a part of the implementation to an expanding group of academics (currently around 60) known as the ‘Innovators’ who are each using PebblePad to support their teaching in a variety of activities and at a differing levels of complexity. These innovators come from all academic groups across the university and they teach on each of the campuses. The key to selecting the innovators academics and then implementing PebblePad at this level was the
desire for transformative change, championed by the Deputy Vice Chancellor (Academic). This project builds on a history of university-wide implementation projects, including the 2008 Griffith ePortfolio project and the subsequent 2011 review of ePortfolios (Coffey & Ashford-Rowe, 2014).

Although university-wide implementations are not new (Hains-Wesson, Wakeling & Aldred, 2014; Lambert & Corrin, 2007) Griffith University has used an innovation model of implementation to ensure that staff are involved from all four academic groups, across many courses, at a program level and that levels of participation increase from trimester to trimester. These intended outcomes are supported by the elements in Rogers’ *Diffusion of Innovations* model which describes diffusion as “the process by which (1) an innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system” (2003). The process around this innovators program began with identifying key areas of resourcing and support and then developing a support model. As Dennis, Pootheri and Natarajan report, technological innovators are far more likely to succeed when they have specific support models in place (1998). The Centre for Learning Futures provided staff resources specifically for the innovators program which included a project manager, educational designers and specialised technically trained staff who worked closely with the group of innovators. Once resourcing was in place, academics could then be identified and contacted to participate in the program. The specific steps involved in this process are identified in the methodology below.

The innovators program is running throughout 2017, and was developed so that academics could utilise the functionality of PebblePad while being supported by a core project team from Learning Futures and Blended Learning Advisors (BLAs) and Educational Designers (EDs) from their relevant academic group. The aims of the program are varied, and include:

- Allowing easy evidencing of employability skills
- Evidence of knowledge gathered across courses and programs
- Evidence of tasks completed for course assessment
- Evidence of tasks completed in co-curricular programs
- Course level assessment
- Reflective practice including process reflection
- Peer review
- Collaborative projects

However, most academics involved with the program will only be focusing on one of these strategies for implementation into their course(s). Many of the templates and workbooks also capture interactions between the students and the lecturers which allows for genuine feedback opportunities and meaningful formative assessment.

The 60 academics were trained and supported by both central staff and faculty based staff to build capacity and then allow them to have champion status in their school or academic group. This group also allowed an opportunity for Learning Futures to fully evaluate the implementation.
Identifying and Supporting the Innovators

Initially academics were invited to an information session where the program and opportunities for participation were explained. The work of Dennis, Pooetheri and Natarajan (1998) and Slade, Murfin and Trahar (2017) highlight the importance of specific use-cases of innovative technology in order for it to have more chance of success. For these reasons, one-to-one discussions were held with the attending academics to explore and tease out their ideas and/or areas of interest for implementing PebblePad. Interested academics were asked to submit an expression of interest to join the innovators group which was a form of gatekeeping (Rogers, 2003). The importance of having a problem to solve, or a specific need to address is also a key factor in the innovation-development process outlined by Rogers which moves through stages such as research, development, adoption by users and the experiences of the end user (Rogers, 2003). To further ensure that these early adopters were committed to using this technology to solve a need for their student cohorts, academics needed to commit time to scoping their proposal and to plan a design and development schedule with ongoing support from the Centre for Learning Futures or their group BLA or ED.

As this group of innovators were the early adopters of this technology, it was important to ensure they were supported throughout these crucial stages and for them to be set up for successful first experiences. Staff in Learning Futures set up a sub-committee consisting of the PebblePad implementation project manager, an educational designer and a technical support officer. Due to the popularity of this program, this team then grew to include a part-time educational designer. This sub-committee then designed and facilitated the group hands-on training sessions for the innovators. In the hands-on workshops, academics learnt how to use and implement certain tools within the PebblePad platform. These workshops were often the first introduction to PebblePad for many of the academics and therefore had to be structured to allow for initial exploration as well as future skill development. The session allowed academics to become familiar with the nuances of the platform and to delve into customised template creation using the built-in tools while being in a supportive environment. Research suggests it is important to set early adopters up with sustainable skills so that these academics have ownership and agency over the process and they then emerge as experts or ‘champions’ of the new platform Slade et al. (2017).

After the first round of initial training, academics were able to identify specific ways they would use PebblePad in their trimester one, 2017, courses. The project educational designer then set up one-on-one meetings with each academic (or in a few instances, teaching groups) to analyse the proposal and the suitability for implementation within PebblePad. Because the innovators were carefully chosen through a detailed expression of interest process, nearly all the innovator proposals were implemented in trimester one. In some instances an academic decided not to use PebblePad in trimester one and after consultation with their BLA or ED they discussed further learning support and then decided a later time to implement. Academics were also given the opportunity to engage in further professional development training, as well as through other activities such as participating in collaborative learning sessions.
Due to the hub and spoke model (Ling, Fraser & Gosling, 2013) of learning and teaching support at Griffith, many innovators were already working with a faculty (group) BLA or ED. In these situations, rather than having multiple contact points, the academic continued to work with their BLA or ED on their PebblePad implementation. For these reasons, it was essential to reaffirm communication between faculty support and centralised support.

The BLAs and EDs from the groups were further supported by Learning Futures through fortnightly drop-in webinar session, fortnightly (initially, and now monthly) advanced training workshops. These sessions have been significant in creating a culture of community and innovation and through sharing practice and examples, many BLAs and EDs have seen working use-case examples that have then been adapted for use with academics. These webinars and workshops have been complimented by a Google site where use cases, common support documentation, common language and naming conventions and further support materials are created and accessed. The Centre for Learning Futures project members also developed an internal and outward facing website which contained links to exemplars, and further support material designed to support both academic and student users.

**Methodology for the innovators program**

As mentioned above the innovators program included:

- invitational workshops and events,
- co-constructing learning experiences with the BLAs and EDs,
- advice and support throughout the teaching period; and,
- evaluation of the use of PebblePad in their teaching.

Through the program, academics embedded a range of learning activities and assessments in their courses, including:

- field trip preparation and reflections
- collecting evidence of skills against professional criteria
- collecting evidence of time on tasks for volunteer or work placement experiences
- development of professional portfolio pages, including recommendations

All of these were able to be presented in academic or professional ePortfolios which could also be assessed. The students also have the opportunity to share these portfolios, or a modified version, with external groups or potential employers who do not have a PebblePad account.

Academics can participate in an online survey as well as an interview about their experiences using PebblePad. Data has also been collected from the BLAs and the Eds as these staff have played a pivotal role in the innovators program and assisting with the implementation. They are often the staff who directly support the innovators academics.
Framework used in the Innovators program

The ADDIE model has been used as an underlying framework to support the innovators program. This model contains an analysis phase, design phase, development phase, implementation phase and evaluation phase and importantly these steps are not necessarily completed in a linear way, but one can move back and forth through the phases as necessary (Gustafson & Branch, 2002). Although known as a traditional instructional design model, it is important to note that ADDIE is thought of as a student centred model that is also goal oriented and assumes outcomes can be measured in a reliable way (Branch & Merrill, 2012) which is a strength of the ADDIE model. For this reason some of the BLAs and EDs have incorporated this model into their assistance with academics in the implementation.

Innovators, who in this instance were akin to early adopters, were guaranteed support to assist in the design, development and implementation life cycle (centralised support) throughout the first trimester as they moved through Rogers’ Diffusion of Innovation model (2003). The relatively large number of innovators who applied for this support indicate that this support model is highly sort after but for various reasons, is not often offered. This model of support is consistent with approaches at other universities during institution-wide ePortfolio implementation (Slade, Murfin & Trahar, 2017).

Evaluation of the innovators program

Ethics approval was obtained by the team to collect various types of data for evaluation. Data types include a student survey with a core set of questions and a bank of other optional questions that can be optionally included. This various question-option design allows for the academic to choose relevant questions depending on how they are using PebblePad. There is also ethics approval to gain access to various types of student data and students can choose to opt in to allow the academics and research team access to this. Other data types include user data, demographic data and their electronic artefacts that were submitted online. Focus group interviews can also be conducted of both the students and the academics as well as an online survey that the academics can complete. Finally data is being collected from the blended learning advisors and educational designers who have assisted with the implementation and supported the academic staff. This data collection will allow for a well rounded view of the implementation within the university. Data collection is continuing in trimester two.

Results of the implementation

As of June there were 5243 unique users in the system. This shows that there are many academics implementing PebblePad into their teaching and learning activities and assessment within their courses and also into various programs across the university.
Uptake across the university was quite varied across the academic groups. This is because Health and Sciences were already using ePortfolios and thus were able to implement more easily due to the numbers of academics already teaching using this style. Griffith Business School (GBS) have begun small with three courses implementing in trimester one, and then moving to six courses implementing in trimester two. Figure 1 shows the distribution of the course implementation for trimester one.

Numbers of total logins across the university climbed steadily in trimester one. This went up in April and June as assignments may have been due at this time. As May was the end of the trimester logins steadily went down at this time. Also at the beginning of July logins continued to decrease due to the beginning of trimester.
The student submissions have increased during the trimester with a peak in April and then later in June (Figure 3) which corresponds with the total login graph peaks. The various workspaces have also increased each month (a workspace is similar to a course-site in an LMS and is where resources are distributed and submissions can be collected for feedback and marking).

![Graph showing submission stats](image1)

![Graph showing ATLAS stats](image2)

Figure 3: The assignment submission figures and the ATLAS statistics showing the various types of workspaces that have increased each month.

**Recommendations and Conclusions**

Early in trimester two the number of innovators has increased in each of the academic groups with some groups promoting the use of PebblePad very successfully. This model allows for flexibility in both the implementation and the evaluation and is showing that uptake of this tool is growing. The innovators feel supported in the use of PebblePad when implementing in class, which indicates early success with this implementation and support model. The BLAs and EDs have said that they have received enough training in PebblePad and the resources that are supplied and available are quite helpful.

In the future, it will be important to ensure we are still attracting innovators to the implementation, however all signs are that this is happening with trimester one innovators already showing that they are keen to implement again in trimester one, 2018.
Overall, the use of PebblePad in trimester one demonstrates that the model of the university-wide implementation with the innovators program has seen early success and this model can be continued through the remainder of the supported PebblePad implementation.

References


Biography

Dr Chris Campbell

Dr Chris Campbell is a lecturer in Learning Innovation at the Centre for Learning Futures, Griffith University. As an emerging research leader, Chris has been involved in numerous grants and projects around emerging and new digital technologies. Her skills in implementing and trialling new technologies are documented in numerous publications where she has conducted research in online tools in educational settings, including LAMS, Second Life and Assistive eXtra Learning Environments as well as research in technology integration, mobile learning and augmented reality. Chris has previously taught pre-service teachers and trialled interactive and emerging technologies in lectures. In 2016, Chris was a Queensland-Smithsonian Fellowship holder where she investigated the Smithsonian Learning Lab and implications for teachers.

John Bourke

John Bourke is an Educational Designer with Griffith University. As part of the university’s implementation of PebblePad John has set up and maintained the Innovator program with 60 academics from across all four academic groups. The program is an early adopter initiative and John is working with the Innovators to design and implement inspiring and engaging PebblePad activities within their courses and programs. John is also responsible for conducting PebblePad training and supporting the academic group learning and teaching professionals across the university.

Priscilla Trahar

Priscilla Trahar is an experienced Learning and Educational Designer, having worked on the University-wide PebblePad implementation project at USC from 2014-2016. In this role, Priscilla was part of the team that won a LearnX Impact Award for the best new technology implementation and is involved in several grant projects focussing on developing and using ePortfolios both across programs and for graduate employability. Priscilla was a featured speaker at PebbleBash 2016 and has presented numerous case studies on implementing and using ePortfolios. Priscilla is now working on medium and long-term projects involving ePortfolio implementation and practice across the Australian Higher Education sector and is part of Griffith University’s PebblePad implementation project team.

Kristina Nisova

Kristina Nisova is a Senior Support Analyst at Griffith University who is currently supporting the university-wide implementation of PebblePad. Kristina has played an integral role in the implementation by facilitating training workshops, creating technical support documentation, supporting students, academics and staff in their everyday use of PebblePad and administering the relevant configuration settings for PebblePad.
Using ePortfolios to Strengthen Student Identity Verification in Assessment: A response to contract cheating

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Abstract

The use of ghost writing from sophisticated contract cheating websites is a serious challenge for educational institutions. These websites offer students the opportunity to purchase individualised assessment ‘products’ ranging from written tasks, reflective pieces, dissertations to contributing to online discussions, just to name a few. Current anti-plagiarism solutions rarely catch contract cheaters because they work on matching new assessment responses to existing databases. Of course, it is difficult to know the extent of such practices but since the MyMasters report was published in Australian newspapers in 2015 a steady flow of articles about different incidents have appeared. This raises the question as to whether to student who gets credit for undertaking a university course is actually the student doing the work. In this paper I suggest that ePortfolio pedagogy, facilitated by educationally rich ePortfolio software platforms if available, and coupled with an understanding of how to improve the verification of a student’s identity in assessment, is an effective means to respond to contract cheating.

Scholarly discourses steadily report the empirical implications of contract cheating services, which is challenging in such a fast paced and changing field. Research continues to investigate why students cheat and a number of reasons found, such as pressure to succeed, competition with peers, the inability to manage competing priorities, laziness and lenient punishment. The fallback position for institutions in response to contract cheating, is to increase the use of invigilated centralised exams to minimise risk, but recent published events tell us that exams are not immune. Furthermore, pedagogically, exams may not be the optimum way to meet intended learning outcomes.

Research points to institutions investing in multi-faceted responses that include the strengthening the verification of a student’s identity in the design of high stakes assessment tasks. Based on criteria drawn from scholarly research I suggest that ePortfolios have a significant contribution in combating contract cheating through assessment design. EPortfolios often include an individualised response to assessment tasks, are set within a professional practice context, and completed over an extended period of time. Progress towards completion is easily reviewed periodically with formative feedback provided by educators and/or peers. Verification of student identity is available through authenticated signatures, time stamping and the use of video that places the student in context. Further empirical exploration and sector discussion about ways ePortfolios can improve the
identity of student authorship in assessment would be beneficial to all stakeholders.

**Keywords:** academic integrity, assessment, contract cheating, student identity verification, ePortfolios

**Introduction**

Student dishonesty in assessment, in its many forms, challenges the foundational values of academic integrity in universities. Plagiarism, or using someone else’s work without acknowledgement (Colnerud and Rosander, 2009) is a common problem, particularly as students now have ready access to the internet. Advanced online cheating opportunities bring a new level of sophistication to the ways students can cheat in assessment tasks. Persuasively marketed contract cheating websites offer to ‘help’ students complete assessment tasks through the purchase of affordable and timely individualised responses, written by their employed ghost writers. A broad variety of assessment ‘products’ are available for purchase, including written responses, completing online tests, writing theses or reflective pieces, and even participating in online discussions and classes, to name a few (Owings and Nelson, 2014; Taylor, 2014). When a student submits a purchased response as their own work they commit an ‘act of plagiarism and academic dishonesty’ (QAA, 2016, p. 3). These purchased individualised tasks, however, are not usually detected by current anti-plagiarism software because these systems work on the premise of matching new assessment responses to a database of existing ones.

Of course, it is difficult to know how widespread contract cheating practices are in higher education as students seldom self-disclose about participating in such activities and there is a lack of evidence about institutions catching students (Lancaster and Clarke, 2016). In Australia, the MyMasters reports published in the 2015 newspapers brought home the extent of these practices in universities.\(^1\) Since then, a steady flow of articles about new aspects of contract cheating and the latest institutional responses continue to appear in the popular press.

This, then raises the question as to whether the student who gets credit for the work in a university course is the actual person completing the assessment tasks. While ePortfolios are identified in literature and practice as facilitators of many desired learning outcomes, such as reflection, graduate capabilities or professional accreditation, I propose here that the role of ePortfolios be further considered in addressing contemporary contract cheating behaviour. I put forward that ePortfolio pedagogy, enabled, if possible by educationally rich ePortfolio software platforms, coupled with the understanding of how to improve the authentication of a student’s identity in high stakes assessment, provides one readily available means to respond to contract cheating.

Therefore, the rest of the paper briefly outlines reasons why students might turn to one of these sites to purchase an assessment, and the strategies universities are currently considering and/or activating in response. It particularly examines ways to improve safeguarding the identity of the student completing an assessment task,

and then links these ways to how ePortfolios can help address this assessment challenge.

Responses to Contract Cheating

Scholarly discourses steadily report the empirical implications of contract cheating website services for students, staff, institutions, and the professional and public arenas. Keeping pace with the continual advances in this field is challenging for researchers and institutions alike, however, the ensuing understanding and dialogue provided assists stakeholders in their decision-making responsibilities. This paper seeks to prompt further discussion about the use of ePortfolios in responding to contract cheating services. This section provides a brief background to the reasons why students cheat and current institutional responses, particularly in the design/redesign of assessment.

Investigations into why students cheat in assessment are ongoing, but were spearheaded by McCabe and associates in surveying large cohorts of students across a number of institutions and timeframes. Work by McCabe, Trevino and Butterfield (1999) found that academic pressure to succeed, competing against peers for best career opportunities family expectations, laziness, inability to manage competing priorities and timeframes are some of the reasons why students cheat. Heavy workloads and lenient consequences can also be contributing factors (McCabe and Trevino, 1995). The most significant contributing influence is peer attitudes and behaviour (McCabe and Trevino, 1997).

The fallback position for institutions addressing contract cheating is to increase the use of invigilated centralised exams. However, recent public media reports demonstrate that even exams are not immune from contract cheating as dishonest students use smart watches and spy glasses, for example, to cheat.2 Another consideration is that pedagogically exams may not fit well with intended learning outcomes.

Research points to institutions investing in multi-faceted responses across the gamut of university life (see Newton and Lang, 2016; The University of Sydney, 2015) and as such, Slade, Rowland and McGrath (2016, p.2) suggest an eight pronged approach:

- Ensuring robust policies are in place around misconduct
- Supporting academics as they investigate misconduct
- Taking appropriate punitive action against misconduct
- Strengthening administration structures and practices
- Building an institutional culture of integrity and encouraging honour codes
- Educating students and staff
- Strengthening assessment design for student identity verification, and
- Exploring technological solutions

2 See http://theconversation.com/students-are-using-smart-spy-technology-to-cheat-in-exams-59241
Focusing on Assessment Design/Redesign

Improving the verification of a student’s identity through assessment redesign minimises the percentage of marks a dishonest student can gain through contract cheating (Lancaster and Clarke, 2008). This paper focuses on one aspect of this approach: ‘Strengthening assessment design for student identity verification’ through the use of ePortfolios. While it sounds relatively easy to strengthen assessment in this way it is not so simple given the increasing sophistication of contract cheating services and their ability to hide the student’s identity and transactions behind the anonymity of the internet (Fisher, McLeod, Savage and Simkin, 2016).

Three data sources informed my perspective on linking ePortfolios with academic integrity. They are:

- Findings from the academic integrity literature contextualised within my ePortfolio implementation experience and knowledge.
- Reflections on the ‘Student Dishonesty in Assessment’ presentations and the co-facilitation of six collaborative student identity verification in assessment workshops.
- Leading a small research project accompanying two of these workshops.

Scholars and educators make numerous suggestions to improve assessment design in combating student dishonesty. For example, using online plagiarism matching software (Fisher et al. 2016); requiring students to analyse rather than recall facts (TEQSA, 2015); or designing individualised, personalised or localised assessment tasks, with or without reflective elements (Lancaster and Clarke, 2010, 2016); The University of Sydney (2015) suggests taking a scaffolded approach to a task that requires regular contact with the educator. Taylor (2014) agrees and adds an early in-class supervised writing/research exercise to collect a baseline of each student’s writing style and capacity. This author also proposes students work together in pairs on a task, with an in-class preparation component, and some individual work on different sections, but joining together to write the introduction and conclusion (Taylor, 2014). Newton and Lang (2016) advise that high stakes assessment should require the student to be physically present through a viva or online narrated video presentation. TEQSA (2015) suggests this may be achieved through verified assessment in the workplace. Adding such an authentication step verifies that the student is familiar with the rationale, analysis and/or specific details in completing the task. It may be a hurdle task that must be passed to successfully complete the rest of the course (TEQSA, 2015).

Reflections on preparing and giving ‘Student Dishonesty in Assessment’ presentations at a number of universities stimulated my early thinking about the criteria needed to improve the authentication of student identity in high stakes assessment tasks. Then, in early 2017 I co-facilitated, with my colleague, Associate Professor Susan Rowland3, a number of collaborative workshops in which university staff experienced in curriculum design focused on identifying potential contract cheating problems and developing improved student identity verified responses to

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An accompanying research project (UQ ethics approval No. 2016001807) was undertaken for two of the workshops involving forty-two staff members from fifteen universities. All workshop participants consented to being research participants as well. An action research methodology was used to address this sector-wide challenge, with the facilitators and participants working together in iterative participatory codesign phases within the workshop timeframe. Data were collected from a number of sources including post-it notes, butchers’ paper, participant workshop evaluations and the facilitators’ reflections. Thematic analysis using NVivo 11 software was undertaken as needed to understand participant academic integrity concerns and assessment integrity problems, their suggested redesign strategies and evaluation of the workshop process. Forthcoming publications will detail the results of this research.

A synopsis of my learning from these activities and reflections thus far suggests that student identity verified assessment tasks need to:

Be a scaffolded assessment that
• measures baseline writing style and competency level
• demonstrates progress towards completion
• provides regular check in times with educator
• uses peer participation and feedback, and
• values the learning process involved as well as the outputs.

Include authentication points that
• verify the student’s identity
• demonstrate a student’s understanding of the task, and
• prove the student actually undertook the task.

Using ePortfolios to Facilitate Student Identity Verification in Assessment

The previous section in this paper briefly outlined ways to improve the authentication of a student’s identity in assessment and now I turn attention to how ePortfolios can meet these requirements. An ePortfolio is more than a technological tool which depends solely on the sophistication of its operating software platform. Hallam and Creagh (2010, p. 181) remind us that ePortfolio usage includes ‘agency and input of its users’ in pedagogical and often complex processes. Thus, an ePortfolio ‘is an online repository in which students store and share a variety of informal and formal learning experiences, collected over time, using written, visual, and auditory artifacts’ (Slade, Murfin, and Readman, 2013, p. 177). ePortfolios are commonly used for reflection on learning, collecting evidence for accreditation and employment (or other purposes), and showcasing one’s learning.
achievements. By their very nature ePortfolios measure the process of learning over time as well as the construction of end products (Lewis, 2017). Therefore, based on scholarly research, my knowledge of ePortfolio use in higher education and reflections on recent activities, I suggest that ePortfolios, complemented by intentional student identity verified assessment design, provides an effective means to respond to contract cheating.

Pedagogically, ePortfolios can enable progressive assessment for students that extends over their whole program of study, if desired. Regular points for submission, formative feedback and the development of action plans, or facilitation of random checks are available (Dalziel, 2008). Educators or external facilitators can also provide summative feedback within the system. EPortfolio software platforms allow educators to oversee submissions at any time, with settings available for progressive submissions over a set time period. Students can be placed in online small groups that can be designed to measure group processes as well as outputs. EPortfolio software systems store all the submitted assessment tasks so it is easy to refer back to baseline tasks or progressive examples of writing styles and competency. Verification of student identity can come from external workplaces, signature and corresponding authentication uploads, time stamping, and/or the use of video and other multimedia that shows the student’s involvement.

Conclusion
Contract cheating services pose a very serious threat to foundational academic integrity values in higher education. It is difficult to know the extent of such practices. Research demonstrates that a multi-pronged approach by universities is most suitable. One of these strategies is improving the verification of student identity in undertaking assessment tasks. This paper suggests that ePortfolio pedagogy, coupled with the understanding of how to improve the authentication of a student’s identity in high stakes assessment, provides one readily available means to respond to contract cheating. Further empirical exploration and sector discussion about ways ePortfolios can improve the identity of student authorship in assessment would be beneficial to all stakeholders.

Acknowledgement
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References


Biography

Dr Christine Slade

Dr Christine Slade (PhD GC Prof Learning SFHEA) is a Lecturer in Higher Education in the Institute for Teaching and Learning Innovation (ITaLI) at the University of Queensland, where she is the academic lead for assessment. As part of this role, Christine is the Learning Advisor for the ePortfolio for WILs project, particularly focusing on pedagogical outcomes for students. She has participated in the Australian ePortfolio Forum since 2012 and recently presented at the AAEEBL ePortfolio conference in the USA. Prior to this work, as the Academic Developer (ePortfolios) at the University of the Sunshine Coast, Christine was responsible for the university-wide ePortfolio implementation (2014-2015), which was preceded by an Early Adopter Phase (2013) and an ePortfolio Feasibility Study (2012). Christine’s work is highly regarded in the international ePortfolio community and she has published widely in the sector.
Recording and reviewing learning in the clinical workplace: Supporting students and supervisors

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Abstract

Learning in the clinical workplace is expected in medical education. Such learning is excellent preparation for practice. However, because of the required patient-centred focus it is recognised that it can be challenging for the student and supervisor to adhere to best practice in education, and thereby to achieve optimal learning and teaching outcomes. This paper reports on an initiative using an electronic logbook (elogbook) designed to support undergraduate medical students to record a snapshot of their clinical learning opportunities on General Practice placement. This sample incorporates non-identifying details of 50 consecutive patient consultations mapped to an international classification system for primary care encounters (ICPC-2). Students can use this record to build a portfolio of their accumulating clinical experiences. The elogbook also includes the facility for students to record their reflections on these encounters. A summative assessment task requires students to present their perceptions of their general practice placements to their peers and a GP tutor post-placement. Students are encouraged to consider issues such as patient population demographics and presentations for their allocated clinic(s) and how these link to the national burden of disease; the role of the GP; barriers and facilitators to best practice; and, how the placement has facilitated relevant knowledge acquisition and skill development. Reflection per se, as a skill is not taught, but the assessment rubric appears to scaffold this behaviour in a useful way. The students saw a wide spectrum of presentations corresponding to the 17 categories of the classification system, and comprising a broad range of complaints and conditions. Across the cohort students had the opportunity to observe and practise the full scope of procedures listed. Students’ reflections on their patient encounters indicated key knowledge and skills that they could apply and use in the clinical workplace, and the deficits that they identified and stated an intention to address. The utility of the elogbook to support both the students’ learning in a challenging context, and a means to link their learning needs and efforts to useful teaching strategies is examined. With further stakeholder consultation the elogbook tool could be developed to enhance its useability and connect learner to teacher and vice versa.
Background

Learning in the clinical workplace is an expected component of medical education (Conn et al., 2012). The advantages of this are obvious: learning in situ supports the development of “occupational competence” (Billett, 2015, page 124). However, there are challenges for both students and supervisors. Learning is opportunistic since it is dependent on patient presentations, and these may not align with curriculum content and may extend beyond the student’s current level or competence and his or her zone of proximal development (Vygotsky, 1978). In addition, the context is service rather than education-focused, and the pace of delivery may be very fast both of which can negatively impact teaching (Ferenchick et al., 1997; Spencer, 2003).

Typically, students are required to log their clinical learning activities as a record of their experiences on placement. Logs can be directed toward completion of key tasks and may be assessment driven, essentially being a hurdle for satisfactory completion of a rotation. These logs require input from the supervisor in the form of sign-off and / or grading. Alternatively, logs can be student generated and document patient encounters, highlighting opportunities for the acquisition of knowledge and development of skills (Denton et al., 2006). Such logs are just “dossiers of evidence” (Rees, 2005) but these could provide the infrastructure for the development of learning portfolios to support reflection and guide the student’s efforts appropriately. In addition, access to such a record could provide a framework for educators to redress gaps in exposure to core conditions, deficits in knowledge, and concerns regarding core clinical skills (Denton & Durning, 2009).

Overview of the study

Year 4C in the Monash MBBS (Hons) incorporates teaching and placements in four disciplines, Obstetrics and Gynaecology, Paediatrics, Psychiatry, and General Practice. The three hospital-based disciplines use task-driven logbooks, directing student to complete specified activities under supervision both for their own records and for the supervisor to assess their competence in relevant skills e.g., history-taking, physical examination etc. In General Practice placements, the students use a bespoke electronic logbook to record non-identifying details of 50 consecutive patient encounters. This data capture, like the task-driven logbooks, has the potential to support students to contextualise their learning on placement, linking theory to practice, and to encourage reflection on performance and practice (Thomas & Goldberg, 2007; Mann et al., 2009).

Data to be collected on general practice placements include background details of the consultation and non-identifying (general) demographics of the patient. Specifically, these are the status of the patient i.e., new to the student or a repeat encounter, the student’s role in the consultation i.e., observing the GP supervisor, or managing the encounter under supervision; and age, sex, and ATSI status / ethnic background of the patient. The reason for the encounter is recorded against the International Classification of Primary Care chapters (ICPC-2), which was developed by the WONCA International Classification Committee and has been endorsed by the World Health Organisation (WONCA, 2016). The ICPC-2 chapters support the
recording of data within an episode of care structure. Each chapter comprises a range of symptoms / complaints, infections, neoplasms, injuries, congenital abnormalities and other diagnoses relevant to 16 systems, e.g., cardiovascular, and digestive, and one “general and unspecified” category. The eLogbook also permits the student to record any learning needs identified within the encounter, and to review, edit and reflect on entries. Recordings can be made at the point of care, or subsequent to the patient encounter. Logging, without reflection, requires less than a minute to complete per encounter.

Recording 50 consecutive encounters is a hurdle task. Students are also required to present this snapshot of their General Practice placement experience to their peers and a tutor. Reflection on learning per se., is not specifically taught, but this summative presentation task is structured to encourage consideration of the practice population demographics; the conditions encountered and similarities / differences between these and the national burden of disease; challenges for the general practitioner, practice and patients; the role of the general practitioner and the practice within the community; facilitators and barriers to evidence based practice; new knowledge and skills acquired on placement; and the student’s perception of general practice.

Overview of the findings

In 2016, 503 Year 4C students recorded 27894 consultations. More female patients (53% of the sample) were seen than male. The most common presentations were in the categories General and Unspecified involving undifferentiated symptoms e.g., pain, fever, and consultations that included effort directed towards health promotion and illness prevention; and Musculoskeletal, Respiratory and Dermatology. The distribution of these individual consultations across the ICPC-2 chapters is depicted in Figure 1 below.
Since patients can present with more than one issue in a General Practice consultation, these 27894 individual patient encounters represented exposure to 42202 issues / conditions. Students also recorded observing, or performing under supervision, 58261 procedures, the most common being medical examination / health evaluation and renewal of prescriptions.

Students’ reflections broadly followed the rubric of the assessment task. These included an appreciation of, for example, the patient population demographics of the practice.

“This woman came in to get a letter for Centrelink, something which is very common in the people who visit this clinic. Why there is an abundance of mental illness and consultations involving letters to Centrelink is partially because of where the clinic is situated, and partially because it is accessible. This clinic bulk-bills which means that those who generally cannot afford to go somewhere else come here.” #1443

There was also an acknowledgement of barriers to evidence based practice.

“….This shows that a GP’s job is not as easy as just telling a patient to get a colonoscopy. They have to address any barriers which may prevent the patient from seeking investigations and treatment. This highlights that GPs must take into account the whole patient, including their environment, in order to treat them.” #1483

The wide scope of practice and necessary broad depth of knowledge of GPs was also recognised.

“This gentleman came in because he has had profuse vomiting and diarrhoea for 3 days.. The doctor also noticed during the consultation that the patient had gained weight, so he sent the patient to have some tests done to screen for thyroid problems, diabetes, etc. This just shows what a big role GPs have in screening and preventative medicine, as they have regular contact with their patients and are actually able to notice things like this.” #5175

“…”I was given the results to the patient’s MRI of the right knee and asked to interpret them. Although I haven’t had much experience in orthopaedics, I still took a stab and this emphasised to me how broad a knowledge base GPs must have in order to interpret all sorts of tests results such as this.” #265

Of particular interest were the reflections on learning while on placement ranging from simple records:

“I learnt the proper technique of cryotherapy and how to distinguish solar keratoses from other spots on the skin.” #1668

Through recognition of learning needs in terms of knowledge and skill development:

“37 y.o. with husband came in to announce pregnancy - NEED TO LEARN HOW TO TAKE A HISTORY FOR PREGNANCY…” #2755
“Patient was extremely happy to talk but kept going off topic. It was difficult to bring him back to topic. Took 1 hour to clerk him. Although it did help to repeat what patient says.. Will need to have a better strategy to clerk enthusiastic patients in the future.” #2150

Students recorded features of their supervisor’s behaviours that supported learning on placement. Examples included effectively managing recalcitrant patients presenting with apparently straightforward symptoms:

“This patient had multiple complaints for a single booking appointment, with general issues like nose bleeds after picking her nose, constipation, a swollen gland on the right side of her neck as well as a rash on her forearms. It was evident that the GP was trying her best to be patient in spite of the fact that the complaints seem fairly simple. In the end, she only prescribed MOVICOL for the patient’s constipation as the other complaints did not appear to require further treatment. It gave me a good insight into the more difficult patients a GP may encounter, and I was impressed by how my GP acted in this situation.” #2538

Through to modelling approaches to complex presentations:

“This consultation was quite confronting and very distinct from any of the other consultations I have observed. The patient had a recent history of attempted suicide, and depression on a background of a separation between himself and his wife. .... I found it quite good to watch how the GP dealt with the consultation - both supporting the patient, but also making sure to provide sensible advice. ....The patient clearly had a lot of trust for the GP, and a close relationship; otherwise he would not have been so open. After the patient had left, the GP highlighted certain nuances in the consultation that I had not really appreciated - for example, the patient’s narcissist personality, and given this, how to appropriately communicate with him.” #1850

“This patient revealed that they had been non-compliant with their Metformin for about 3 months. The way in which the GP handled this situation was impressive - she enquired about the reasons for non-compliance and explained carefully the importance of taking medication using his latest HbA1c results. The patient seemed more motivated by the end to adhere. It was also interesting to see the reduction in dose of Metformin, given that he had not had it for a few months.” #3295

“This patient’s presenting complaint was helpful for me to practice coming up with differentials. It was good to see the systematic approach to narrowing down this list through the use of imaging and microscopy. I found it really helpful to observe the way in which the GP explained sources of haematuria and glomerulonephritis in general.” #3294

The GP discipline leads at each of the sites where Year 4C students undertake general practice placements have access to collated eLogbook data that allows them to compare the clinical learning experiences of their students with those of the whole cohort. As yet not all GP supervisors have access. Identification of helpful teaching strategies and students’ adoption of observed or taught patient management strategies could facilitate teaching efforts, but the issue of supporting time-poor clinicians scaffolding students’ learning must be acknowledged.
Conclusion

In conclusion, although only a snapshot of the students’ clinical learning experiences while on general practice placement is recorded using the elogbook, these data have potential utility in measuring students’ exposure to “core” clinical conditions as in the United States (Denton & Durning, 2009, page 281) and Germany (Schüttpelz-Brauns et al., 2016). This in turn would validate the ratings ascribed to conditions and presentations in the Year 4C curriculum content map against which high-stakes assessment tasks are blueprinted. In addition, these data could be used to verify the value of placements as per accreditation standards e.g., the Liaison Committee on Medical Education (LCME) in the United States (Denton et al., 2006) and the Australian Medical Council Standards (see in particular Standard 8.3.1, AMC, 2012). Since the data are linked to the ICPC-2 template, comparisons to other datasets such as GP registrars’ clinical experience (Magin et al., 2015) and the workload of Australian GPs as collated by the Bettering the Evaluation and Care of Health (BEACH) survey (Britt et al., 2016) are possible to (1) integrate education and training vertically, and (2) explore how learning on placement prepares individuals for practice.

It does appear anecdotally that supporting students to log non-identifying details of patient encounters on placement supports portfolio development (Buckley et al., 2009) and subsequent reflection on the clinical learning experiences afforded, and has the potential to support knowledge acquisition and, in particular, skill development (Saber et al., 2008). Providing access to these reflections may be useful to the supervisors, as for the site discipline leads, and help to guide their teaching efforts on placement. The reflections or qualitative data generated do appear to identify key learning points for students and teaching opportunities for supervisors and discipline leads. If students were directed to develop an action plan to share with their GP supervisor as part of a structured reflection task, this could be beneficial to both parties and would not necessarily increase consultation times or add to workloads (Walters et al., 2008; Walters et al., 2009). Such action plans could be used to link prior (biomedical science) and relevant classroom learning to clinical management in situ and support reasoning in complex situations that require a balance of evidence-based and pragmatic decisions to effect optimal patient outcomes. The action plans may also be a useful resource to scaffold the efforts of supervisors, particularly those new to teaching.

References


**Biography**

**Dr. Cathy Haigh**

Dr. Cathy Haigh is the acting director and academic coordinator for Year 4C of the MBBS (hons) at Monash Rural Health: Latrobe Valley and West Gippsland. Cathy is interested in workplace based learning, and supporting students to link theory to practice as they progress across the clinical learning years. Cathy's background is Psychology. She completed her honours degree in Dublin University: Trinity College, and her PhD in the University of Strathclyde, Glasgow, and then a Graduate Certificate in Health Professional Education at Monash University. Cathy is working as part of a team to design and develop educational resources intended to support students to satisfy learning objectives linked to curriculum content and assessment tasks that also include and contextualise clinical learning experiences.

**Mr. Bill Haigh**

Mr. Bill Haigh is the simulation coordinator and works in blended learning and research at Monash Rural Health: Latrobe Valley and West Gippsland. Bill developed the elogbook and eportfolio used by the students to record, collate, review and reflect on their learning experiences.

**Dr. Brad Frew**

Dr. Brad Frew is a lecturer in the Department of General Practice at Monash University, and a practising General Practitioner. Brad developed the assessment task to provide a context for students to own their learning journey in General Practice, and to share this with their site supervisors.

**Dr. Claire Harrison**

Dr. Claire Harrison is the discipline lead for General Practice at Monash University and a practising General Practitioner. Claire has supported the implementation of the electronic logbook and portfolio at all Monash sites where students undertake General Practice Placements including metropolitan, regional and rural Victoria and Malaysia.
Constructing the pathway: Supporting student employability in an Education program

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Abstract

The case study presented in this paper illustrates how a program of study integrates a university wide approach to developing employability skills and a scaffolded learning experience for students throughout their course. Using a PebblePad workbook, the Primary Education program at Edith Cowan University is working with the Centre for Learning and Teaching to support students in identifying and developing their graduate capabilities. This includes encouraging them to make connections between their coursework, practicum and other learning opportunities, and mapping them to the AITSL Standards. A workbook has been created to scaffold this process and structured so that the stories and evidence collated within it can easily be transferred to an ePortfolio, which can subsequently be shared with teacher accreditation bodies and potential employers.

Keywords: scaffolded learning, teacher training, metacognition, ePortfolios

Introduction

Acknowledging the need to provide students with a scaffolded approach in order to recognise and articulate their learning, the School of Education and the Centre for Learning and Teaching (CLT) at Edith Cowan University have been working collaboratively to develop resources to support students to make connections between their learning and experiences and to provide evidence of graduate teacher quality. The principal impetus to provide these scaffolds was the 2016 development of a university-wide approach to employability, which rests upon an emphasis on supporting students develop the metacognitive skills of recognising, integrating and articulating the knowledge and skills they obtain within and external to their course. The second factor was the increased demand for teacher training institutions to demonstrate the impact of their graduates. Through this approach, Bachelor of Education (Primary) students are provided with access to a PebblePad workbook developed in conjunction with CLT. This workbook provides a scaffolded method for students to map their learning journey throughout their course of study, linking student learning to a final portfolio where they can articulate their knowledge, skills and achievements.
Context

In Education, graduate employment rates are relatively high with the National Teacher Workforce Dataset indicating that 80% of registered teachers are employed as teachers (Willett, Segal, & Walford, 2014). However, despite an attrition rate of 5.7%, modelling by Willett et al. (2014) predicts that the growth in teacher numbers will exceed the growth in student numbers (p. 52). This will create a more competitive environment for graduating teachers and require them to differentiate themselves from other, similarly qualified, applicants. Developing students’ metacognitive skills, including the ability for critical reflection, can result in a greater awareness of what they have to offer to their prospective profession (Crebert, Bates, Bell, Patrick, & Cagnolini, 2004). ePortfolios have been shown to have the potential to enable students to monitor their achievements from year to year and include tools to facilitate the collection of evidence and reflection on progress towards specific outcomes, thus enabling them to articulate their knowledge and skills to a prospective employer (Liu & Burt, 2015; Peet et al., 2011; Rowley, Bennett, Blom, & Dunbar-Hall, 2014).

The second impetus for embedding ePortfolios into the School of Education Primary program was the increasing requirement for Initial Teacher Education (ITE) programs to produce graduate teachers who could demonstrate their teaching skills, including impact on student learning (Australian Institute for Teaching and School Leadership, 2015; Teacher Education Ministerial Advisory Group, 2014). It is widely accepted that teacher quality has a significant impact on student outcomes (Goe, 2007; Hattie, 2003) and poor student performance on international indicators, such as Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMMS) (Thomson, De Bortoli, & Underwood, 2016; Thomson, Wernert, O’Grady, & Rodrigues, 2017), have increased concerns about teacher quality in Australia; in a recent UNICEF report (UNICEF Office of Research, 2017) Australia was ranked 39 out of 41 countries on quality of education.

Consequently, Initial Teacher Education (ITE) programs have come under increasing scrutiny regarding their efficacy in training teachers whose practices will enhance student outcomes. In 2014, a report by the Teacher Education Ministerial Advisory Group (TEMAG) made 38 recommendations intended to improve ITE courses and create “classroom ready teachers” (Teacher Education Ministerial Advisory Group, 2014). The recommendation in this report have been articulated into several of the Program Standards for the accreditation of ITE programs developed by the Australian Institute for Teaching and School Leadership (AITSL) in their Accreditation of Initial Teacher Education Programs in Australia: Standards and Procedures document (Australian Institute for Teaching and School Leadership, 2015).

Of particular relevance to the integration of ePortfolios into the School of Education Primary course at Edith Cowan University is Program Standard 1.2 from the accreditation document. This Standard includes the requirement for ITE programs to provide evidence that pre-service teachers “…have successfully completed a final-year teaching performance assessment prior to graduation that is shown to...be a reflection of classroom teaching practice including the elements of planning, teaching, assessing and reflecting” (Australian Institute for Teaching and School Leadership, 2015, p.10). In addition to features that support reflective
practice, ePortfolios also afford the opportunity for initial teacher educators to provide resources to students that will assist them in collating evidence of their teaching experience.

In 2015, the Learning Sciences Institute Australia, Australian Catholic University, developed the Graduate Teacher Performance Assessment (GTPA), which is currently being trialled by 14 Australian universities, including ECU. The GTPA is intended to be “an authentic culminating summative assessment designed to demonstrate preservice teachers’ ability to meet the Graduate Teacher Standards” (Learning Sciences Institute Australia, 2017). Consistent with the research into the use of ePortfolios in Teacher Education highlighting their efficacy in supporting students to demonstrate learning and attainment of teaching standards required for accreditation (Moran, Vozzo, Reid, Pietsch, & Hatton, 2013; Walsh, Main, & Lock, 2008), the GTPA includes ePortfolios as a potential medium for providing this evidence.

**Approach**

Based on research into the use of ePortfolios and the requirement to provide evidence that demonstrates achievement of the AITSL Standards, a course-wide approach to ePortfolios was applied to the four year Primary Education degree. Starting with a university-wide PebblePad workbook, the Graduate Course Action Plan (gradCAP) (Pate, 2015), Bachelor of Primary Education students are provided with a scaffolded approach to support them to recognise their learning experiences within their course, while on placement, and through co-curricular and extra-curricular activities. Over the four years of their course, students are required to complete tasks in the gradCAP workbook that make connections between these different learning experiences to demonstrate their unique knowledge, skills and achievements. The workbook is also structured to provide students with opportunities to add more evidence directly related to the AITSL Standards.

**Stage one: First year, first semester**

In the first semester of first year, students receive the gradCAP workbook. At this point, the workbook is kept deliberately basic, with just an About Me page to complete, their learning philosophy, which is as assessment item, and access to AITSL Standards 1-2, which is directly related to one of the core first year units (Figure 1). By keeping the workbook simple, the work students need to complete is designed to feel achievable and not onerous to the students.
Stage two: First year semester 2 – third year semester 2

From year one, semester two the remaining AITSL Standards pages (three to seven) become available for students to complete. In years two and three of their course, tasks from core units are linked to specific standards to support students to develop an understanding of how to evidence their competence against the Standards that is not directly related to practicum experience. For example, in first semester of third year, students complete 20 hours supporting an individual with disability and are required to submit evidence of this experience using a template provided for them. Students are also encouraged to include their reflection on how this experience will inform their teaching practice, which is an assessed item for this unit.

While students are provided with specific opportunities throughout the course to add artefacts to evidence this learning and reflect on their learning, it is the students themselves who are ultimately responsible for ensuring that each of their AITSL Standards has been adequately addressed. Students should think of three examples of having met each Standard, reflect on these examples, evaluate their current level of achievement (from pre-service to graduate level), and upload artefacts to support their claim. Crucially, as many students struggle to identify real experiences when faced with abstract language (Peet et al., 2011), each AITSL Standard is rewritten as an embodied statement. This allows the concepts introduced by the Standard to be recognised as something they can clearly demonstrate. For example, AITSL Standard 1 reads “Know students and how they learn”. This is embodied in the gradCAP workbook with the statement: “Think about three times when you adapted a learning moment to support the different learning, cultural or language needs of the students.” In doing this, students are directed to
consider specific moments in time when they have demonstrated this standard. Through the process of writing these moments up as reflections, rating their perceived level and evidencing their stories with artefacts, students rehearse articulating their experiences in writing.

Stage three: Fourth year

Part of the university approach is to encourage a networked approach to learning, ensuring students are given opportunities to look outside their usual learning environment, and to make further connections between different kinds of learning experiences (Bridgstock, 2016). The Career Research page, created collaboratively with Careers and Leadership Services, becomes active in year four, when an ECU Careers Advisor attends the class (Figure 3). The Careers Advisor also invites
students to evaluate the professionalism of their previously written introduction on the About Me page, and to build professional social networking elements, and include these on the Contact me page.

Figure 3: Career Research – led by ECU Career Advisor

The final stage of the model is where students build their ePortfolio in fourth year, demonstrating their learning journey (Figure 4). To complete this task, students select and collate stories and evidence they have collected in their workbook throughout the course that best demonstrate their knowledge, skills and achievements. Students are provided with a template ePortfolio that they can adapt to best demonstrate their unique skills and passions. The Specialist Skills section of the ePortfolio (Figure 5) is included so that students can showcase areas of particular interest that they have pursued. In the 4th year capstone unit for the course, students are required to complete a brief video overview of their ePortfolio articulating what the main points of their experiences are and linking these to their competencies and passions.
While some students may elect to use this ePortfolio as a showcase portfolio for potential employers, the focus of this ePortfolio is to provide students with an opportunity to draw meaning from their stories, clearly articulate their unique knowledge, skills and achievements, and demonstrate meaningful evidence to support their claims. Through evaluating their own journey as recorded in the gradCAP workbook, students have the opportunity to clearly articulate what it is they can do.

Figure 4: ePortfolio About me page

Figure 5: Specialist skills page
Conclusion

The gradCAP workbook and ePortfolio process used at ECU in its Primary Education program provides its students a course-long scaffolded approach to develop metacognitive skills through recognising, developing and articulating their unique skills. This is achieved through providing students opportunities to collect and collate meaningful stories and artefacts over time, and through purposefully selecting, collating and editing these stories to show a full picture of what each student brings to the teaching profession. This process provides students with progressive opportunities to articulate and showcase their achievements and learning journey throughout their course. Student learning is linked explicitly and implicitly with their attainment of the AITSL Standards and artefacts from these ePortfolios may also be gathered to provide evidence that the ITE program is developing teachers with demonstrable teaching skills, including impact on student learning. The result of this is the development of a showcase ePortfolio that supports students’ understanding of professional knowledge, while also answering the requirements of the accrediting body. Through providing this pathway to guide students throughout their course, students can be supported throughout their journey to employment and beyond.

References


Biography

**Heather Pate**

Heather Pate is a Senior Learning Designer working in the Centre for Learning and Teaching. Heather works with PebblePad and is involved in developing portfolio solutions to a number of Schools around the university in order to support student learning. Coming from a background in Teaching English as a Second language, Heather has ten years experience in coordinating English programs and has run international teacher training programs through blended learning programs. Heather currently co-ordinates the Employability team at the Centre for Learning and Teaching, which focuses on finding ways to support students through the process of linking their knowledge, skills and achievements to their future professional life. She is particularly interested in professional and student identity and the effect identity has on language use. She has an enormous black Labrador called Oliver.

**Susan Main**

Susan Main is a Senior Lecturer in the School of Education at Edith Cowan University. In this capacity, she has delivered units in Education and Literacy to undergraduate and Graduate Diploma pre-service teachers as well as coordinated and delivered units in Educational Psychology, Special Education, Behaviour Management and Workplace Learning for undergraduate pre-service teachers. She has a keen interest in the use of technology to enhance teaching and learning and has been in a number of initiatives to incorporate appropriate technologies into classroom. She has also been involved in the promotion and support of ePortfolios since 2008, including her role as cop-chair of the curriculum 2012 ePortfolio working party, the ePortfolio Project Team and the ePorfolio Board. More recently, she has been working with the Centre for Learning and Teaching to develop a course-wide approach for supporting students to identify and develop their graduate capabilities as a means to improving their employability.
The journey from pre-service teacher to practicing teacher: A national snapshot of portfolios of evidence in Australian initial teacher education

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Abstract

It is now over two and a half years since the Teacher Education Ministerial Advisory Group (TEMAG) report, Action now: Classroom ready teachers (TEMAG, 2014) specified that pre-service teachers should develop a ‘portfolio of evidence’ during their initial teacher education program to demonstrate ‘classroom readiness’ before their graduation. Since its release, Initial Teacher Education (ITE) providers have been progressively realigning course design, curriculum, assessment and professional experience programs in order to encompass the key recommendations that have filtered from the TEMAG report into national teacher course accreditation requirements.

The study reported in this paper was funded by Federal Government’s Department of Education as part of an investigation into priority research areas relating to ITE Professional Experience. The funding was made available through the Australian Council of Deans of Education (ACDE) and the National Academic Directors of Professional Experience’s (NADPE) national steering committee has managed a set of research projects addressing the priority areas. The Pre-service teachers’ portfolios of evidence: A national snapshot of the collection and assessment of evidence of practice within Australian ITE project targeted all 48 Initial Teacher Education providers in Australia. It recruited the Academic Director of Professional Experience (ADPE) (or equivalent) in each institution to ask individual staff members working on implementing portfolios to complete an online survey.

The survey addressed a range of aspects relating to portfolio implementation in teacher education. It was designed to report on the characteristics of portfolio use and the progression of portfolio enactment in each context. The data collected provided an insight into the use of portfolios in initial teacher education from the perspective of a range of staff involved in the process. The study found that implementation of portfolios of evidence is predominantly undertaken by academic lecturing staff and is usually led by those responsible for course coordination. Portfolio work customarily occurs at a program/course level in pockets of innovation and, when successful, portfolio activity enables professional requirements (including the Australian Professional Teacher Standards), units of study and professional experience placements to be connected across a course of study in a meaningful and systematic way.
This snapshot confirms that a collection of ‘champions’ are driving responsive change for the implementation of portfolios of evidence in initial teacher education. While full portfolio integration is not yet widespread, there is clear evidence that the portfolio has the potential to serve as a device to evidence classroom readiness in ITE.

**Keywords:** Initial Teacher Education, Professional Experience, Portfolios of Practice

**Introduction**

Australian ITE providers are under significant pressure to respond quickly to new and evolving accreditation requirements. Simultaneously, the financial constraints placed on ITE providers require them to make judicious decisions about resourcing learning management platforms and teaching and learning resources that make tangible benefits to student learning (Kertesz, 2016). Aligning pedagogical arrangements with these drivers for change provide opportunities for innovative and exceptional practice which ultimately contribute to student learning. The effectiveness of portfolios of evidence is therefore inextricably linked to the digital environment in which these are produced, the resources made available to support and develop them, and, responses and innovation by teacher educators to extend beyond how these resources are conceived (Fox, Muccio, White, & Tian, 2015). Gaining a national snapshot of the ways in which these decisions are being made by ITE providers and the outcomes associated with these decisions have implications for the sector as a whole (Ndoye, Ritzhaupt, & Parker, 2012) and individual ITE providers looking to respond to these challenges.

The project described in this paper surveyed stakeholders from all ITE providers in Australia. The survey addressed aspects such as strategies for implementation, patterns of use, roll-out and the consequences of embedding a portfolio into teacher education programs. The findings from this study have helped to clarify how and why we engage with portfolios in initial teacher education.

**Background**

The need for portfolios (Light, Chen, & Ittelson, 2012) has been articulated in the TEMAG review (2014). The Government Response (Australian Institute of Teaching and School Leadership, 2015) led to changes in accreditation requirements, meaning that ITE providers must incorporate portfolios into ITE programs. Mandating the ‘portfolio of evidence’ is an attempt to capture how graduates are able to verify their development against the Graduate Teacher Standards (Australian Professional Standards for Teachers [APST]) while also emphasising the quality and outcomes associated with ITE programs.

Within the context of rapid change within Australian ITE, implementation of portfolios has evolved beyond capturing evidence of impact and practice to simultaneously highlight pedagogical arrangements that are re-organising ITE programs. This includes informing how learning managements systems align with ITE providers’ internal needs while also making this evidence available for other purposes and audiences (Masters, 2016). The dependence on technological infrastructure is important to note and institutions that offer initial teacher
education have a clear responsibility to provide systems that are robust and fit for purpose.

Changes to national accreditation requirements have emphasised Professional Experience as a central component of ITE, and the need to capture the development and practice of pre-service teachers in valid and consistent ways, to demonstrate evidence of their achievement against the Graduate Teacher Standards of the APST. The requirement to produce evidence of practice and make this evidence available to audiences beyond the institution has highlighted the need for ITE providers to collect and assess pre-service teacher’s achievement in innovative ways. The implementation of portfolios of evidence of their practice within ITE has been a response to these drivers for change. This implementation has also been responsible for re-imagining ITE pedagogy and curriculum.

The Study

The Federal Government’s Department of Education, Canberra, identified five priority areas for research for ITE Professional Experience, in response to the TEMAG review (2014). Subsequently, funding for this research was made available through the Australian Council of Deans of Education (ACDE) and the National Academic Directors of Professional Experience (NADPE) national steering committee was approached to investigate the priorities areas. This study addressed the area of portfolio use in alignment with professional experience and is titled Pre-service teachers’ portfolios of evidence: A national snapshot of the collection and assessment of evidence of practice within Australian initial teacher education. The findings of a nationwide survey are reported in this paper.

The aim of this project was to capture a national snapshot of the ways in which ITE providers are using pre-service teachers’ portfolios of evidence to collect and assess their evidence of practice, and assess program impact at the point of graduation and entry into the teaching profession. This study explored the following research questions:

1. How are pre-service teachers’ portfolios of evidence of their practice being collected and assessed within ITE?
2. How are portfolios supporting Pre-Service Teachers to demonstrate evidence of meeting the Graduate Teacher Standards?
3. Where is innovation occurring through the use of portfolios?
4. How are portfolios influencing pedagogical delivery of ITE provision?
5. How are institutions re-aligning resources, personnel and infrastructure to support implementation?
6. What challenges are ITE providers encountering through implementation and how are they responding to them (including issues related to data ownership, management, storage and confidentiality)?

It is recognised that the design, development, implementation and evaluation of pre-service teachers’ portfolios of evidence within ITE programs is undertaken by diverse teams of academic and professional staff within all ITE providers. Consequently, participant selection for this project involved a targeted initial approach to the Academic Directors of Professional Experience (ADPE) from all ITE
providers in Australia. The ADPE has knowledge of where portfolio work is occurring within their site and the staff involved. The ADPE were therefore asked to distribute the survey invitation to any interested staff within their faculty/school but also to target specific staff associated with this work. Disseminating the survey at faculty/school level through the ADPE was paramount to capturing how and where this work occurs and why.

The survey was developed in the online survey tool, Survey Monkey, and consisted of 40 questions, including a variety of formats such as multiple choice, drop down, ranking, matrix and short answer. Some questions were adaptive, where subsequent questions were revealed according to the responder’s answer selection. The questions in the survey were designed to be as concise and clear as possible in order to mitigate questionnaire fatigue. The estimated time for completion was 15-20 minutes.

The content of the survey was developed to address each of the key components in the research questions. A goal of the survey was to capture where portfolio of evidence development occurs in ITE programs and the range of staff involved. It also addressed implementation aspects such as the drivers for inclusion, types of activity, roll-out, challenges and opportunities. Participants were also asked to identify influences and impact of portfolio work. The survey also asked about resourcing and funding provided to facilitate portfolio implementation.

Findings

Several key insights relating to the nature and extent of portfolio implementation emerged from the survey data. Perhaps the most significant of these was that the responsibility for portfolio implementation is predominately undertaken by academic staff, many of whom are also responsible for course/program coordination. These staff are ‘champions’ who drive implementation activity, inform decision making and lead teams to carry out this work. They also are heavily involved in the design and development of portfolio tasks, they participate in teaching and learning using portfolios and they inform how portfolios of evidence connect to new accreditation requirements and graduate entry into the profession.

While there were instances where portfolio activity was left up to students or confined to unit/subject level activity, the majority of respondents identified that their goal was to move to towards full course integration. Those leading this transition identified that there was a need for a shared vision where portfolios are implemented in a systematic way to evidence learning across academic contexts and professional experience. The key drivers for change were reported as the current accreditation requirements and particularly the need for a portfolio of evidence that connects ITE with the APST, for example;

*We haven’t take a coordinated and systematic approach [previously] but with the new accreditation and implementation of revised and new courses we are changing this. We will have a rollout in new courses where the portfolio of evidence will be embedded.*

Resourcing and support required for implementation extends beyond financial costs or the purchasing of digital infrastructure. Participants emphasised the need for a shared understanding across the school or faculty and professional learning for all staff beyond the current implementation teams. Resourcing was therefore
identified as a means of supporting pedagogical priorities and outcomes associated with implementation.

Although participants acknowledged that there was much work to be done, the majority (70%) of those who completed the full survey considered that implementation in their context so far, had been successful. It may be possible though, that some ITE providers may have decided not to complete the survey because little success or progress had been achieved at their institution. It should also be noted that almost half of participations had exited the survey through adaptive questioning before this question because they reported that they knew little about portfolio implementation.

**Future Directions**

The participation in this survey was low (n=67 participants from 21 institutions) and so further data is required to provide a representational picture of Australia’s 48 ITE providers. It is therefore recommended that a further data collection round is conducted to generate a larger participation cohort across more ITE providers. This further research may help to further understand how some ITE teams are able to overcome competing challenges of resourcing, staffing and technological constraints in order to conceptualise and then enact successful portfolio integration in their ITE programs.

The information from this work will contribute to ACDE’s and the wider sector’s understanding of the role of portfolios in ITE. The ongoing investigation will inform this understanding by:

- Documenting a snapshot of current practice around the use of PSTs’ portfolios of evidence of their practice in meeting the Graduate Teacher Standards in Australia;
- Capturing attitudes to the use of portfolios in ITE;
- Highlighting the innovation and the drivers for change in ITE pedagogy, curriculum and assessment using portfolios;
- Recording examples of challenges, barriers and risks associated with implementing portfolios;
- Identifying the infrastructure needs associated with portfolios;
- Building capacity within NADPE and Australian ITE through dissemination of knowledge and innovative practice.

**Conclusion**

The Federal Government has clearly identified that ITE providers are responsible for ensuring that pre-service teachers are ‘classroom ready’ by the time they finish their ITE course. Further, it is also apparent that the onus is on ITE providers to ensure that each student has a portfolio of evidence that substantiates this readiness. As ITE providers grapple with the challenges thrown out by these mandates, a national snapshot of the current state of play is likely to be beneficial for all those trying using portfolios in effective and meaningful ways.
References


Biography

Jennifer Masters

Jennifer Masters is an academic and a researcher who specialises in the use of digital technologies in education. She has an eLearning focused position in the Faculty of Education at the University of Tasmania and is based in Launceston. Her research interests include creative and the applied use of computers, informal learning and social constructivism, mobile learning and notions of ethical digital citizenship. She has used ePortfolios in teacher education for many years as a device to represent the learning journey.

Chad Morrison

Chad Morrison is the Academic Director of Professional Experience in the Faculty of Education at the University of Tasmania. His research interests include the preparation of pre-service teachers (with a specific interest in Professional Experience programs) and early career teachers and teaching. These research fields incorporate a range of interrelated topics including the development, wellbeing and identity work of teachers, their teaching contexts, and, the structural, cultural and political factors that shape this work and the outcomes associated with it. The participation, wellbeing and engagement of students is fundamentally tied issues relating to their teachers, and these represent another overlapping teaching/research concentration.
Down the rabbit hole: Lessons learned curating, presenting and submitting a digital research portfolio as PhD thesis

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Abstract
My digital thesis as A/R/T (artist-researcher-teacher) Portfolio is a curated space where I mapped, explored and archived my four-year PhD journey. My thesis (Coleman, 2017) tells the story of an a/r/tographer (Irwin, 2004), gazing as critical auto-ethnographer (Holman Jones, 2016) to create, make and rhizomatically write, be and do research, through the curation of artefacts in a digital portfolio. I utilised “an autobiographical genre of writing and research that displays multiple layers of consciousness, connecting the personal to the cultural” (Ellis & Bochner, 2000, p.739) to gaze inwardly first, then outwardly to art education and digital pedagogies to map creativity and identity of artists for art education. My journey in, through and to W(w)onderland explores how learning in and within a personalised digital portfolio as both process and product, affects creativity and identity through learning to see and notice the common threads in practice over time. My thesis writing, edited videos, artworks and narratives have been archived and curated as a personalised portfolio, and designed as a digital site to continue living after examination, and to create relational openings in my field of art education and portfolios for creativity, self-discovery and identity. As a curated and purposeful collection of digital identity a/r/tefacts it was designed as a storied curriculum for art education, and as an authentic artefact of the inquiry into digital portfolios for identity and creativity. As a portfolio of created artefacts, it is an archival site of a performed and interventionist pedagogical story as thesis. This paper explores my turn to the digital through an a/r/tographic methodology and arts based methods to curate and present a thesis as research portfolio.

Keywords: a/r/tography, digital portfolio, online thesis, art education, curation.

Down the rabbit hole
Alice is one of my favourite childhood stories, and she along with her sister's adventures in an underground wonderland have continued to open new ideas, and new thinking about imagination and creativity as an artist-teacher and as an artist-researcher. Alice in Wonderland opened new thinking again as an a/r/tographer (Irwin & Springgay, 2008) for my living inquiry, methodology and method as artist-researcher-teacher in my doctoral research. New ideas reverberated, and new discourse resonated as/in/for my research and mission in digital portfolio pedagogy for art education as I sought to capture the rhizomatic (Cormier, 2008) and relational (Bourriaud, 2002) form of the digital wonderland in a new story: A digital
storied curriculum to create the openings for art education to develop a personal narrative as artist-student in personalised portfolios.

“The rhizome operates by variation, perverse mutation, and flows of intensities that penetrate meaning, [...] It is an interstitial space, open and vulnerable where meanings and understandings are interrogated and ruptured. Building on the concept of the rhizome, a/r/tography radically transforms the idea of theory as an abstract system” (Irwin & Springgay, 2008, p.xx).

There is no root as such in a rhizome, rather a stem that rejuvenates itself from the tip for new life to occur. The connections made then between the new tips and points are mappings, not replicas but multiples. These multiplicities (Barad, 1996) create opportunities for new dimensions and new directions to grow not as copies, but as new sites. For me, this model and metaphor is reflected in my methodological work, pedagogies and found in the action of iterative reflection, selection and curation of artefacts within a digital portfolio where pathways between root and branch “connects any point to any other other point” (Deleuze & Guattari, 1987, p.21).

“A Rhizomatic view of knowledge is inherently anti-hierarchal. It doesn’t allow to tell someone else what to know, nor does it like being in the position where the ‘right way’ established by someone else can be identified” (Cormier, 2011).

When I began to build and design ePortfolios with my students in reflective blogs (Rourke & Coleman, 2009) as evidenced based folios of learning, the sense of being underground in the rabbit warren deep below the sunny banks resonated with me. There is something magical about creating and collecting your work in an invisible space, and then purposely curating a living piece of scholarly, pedagogical work and research in a visible public space. Digital spaces as curated portfolios serve as rhizomatic sites, cartographic maps of knowledge gained and experienced in/through/as learning. They serve as an archival system of the learner experience, that allow portfolio creators to collect, present and create opportunities on several interfaces through their open-ended possibilities for curation and visual digital publication.

Portfolios have been called and named many different things. I refer to purposefully curated, contextually driven, reflective digital sites as digital portfolios. They are sites of digital possibility that allow for the exploration of the self for the self and others through ongoing reflection in invisible spaces while reflecting on knowledge artefacts and how they generate and create a new narrative of learning when curated, installed and exhibited together in public digital spaces.

In the digital, there are no prescribed openings, closings, no specified entrances, no specified exits in the exhibition of the narrative. In the digital, participatory, material and relational practice-based learning reside well, because the audience as viewer and reader determines their journey within your presented practice(s) as they co-participate and engage with the materiality of the objects selected. In a participatory rhizomatic portfolio, you enter and exit the site wherever your journey leads you, there are no chapters only points of entry (Figure 1) that guide you further inwardly or along the path directed by the assemblages and material choices of the creator, based on their purposeful curation for interaction and meaning making.
I lived in my research portfolio as thesis for four years through iterative and cyclical writing, reflection, cutting, writing, curating. Because of this continuous intra-action (Barad, 2003, p. 815) with the objects and boundaries between the objects, I now see portfolios as port-holes into digital spaces and places of epistemological exhibition and ontological publication. It is the most exciting part of the work I do as an artist, researcher and teacher in ePortfolios, because I ask learners to trust me to assist them in opening doors to presenting and re-presenting the self as learner as a digital story while creating a port-hole into a digital wonderland. A wonderland that I know well, and where openings, reverberations and metaphors invite new insights and ways of seeing and knowing in places that you cannot necessarily plan or see. Researching and curating in digital portfolios is a mapping, but this map shifts upon interactions with the objects depending on the audience interaction, context of reading, and participation with the digital interface. As such, a portfolio must be designed and produced as a place for an audience to choose their one adventure when they enter through the port-hole into this wonderland. Now this is one of the hardest things to explain or teach to people new to e(vidence-based) learning and learner portfolios.

Using an arts-based research method (Leavy, 2015) I collected my artefacts and evidence based on the question and problem, and when I was ready to share the storyline I had in mind I began to build a site. This site was created as a journey for my travellers by enabling a pathway and mapping out a navigation by plotting the sight lines through selection and curation of the artefacts. What I have learned on the inside of portfolios, continues to inform my mapping in portfolios because the reading of the journey travelled is situated in a physical world as the audience sights your work in their own physical space. This sight line occurs within the phenomena in which they cite your research and co-participate in the creation of meaning for the objects, therefore new meaning making is generated for each artefact and the narrative that connects these artefacts, and this must be a consideration and design constraint.

Inside portfolios and digital spaces for learning, teaching and research I have come to know and understand Alice’s adventures in a new way through these new sites and sights. I understand Alice’s journey and quest from being within the invisible digital world and trying to situate it in a physical one. To share these experiences for my field of art education, creativity and ePortfolios, I wanted to cite, collect, curate and archive my research journey for others in/as a portfolio. The mapping of my digital wonderland reverberated further as I began to curate, into further making,
writing and the unfolding iterative curation. As a result, this cycle of reflection through curation led to more making and writing. With each installation, a knock-on effect, affects the meaning making and the iterative curation cycle begins again. Mapping, placemaking and cyclical curation over time through ongoing reflection, allowed me to see the common threads within my practice through my narrative, artmaking and storying as (re)searcher. These common threads were open and obvious as new artefacts were entwined in the narrative. Curating the portfolio allowed me to see my fields of inquiry, the invisible, yet visible field of portfolios and digital pedagogies together and create a new story for my field of art education as each written, filmed, created and recorded artefact was placed next to the other (Figure 2).

Figure 2: Melbourne based artist Ahmad Sabra - Openings Essay

Lessons learned

My research thesis was curated as a methodological space to invite a new audience into my digital art encounter to interact and co-participate in the co-construction of meaning for the curated objects and artist identity artefacts designed and composed in the site. I wanted the curated space, designed and developed by an a/r/tographer gazing inwards, outwards and forwards, to be a site of learning, teaching and re-search for the reader as a collaborative co-participant in a research project. As a co-participant in a digital space, the audience can direct, design and create their own path within the rhizome. As a result, I curated my portfolio for affect (Deleuze, 1981), to allow for the collaborative discourse found in the gaps between auto-ethnography and ethnography to be rhizomatic and free from capture. As a rhizomatic digital space it was designed as a currere (Pinar, 1975; Sameshima & Irwin, 2008) to allow the audience to create a personalised and pedagogic response as they wander and gaze in my wonderland of art, research and teaching. Why? I wanted to invite an audience to experience how creativity can be brought into secondary visual arts classrooms, through an embodied understanding of the self as artist in digital portfolios. I wanted to invite an embodied knowing of creativity through digital creative practice for artist-students as they curate their experimentation and exploration of self through art practice. I wanted to invite
teachers to bring creativity into their teaching and learning, through the design of portfolios.

As a digital portfolio, the space I selected, installed and curated my thesis as exhibition within, serves an important purpose in establishing an authentic context for a relational and rhizomatic methodology. It presents how important the exploration of self is as artist, while seeking to present a/r/tography as a methodology for art education in the future. In my thesis as portfolio as digital object, I entangled and wove all my identities and selves, as artist-teacher, artist-researcher and artist as learning designer for art education to create a site of professional learning, pedagogy and curriculum. As a researcher and designer of ePortfolio assessment, learning and practice for several years it was important for me that I practised what I had been preaching and my thesis re-presented my philosophy that personalised portfolios are a turn in education that we need to follow. Therefore, presenting a ‘traditional’ thesis as a physically printed artefact or pdf of arts based research would not be authentic, not true to who I am as a digital pedagogue and what I embody as a digital a/r/tographer where the processes and products of art, research and teaching can be curated and exhibited together for research.

Curating

To curate my thesis - the site, sight and cite were important selections to make when connecting and creating synergies between learning, teaching and research for multiple audiences. To begin, I wrote a traditional thesis in multiple digital sites. I followed the method for publication in the format of the introduction, literature review, methodology, data, analysis etc. Then I began to make artworks because of the writing and reading. Artmaking has always played a role in my teaching and research practice, however, I was making for multiple reasons. I wanted to curate a full solo exhibition of artwork created throughout the thesis journey, and then comparatively work within the situated and digital curatorial practices of exhibition. During the physical art exhibition, I then began to cut up my written thesis and entangle my writing, making, theorising, conceptualising and video artefacts as a curated portfolio to reflect the multiplicities of personal yet public work, digital yet physical practice, pedagogical yet methodological practice designed as a digital storied curriculum for my communities, colleagues and fields of inquiry. This action of multiple curation was effective and affective in my learning, knowing and being and resulted in the wonderland curation now published, exhibited and captured at http://www.artographicexplorations.com for my fields of creativity, ePortfolios and art education to harness the potential of portfolios for creativity and self-discovery within a portfolio for understanding.

The thesis I submitted is a portfolio as a living digital inquiry, designed to invite a co-participation with my research and practice in the field of ePortfolios. It is not a record, or result of work, but a living work that continues to grow and change because of the digital links within the rhizome. As the curator in the digital space, I was provided with the opportunity to explore and encounter both the potential and the opportunities for digitally curated and published portfolios in art education from the inside. Digital portfolios for art education, I claim through my own practice and curation of identity artefacts are an evolution of the ePortfolio thinking and reflective practice achieved and collected over many years by experts in higher and
secondary education. Digital portfolios in art education are a new way to harness and capture the bodies of disciplinary and multi-disciplinary learning and assessment research in ePortfolios, and create a new culture of digital curation in secondary art education to document the artist-student learning journey over time through deep, sustained creative practice as reflector - an auto-ethnographic journey as artist and audience of art. All while gaining the digital literacies, and 21st century digital fluencies needed in this increasingly digital global learning community. This evolution and re-framing for art education takes with it all that we have learned from decades of ePortfolio (Barrett, 1996; Batson, 2010; Cambridge, 2010; Chen & Penny Light, 2010) and creativity (Amabile, 1996; Alter, 2010; Harris, 2014) research to provide an opening to develop a personalised storied understanding of learning through the visual arts whilst capturing and collecting identity artefacts generated and curated over time while 'learning to learn' as artist. This has impacts wider than art education and the research I submitted has implications for digital learning and teaching in multiple settings. Seeing portfolios as identity artefacts have repercussions for research into the material culture of the curated learning journey. When we place significance on the evidence of learning as both a process and product of knowing, skill development, experience and capability development through iterative and active curation as reflection, portfolios can shift from being a record of learning to being a learning object.

Submitting
My portfolio continues to be a site of qualitative research, pedagogy, curriculum and personal inquiry written rhizomatically as critical auto-ethnographer, using video as a method through the methodology of a/r/tography. It is an assemblage and living digital exhibition of re-search created, written and designed throughout a researcher’s journey. Through placemaking and digital curation, the site was created as a digital cabinet of wonder for art educators, researchers and artists, a wunderkammern where the assemblages are housed visibly, yet invisibly as a digital living space. When I set out to create, collect and curate a portfolio as thesis, I knew the lands I would traverse, the sights I would see and sites I could visit. What I didn’t expect was the affect of reflection, on reflection, on reflection that the action of iterative and cyclic curation would have. This metacognitive experience and self-regulation through metacognitive knowledge (Flavell, 1987) is an associated outcome of several portfolio studies in a range of contexts and types of folios (Mills-Courts & Amiran, 1991; Zellers & Mudrey, 2007; Peet, 2012; Wozniak & Zagal, 2013). This action based research method of portfolio has presented me with the common threads of my work, found cutting, assembling, shifting, cutting and re-assembling again, making visible my praxis, for me and my audiences.

What I was not expecting upon submission were the hurdles and hazards of submitting a digital living object as thesis and unaware of the continued digital ramifications of living da{r}ta. When we set ePortfolio tasks for our learners, there are a multitude of identities, literacies, methodologies and methods to learn and quickly as they encounter their epistemologies and ontologies head on. They are often untaught, not discussed and learned by doing in action in isolation, in invisible spaces. It is in these actions of doing for learning that I was so drawn to in the digital wonderland of portfolios and these have made my research stronger, deeper and more connected to me personally, because of the ability to see, and see again
through new lenses while noticing the nuances of my knowing, being and practice when curating objects of knowledge together. When you paste the text, upload the video and then re-read these two new objects together, there is a new meaning making experience and new meaning for each object created.

References


Biography

Kathryn Coleman

Kathryn Coleman is an artist, researcher and teacher. Her work focuses on the integration of digital pedagogies and digital portfolios for sustained creative practice and assessment. Kate’s praxis includes taking aspects of her theoretical and practical work as a/r/tographer to consider how artists, artist-teachers and artist-students use site to create place in the digital and physical. She is a lecturer in Visual Arts and Design Teacher Secondary Education at the Melbourne Graduate School of Education, The University of Melbourne, on the Association of Authentic, Experiential and Evidence Based Learning (AAEEBL) Board of Directors and World Council Representative for the South-East Asia Pacific Region for the International Society for Education through Art (InSEA).
Clinical educators’ attitudes to teaching technologies

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Abstract

Background
In healthcare there is ongoing flux in expectations for students and practitioners. Establishing integrated systems of monitoring and evidencing students’ professional development is imperative. With current trends towards the use of technology in tertiary education, online learning environments (OLEs) could constitute more effective evidencing of student progress.

Clinical educators play pivotal roles in students’ professional development. They are thus under pressure to utilise OLEs, which poses particular challenges in clinical environments. Irrespective of the challenges, successful implementation of technology in any environment is dependent on the attitudes of the users.

Aim
To examine clinical educators’ attitudes towards technology in general and specifically in clinical education. Explore the challenges faced when implementing teaching technologies in clinical environments.

Method
A mixed methods approach was taken to explore the attitudes of clinical educators. A previously validated technology attitude survey was slightly modified, with an addition of open ended qualitative responses, and used in the collection of data. The survey was sent to clinical educators involved in the supervision of Medical Imaging students on clinical placement.

Conclusions
Enculturating positive attitudes and a change in pedagogical outlook when using technology in clinical teaching is necessary.
Even with positive attitudes to technology, clinical environments have specific challenges such as access and time on computers.

**Keywords:** Healthcare, Technology, Clinical teaching, Attitudes

**Introduction**

In healthcare there is ongoing flux in educational expectations for students and practitioners. Healthcare is being delivered in a rapidly changing, demanding environment. There has been an explosion of technology and the volume of medical knowledge has increased exponentially (Baird, 2008; O’Malley, 2008; Wolff, Pesut & Regan 2010).

The Bachelor of Radiography and Medical Imaging (Honours) (BRadMedImaging) at Monash University is a four year integrated academic and clinical course. Intake is approximately 80 students per year. Students complete clinical placements across all years. The degree provides students with a well-recognised qualification allowing students to seek employment in Australia and worldwide.

Kregor, Breslin and Fountain (2012) suggest that if Universities are to remain competitive they are obliged to implement e-Learning strategies. Within radiography, while course content has increasingly been facilitated online (Kowalczyk, 2014. Wertz, Hobbs, Mickelsen, 2014) it has not grown as rapidly in clinical teaching. However with current trends and technological advances clinical educators are increasingly under pressure to utilise online learning environments (OLEs) (Nairn et al, 2006). It is accepted that successful implementation of technology is dependent on attitudes of the users (Chow et al 2012; Selim 2007; Maag 2006).

The attitudes of academic staff, clinical staff in non-teaching roles and students to technology has been explored in some depth. However, less is known about clinical teachers’ perceptions and experiences of OLEs (Regan et al 2012), even though it poses challenges for clinical mentors as much as it does for students and teachers (Nairn et al, 2006).

**PebblePad™ at Monash University**

In 2014, PebblePad™ was introduced into the BRadMedImaging program as a contemporary learning platform for clinical studies, replacing paper workbooks. The aim is that PebblePad™, and its ePortfolio functionality, can provide students with a holistic and integrated learning experience with a stronger focus on preparation for their professional life, which they can continue to utilise throughout their professional lives.

PebblePad™ allows students to create personalised professional ePortfolios which students can continue to access after graduation. Their ePortfolio remains available for evidencing their continuous professional development (CPD) requirements into their professional lives.

The implementation of PebblePad™, has required contributing input from clinical educators.
Aims of the study

The primary aim of this study was to investigate radiography clinical educators’ attitudes towards technology in general as well as specifically in clinical learning. The research further aimed to identify what clinical educator perceive are the advantages and barriers to the implementation of OLEs in clinical environments.

The research questions were;

1. What are radiography clinical educators’ attitudes towards technology?
2. What are radiography clinical educators’ attitudes towards technology in clinical teaching?
3. What are the perceived barriers and advantages to implementing an OLE in clinical environments, according to clinical educators?

Methods

Description of participants

This study reports on clinical educators employed in a variety of large and small services who are responsible for the supervision of Medical Imaging students on clinical placement. They have varied supervisory arrangements and appointments in different locations. (Table 1)

Table 1: Participant demographic characteristics (N =48)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n/N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>My clinical teaching site is</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>11/48</td>
<td>22.9</td>
</tr>
<tr>
<td>Metropolitan</td>
<td>37/48</td>
<td>77.1</td>
</tr>
<tr>
<td>My clinical teaching site/s is*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>14/48</td>
<td>29.2</td>
</tr>
<tr>
<td>Medium</td>
<td>24/48</td>
<td>50.0</td>
</tr>
<tr>
<td>Small</td>
<td>15/48</td>
<td>31.3</td>
</tr>
<tr>
<td>My clinical teaching site is</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A public institution</td>
<td>19/48</td>
<td>39.6</td>
</tr>
<tr>
<td>A private institution</td>
<td>29/48</td>
<td>60.4</td>
</tr>
<tr>
<td>I work at</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One clinical teaching site</td>
<td>39/48</td>
<td>81.3</td>
</tr>
<tr>
<td>Two clinical teaching sites</td>
<td>6/48</td>
<td>12.5</td>
</tr>
<tr>
<td>&gt; two clinical teaching sites</td>
<td>3/48</td>
<td>6.2</td>
</tr>
</tbody>
</table>

* Multiple responses possible

Recruitment of participants

An email invitation was sent out by the Education and Clinical Engagement Support Officer to radiography clinical partners to participate in the study. It included an explanatory statement and a link to the survey.
Data collection

A mixed methods online survey explored the attitudes of the clinical partners to technology and to record their experiences in their clinical sites.

The first section of the survey collected the demographic data.

The second section provided quantitative data to appraise educators’ general attitude toward the use of technology. This took the form of a minimally adapted Technology Attitude Survey. Permission was granted from Margaret Keenan (nee Maag) for use of the modified TAS in this study.

The third section of the survey was modelled by the researchers. This section aimed to evaluate clinical partners’ experiences with the use of PebblePad™ in the clinical setting. These appraised how easy the clinical partners’ found it to learn how to use as well as how difficult the implementation of the tool was for them.

Data analysis

The quantitative data was explored using statistical descriptive analyses available in Qualtrics™.

Thematic analysis, using Braun and Clarke’s (2006) method, was chosen to interpret the qualitative data as it provides a rich and detailed interpretation of the data.

Ethics approval

Ethics approval was granted by the Monash University Human Research Ethics Committee (MUHREC). The approval project number is 0197.

Results

From a pool of 74 participants, 49 surveys were returned. Of these responses one survey was incomplete and was excluded from the data analysis. This constitutes a response rate of 48/74, 65%.

Participants were asked eight questions based on positively geared statements (Table 2) and six questions based on negatively geared statements (Table 3). These appraise personal feelings when using technology such as confidence, nervousness, uneasiness and perceived importance or difficulty in learning new technologies.
### Table 2: Descriptive analysis, positively geared statements

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree (%)</th>
<th>Disagree (%)</th>
<th>Neither agree nor disagree (%)</th>
<th>Agree (%)</th>
<th>Strongly agree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q 6. Knowing how to use technology is a necessary skill for me as an educator</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>41.7</td>
<td>58.3</td>
</tr>
<tr>
<td>Q 7. I like using technology</td>
<td>0</td>
<td>0</td>
<td>6.2</td>
<td>52.1</td>
<td>41.7</td>
</tr>
<tr>
<td>Q 8. I feel confident with my ability to learn technology</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>47.9</td>
<td>52.1</td>
</tr>
<tr>
<td>Q 9. Learning about technology is worthwhile</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>39.6</td>
<td>60.4</td>
</tr>
<tr>
<td>Q 11. I use my knowledge of technology in many ways as a clinical educator</td>
<td>0</td>
<td>0</td>
<td>18.7</td>
<td>60.4</td>
<td>20.9</td>
</tr>
<tr>
<td>Q 12. Technology is important to my role as clinical educator</td>
<td>0</td>
<td>4.2</td>
<td>12.5</td>
<td>52.1</td>
<td>31.3</td>
</tr>
<tr>
<td>Q 14. I can appreciate how technology can be used to facilitate clinical learning</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>71.4</td>
<td>28.6</td>
</tr>
<tr>
<td>Q 17. Knowing about technology can make me a better educator</td>
<td>0</td>
<td>4.2</td>
<td>12.5</td>
<td>62.5</td>
<td>20.7</td>
</tr>
</tbody>
</table>

### Table 3: Descriptive analysis, negatively geared statements

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree (%)</th>
<th>Disagree (%)</th>
<th>Neither agree nor disagree (%)</th>
<th>Agree (%)</th>
<th>Strongly agree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q 10. Working with technology makes me feel nervous</td>
<td>20.7</td>
<td>47.9</td>
<td>25</td>
<td>6.2</td>
<td>0</td>
</tr>
<tr>
<td>Q 13. I’m not the type of person to do well with technology</td>
<td>33.3</td>
<td>54.2</td>
<td>12.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Q 15. I find that I need to work hard to learn about technology to master it</td>
<td>16.7</td>
<td>47.9</td>
<td>20.7</td>
<td>10.4</td>
<td>4.2</td>
</tr>
<tr>
<td>Q 16. Using technology is difficult for me</td>
<td>33.3</td>
<td>45.8</td>
<td>16.6</td>
<td>4.2</td>
<td>0</td>
</tr>
<tr>
<td>Q 18. I feel uncomfortable using most technology</td>
<td>35.4</td>
<td>47.9</td>
<td>10.4</td>
<td>4.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Q 19. Technology really won’t assist me in my role as an educator</td>
<td>4.2</td>
<td>2.1</td>
<td>12.5</td>
<td>58.3</td>
<td>22.9</td>
</tr>
</tbody>
</table>
Two questions (Q20 and 21) appraised how easy the clinical partners found it to learn how to use the platform as well as how difficult the implementation of an OLE in a clinical environment proved. Respondents were moderately positive in their responses. There was however a large degree of variation in responses. There were those who found PebblePad™ relatively easy to learn how to use (31.7%) and implement in their clinical site (37.2%). This correlates with what Nairn et al (2006) cite as challenges facing clinical mentors surrounding OLEs.

Following synthesis of the qualitative data five distinct themes emerged.

**Theme 1: Availability of IT resources (hardware)**

The strongest theme to emerge from this data was the lack of access and availability of IT resources for using OLEs. Respondent 5 quoted the lack of “Availability of portable devices with multiple users” at their site. This was compounded by the fact that “Access to computer time can be limited in a clinical practice that utilises computers for clinical work” Respondent 27.

**Theme 2: Time resource in clinical environment**

Lack of time in clinical sites is a major factor when using OLEs. Respondent 24 mentioned that the “time to concentrate on filling out reports without interruption” is difficult to find. While not a new phenomenon, for some the online aspect is more difficult in the clinical environment, Respondent 8 commented that “It is still easier to have a piece of paper in front of your when you are in the process of assessing a student”.

**Theme 3: Platform design**

Respondents reported both favourably and unfavourably under this theme. Respondent 12 mentioned that “Difficult to navigate systems make documentation difficult”. Five respondents commented that the design of PebblePad™ was “Non-intuitive”. Respondent 6 suggested that PebblePad™ was “not designed for the purpose and so is very unintuitive to use”. This was reflected in the quantitative data where only 48.7% of respondents found PebblePad™ easy to learn how to use with a further 18.6% saying they neither agreed nor disagreed with the statement “I found PebblePad™ easy to learn how to use”.

Several respondents mentioned the capability for multiple users at different locations to be able to access the student’s work as a significant advantage of the online platform.

Four respondents mentioned the ease of navigating the platform over paper. Respondents 21 and 8 were almost identical in their responses and found it much easier “Not having to flick through pages of student books to find the correct page”. Others mentioned the increased legibility of online submissions.

**Theme 4: Tracking of progress/documentation**

This major theme has been broken down into two “sub” themes for clarity. 13/48, 27.0% of respondents mentioned one or other of these sub themes

1. Tracking of the documentation and;
2. Tracking of student progress.
1. Tracking documentation

Participants mentioned that with an OLE one “can track documentation” (Respondent 12) with “No misfiling or misplacement of paper documents” (Respondent 39). Respondent 7 mentioned that having students’ work stored online allows “Easy storage and retrievals” of documentation. Others mentioned that important documentation such as “Assessment and course structure guidelines for tutors are more available online” (Respondent 33).

2. Tracking of student progress

24/48, 50% of clinical partners suggested that “there is a record of when and where assessments were performed and also no loss of information” (Respondent 23). This allowed for “Real time checking of student progress” (Respondent 26). The online system made it “Easy to review and compare to previous work where appropriate” (Respondent 40). “Sharing information across sites/placements allows for more adequate follow up on student’s progress” (Respondent 46) allowing for “more permanent record of progress in time relevance - make progress tracking easier” (Respondent 47). Respondent 27 went on to record that the online version is a “Permanent record” which could actually “be maintained and continually updated throughout [a radiographer’s] career”

Theme 5: Increased security

Clinical partners were cognisant that OLEs are a more secure environment. Respondent 42 said that “I like knowing that my signature can’t be forged or that their work can’t be tampered with and more importantly that they aren’t able to take advantage of staff members who can’t be bothered to check their work and sign everything off for them”.

Discussion

In the current era it can be taken for granted that computers are almost ubiquitously available, the research has highlighted that this is not the case in clinical environments. The extent to which it seems computer allocations are so sparse was surprising. Further strategies should be considered to allow clinical partners access to computer resources. This could involve protected time on computers, allocation of computers for the purpose etc.

Busy practitioners have time pressures when fulfilling teaching duties. For some, working online was quicker. For others, the necessity for passwords etc. added to the time pressure for supervisors making it more arduous than using paper. Disparity was also noted in how easy the educators found it to learn how to use PebblePad™ itself. While 48.7% suggested they found PebblePad™ easy to learn how to use, a relatively high proportion (35%) said they did not.

There were findings that go some way towards explaining these differences in opinion. A “Lack of basic knowledge or skills” (Respondent 41) was a factor in adapting to OLEs. As Respondent 18 reported “Online can be more efficient when all involved have a certain level of competence”, reinforcing Chow, Herold, Choo & Chan’s (2012) findings that training and support specific to technologies used in teaching is crucial for successful implementation and use. However not all partners can attend hands on workshops on campus and the University staff required for
onsite in-services is not feasible. It was reassuring that a higher proportion of respondents found they could implement PebblePad™ reasonably easily at their clinical sites (Table 5).

The tracking of students’ progress within placements and over time was an important correlation with the drivers for transitioning to an online environment. With paper workbooks, providing formative feedback on work “in progress” was difficult. It was also difficult to appreciate longitudinal development of skills and self-efficacy in the students’ learning journey. As respondent 42 mentions, “Being able to actually view their work allows me to give them additional feedback in regards to their thoughts and what they write down”.

Clinical partners found the online system more secure than paper workbooks. Supervisors were confident that it was not possible for the students to tamper with the entries in the online environment.

Respondents displayed positive attitudes towards technology in general. However responses to statements addressing supervisors’ perceptions of using technology for facilitating learning suggest that the link between knowing about technology and using it for a specific purpose is not absolute. As Klenowski (2002) pointed out, clinical teachers often need to change their teaching styles to balance traditional didactic approaches with contemporary conceptualisations of learning using technology.

One other finding worthy of mention was a comment from respondent 26, “a student may be at computer undertaking clinical documentation but is perceived by staff as being disinterested in clinical work”. This suggests that staff perceptions about the use of technology may be manifest. As trends towards using technology in tertiary education accelerate this is a key finding. It is important for those who drive change to be aware of the landscape and perceptions of those at the coal face. These were deemed significant findings as it may be that there is a need to enculturate acceptance of technology, as well as teaching students about the appropriate use of technology on clinical placements.

**Conclusion**

As technology takes more of a central role in education, enculturating positive attitudes towards technology and associated change is highly important. However, even with a positive attitude to technology, the clinical environment brings its own specific challenges. To help counter these it is important to understand the perceptions of the users and the challenges they face in their environments. Partaking in this study will afford clinical educators an opportunity to reflect on their own attitudes towards technology and their implementation strategies for future technological advances.

Guiding clinical partners to accept and learn a new system can be challenging but the importance of well-constructed training strategies cannot be underestimated. Clinical partners can appreciate that technology can be more efficient yet it is crucial that they understand how to best use it.
References


Biography

John McInerney

John McInerney is an early career researcher at Monash University in Melbourne. He is somewhat of an accidental tourist in the world of technology. He is not quite sure yet if he believes that technology is as ubiquitous as might be suggested. He is therefore in a good position to research it as he has no preconceptions about its usefulness or not. In effect he is aiming to convince himself in either the positive and negative direction. He does however firmly believe that "IT skills" are over rated for average users of technology and that attitude is the key to acceptance of technology. He also firmly believes in the individuality, creativity and intellectual pursuit that ePortfolios allow users.

Ruth Druva

Ruth Druva is a long standing educator across the academic and clinical field. She originally graduated in diagnostic radiography then over the years due to an education focus has undertaken additional qualifications to strengthen this interest. Since 2007 she has been a member of the Department of Medical Imaging and Radiation Sciences at Monash University. Her research areas include work integrated learning, clinical assessments (OSCEs) and portfolio development.
Aim: This study investigates oral health therapy and dentistry student’s perception about using PebblePad to enhance their learning in a clinical environment.

Methods: Oral health students and dentistry students were asked to complete an anonymous online survey; 89 students were invited to participate, 57 students completed the survey (response rate 64%). The survey contained forced response questions using a 5-point Likert scale. Respondents were invited to provide clarifying comments for some of the questions.

Results: The majority of students surveyed were positive about the PebblePad digital logbook. Students appreciate how the logbook improves tracking of their progress and supports them to identify areas of concern. The ability to read feedback from clinical educators and to refer back to it at any point in time benefits their learning.

Students suggested several areas for improvement: the importance of example entries, reducing weekly diaries to monthly blogs and logbooks and more information about how to write appropriate reflections.

Conclusion: The 360-degree feedback framework in PebblePad aims to position students as active learners engaged in regular reflection. Feedback is provided by the teaching team, external clinical practitioners, peers, patients and the students themselves (self-assessment). This ensures that students have multiple opportunities to reflect and receive feedback in a variety of settings. The digital logbook in PebblePad is an effective tool to improve tracking the progress of oral health and dentistry students and to encourage reflective practice. This study shows that the acceptance and appreciation for the digital logbook improves if embedded in a more formal competency based curriculum.
**Introduction**

The Bachelor of Oral Health (BOH) at La Trobe University is a three-year degree program coordinated on La Trobe University’s Bendigo campus. Students learn in varying environments including campus-based clinical simulations, clinical education and overseas field experiences. As part of this degree program and as a requirement for professional registration, students need to record and maintain reflections and evidence of competence across the program. Previously this was done using a paper-based logbook. Since 2015 PebblePad is used to track students’ performance in the simulation laboratories and in (regional) clinics. A 360-degree feedback framework was applied: clinical educators, placement supervisors and peers provide feedback on the student’s performance through PebblePad. The feedback is supplemented by feedback of patients, through the application of a survey template in PebblePad and the use of iPads.

**Background**

Learning is a complex process (Fugill, 2005). The characteristics of the learning experience and learning environment are critical to developing expertise and professional identity. Meaningful reflection is encouraged through self assessment and As noted by Eva et al. (2012), effective and successful self-assessment needs to encourage meaningful reflection and include multi-source external feedback. The PebblePad digital tools assist BOH and DEN students in achieving and recording this. Reflecting is “a metacognitive process involving awareness of experience, analysis of experience and planning of future actions…” (Koole et al., 2013, p. 93).

Active learning is promoted by actions (such as reflection and feedback) that include thoughts and feelings derived from learning experiences.

Feedback on performance is acknowledged as promoting student learning in the clinical environment (Branch Jr, & Paranjape, 2002, Eva et al., 2012, Boud & Molloy, 2013, Wood et al., 2016). Although feedback is considered a powerful and fundamental teaching tool, there are variations in delivery and interpretation, which impact on learning (Murdoch-Eaton & Bowen, 2017; Eva et al, 2012, Boud & Molloy, 2013, Wood et al., 2016). If limited in nature, learning opportunities are missed.

It is proposed to develop an "educational alliance": a collaborative framework that promotes a culture of transparency and progressive feedback encounters between all participants in the learning environment (Telio, Ajjawi, & Regehr, 2015). This view is supported by Eva et al who consider external feedback as critical to both improving performance and validating self-assessment (2012). Empowerment of a learner’s capabilities, through curriculum design, are the opportunities that facilitate recognition and utilisation of feedback (Boud & Molloy, 2013). PebblePad, through enabling a 360-degree framework, affords the opportunity to achieve this relationship.

**Theoretical Framework**

The theoretical perspectives of socio-cognitive theory (Bandura, 1977) and experiential learning (Piaget, 1952; Brunner, 1966) underpin the pedagogical practices presented in this case study. The learner's prior knowledge, experience, skills and attributes inform dynamic interaction and contextual learning, with
teachers, patients, peers and colleagues. These experiences can all be captured in the digital templates and workbooks in PebblePad. Through experiences and observations, students are able to enhance their skill acquisition and promote their developing knowledge. This contributes to the development of self-efficacy and attainment of identified goals, both of which contribute to the realisation of professional competence. Critical to this framework is feedback. Transforming experience into learning is enhanced by reflection and reflective practice. Although both are complex concepts, their integration into activities deepens understanding and broadens the learning context.

Creating a reflection and feedback mechanism in PebblePad

A major problem of the paper-based logbook was the disconnect between the academic and clinical environments. The logbook, although effective for registration of feedback and competencies, did not allow tracking students in real time. It also did not allow for timely identification of students at risk, exploring student needs (i.e. assigning appropriate type of patients) or communication between the regional clinic(s) and the year coordinators on campus. The digital logbook overcame the administrative problems of the paper-based format. The original format did not allow multiple users to access student logbooks simultaneously and or allow for feedback to be ongoing over the student’s course of learning. The paper-based system led to administrative challenges which was very time consuming for both students and academics (Young, Knevel, & Down, 2016).

To increase transparency, students need to keep evidence of their competence over the span of the BOH degree. Competencies are achieved while students are on placement in a variety of settings. Educators need to have insight, at a glance, which competencies students have achieved and where the student needs more support and assistance. The online solution meant it was possible to give students feedback from multiple and various sources simultaneously. These feedback sources include: ‘peer review, student feedback, clinical educator feedback, placement agency feedback and patient feedback’ (Young, Knevel, & Down, 2016)

An additional benefit of the electronic format is to assist students in tracking their competency achievements for professional registration with the Dental Board of Australia. The PebblePad workbook solution consists of a “digital logbook” that students use across the entire program and duration of their studies. It includes areas for students to carry out regular reflections (self-assessment) in the form of blog posts and incorporates feedback received in the form of completed custom feedback templates provided by the teaching team, external assessors, and patients (external multi-source feedback). La Trobe DEN students used the digital version for tracking feedback and reflective activities in relation to clinical skill development only.

Methods

A group of dentistry (DEN) students and oral health therapy (OHT) students were invited to participate in this mixed methods study. The aim of the study was to investigate student’s perception about using PebblePad to enhance their learning in a clinical environment. Participation in the online survey was voluntary and the survey could be completed anonymously. Ethical approval for this study was obtained from the La Trobe University Human Ethics Committee (UHECC, S15/212).
Quantitative data were analysed using SPSS® 22. Descriptive statistics were used to report percentages of respondents on selected variables. Independent-samples Mann-Whitney U test was used to test the hypothesis. Qualitative data were analysed through identifying frequently occurring categories and emerging themes. Several team members were asked to interpret the qualitative data independently to identify the main themes. Similar phrases or words were grouped under the same heading. The themes were re-examined by the authors to identify how they were linked and how the data was related to the quantitative findings. Specific illustrative quotes were used to provide context and understanding of the quantitative results.

**Results**

At the time of the study 89 OHT and DEN students were invited to participate. The response rate was 64% with a significant higher response rate from the OHT students compared to the DEN students. Most participants (84%) were aged between 20-24 years (Table 1).

<table>
<thead>
<tr>
<th>Participants N=57</th>
<th>BOH2</th>
<th>BOH3</th>
<th>DEN3</th>
<th>Total students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants per course &amp; year level</td>
<td>21 (36%)</td>
<td>18 (32%)</td>
<td>18 (32%)</td>
<td>57</td>
</tr>
<tr>
<td>Response rate</td>
<td>91% of 23</td>
<td>86% of 21</td>
<td>40% of 45</td>
<td>64% of 89</td>
</tr>
<tr>
<td>Gender</td>
<td>♂ 44 (77%)</td>
<td>♂ 13 (23%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>20-24 48 (84%)</td>
<td>25-29 5 (9%)</td>
<td>30-34 1 (2%)</td>
<td>&gt;34 2 (3%)</td>
</tr>
</tbody>
</table>

The face-to-face training to introduce PebblePad was found useful by 70% of the students. The additional online resources (video-demonstration) were found useful by 50% of the students. Two students (4%) did not agree with the statement that the digital logbook was easy to use, however 39 students (68%) found the logbook easy to use. The perceived importance of the digital logbook and reflective entries are illustrated in Table 2.

<table>
<thead>
<tr>
<th>N = 57</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of reflective entry</td>
<td>-</td>
<td>5 (9%)</td>
<td>11 (19%)</td>
<td>28 (49%)</td>
<td>12 (21%)</td>
</tr>
<tr>
<td>Logbook in PebblePad benefits learning</td>
<td>-</td>
<td>6 (10%)</td>
<td>16 (28%)</td>
<td>30 (53%)</td>
<td>5 (9%)</td>
</tr>
<tr>
<td>Valuable weekly diary</td>
<td>3 (5%)</td>
<td>9 (16%)</td>
<td>18 (32%)</td>
<td>22 (39%)</td>
<td>5 (9%)</td>
</tr>
<tr>
<td>Digital logbook improves tracking my progress</td>
<td>1 (2%)</td>
<td>4 (7%)</td>
<td>12 (21%)</td>
<td>29 (51%)</td>
<td>11 (19%)</td>
</tr>
</tbody>
</table>
A majority of the students agree that the digital logbook in PebblePad benefits their learning and appreciates the importance of the reflective entries. However OHT students have a significantly higher appreciation for the importance of their reflective entry (p = .019). Significantly more OHT students (p = .001) than DEN students report that the logbook in PebblePad benefits their learning. The same applies to the statement that the digital logbook improved tracking progress (p = .002). There is no significant difference between OHT and DEN students related to the importance of the weekly diaries and the ease of use of the logbook (see Figure 1).

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Test</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The distribution of Reflective entry is important is the same across categories of DEN_BOH.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.019</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>2. The distribution of Logbook PebblePad benefits learning is the same across categories of DEN_BOH.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.001</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>3. The distribution of Weekly diary valuable is the same across categories of DEN_BOH.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.053</td>
<td>Retain the null hypothesis.</td>
</tr>
<tr>
<td>4. The distribution of Digital logbook improves tracking progress in clinic is the same across categories of DEN_BOH.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.002</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>5. The distribution of Easy to use is the same across categories of DEN_BOH.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.078</td>
<td>Retain the null hypothesis.</td>
</tr>
</tbody>
</table>

Figure 1: Hypothesis test summary, asymptotic significances are displayed.
The significance level is .05.

Through pawing and comparison (open coding) the following meaningful themes were identified in the qualitative data.

1. Most students reported perceived learning benefits.
   It encourages me think about what has transpired during the clinical session. I have the opportunity to receive feedback from my clinical demonstrators and improve accordingly. (#9, 14)
   I think I would learn just as well documenting on paper, so I'm not sure that it is the digital logbook itself or just the content. (#22, 14)

2. Improved progress tracking and monitoring.
   All our entries, both reflections from our week and how we did with out patients can be easily accessed, if we want to trace something back. I think it also puts things into perspective when we write what we didn't do well but how we could overcome an obstacle. (#24, 14)
   Being able to reflect on the sessions task and be able to discuss areas of improvement and areas of success really reaffirms a platform for further progression. I have responded well to this new introduction and believe that receiving instant feedback from my demonstrators provides me with the guidance needed for improvement. (#5/10)
I think it is important to reflect on everything you do in life and especially when you are learning so much in clinic. (#20/10)

The reflection is helpful, but some things are said by the clinical teachers after the fact in pebble pad that I would rather they just said to me at the time so we could have a discussion about it, not just a one-way dialogue. (#21/10)

3. Easy to use and functional.
   The training was effective having the teacher show us in class all the functions of pebble pad. More support in clinic would have been effective when initially starting or having queries. (#33, 8)
   Hands on trialling of the system when we got into clinic helped the most. (#37, 8)

4. Assists with organisation and time management.
   It sometimes feels like it is double work, with reflecting on every patient treatment as well. But after ... explained that we could include all our experiences in the course (not only clinic) it made more sense. (#35, 18)

5. The need to have a clearer description of expectations, i.e. through the development of exemplars.

Recommendations

The survey findings suggested several recommendations, which could be implemented to improve usability and increase overall acceptance of the PebblePad tools. To date several changes have been implemented supported by our findings to overcome resistance and assist future compliance. It is important that digital literacy (staff and students) should not be assumed. Access to digital devices and reliable Internet connections are critical but cannot be taken for granted. There is a need for onsite PebblePad support (administration and experienced clinical educator), particularly in the first week of implementing the new workbooks in a clinical environment. Clinical educators are to be supported in time management and how to provide feedback effectively. Educators need to reinforce (to students) how the feedback loop is valuable to supporting active learning and the associated benefits.

Students benefit from instructions and examples on how to reflect and prepare a monthly reflective blog.
Conclusion

The implementation of the student-led feedback system improves efficiency, encourages student-reflections and led to efficiencies for the clinical educators.

The workbook improved tracking of progress for individuals and cohorts, improved patient assignment, assisted with early identification of students at risk and improved communication between clinical educators and the academic team. Using a PebblePad workbook for regular reflection, self-assessment and receiving multi-source external feedback in a clinical environment has been successful to improve active learning in oral health science and dental students.

The results of this study imply that when reflection is explicitly embedded into the curriculum and aligned with formal tracking of competencies, increased involvement with and acceptance of the tool can be achieved.

References


Biography

Ron Knevel

Ron Knevel, PhD Candidate, MEd, B.Health Dental Hygiene, rDH, NIMA-PR dipl, Dipl. Ed, has been a lecturer in dental hygiene since 1986. He started his career at the dental hygiene program in Amsterdam at the Academic Centre of Dentistry Amsterdam (ACTA). He currently is course coordinator of the oral health science course of La Trobe University in Bendigo, Australia.

He supported the development of dental hygiene education in Nepal (curriculum advisor and providing didactical and technical training) and managed an oral health promotion training center in Nepal.

In 2013, he was the recipient of the prestigious Andrew Heiskell Award, for innovation in international education. In 2015, he received recognition for his work in Nepal through a Social Responsibility Award from the IFDH and the Global Child Dental Fund. He is currently finalizing this PhD investigating factors that impact oral health workforce planning in developing countries, with Nepal as a case study.

Sarah Down

Sarah Down works primarily within a clinical background, spanning all disciplines related to general dentistry across different sectors in Australia, New Zealand and UK. Previous research has related to this field. Currently undertaking a Doctorate in Health Professions Education (University of Glasgow, UK). Research interests include inter-professional learning, education and collaborative practice as well as the role of stressors and critical reflection in transitioning from preclinical to the clinical environment in undergraduate education.

Priscilla Trahar

Priscilla Trahar is an experienced Learning and Educational Designer, having worked on the University-wide PebblePad implementation project at USC from 2014-2016. In this role, Priscilla was part of the team that won a LearnX Impact Award for the best new technology implementation and is involved in several grant projects focussing on developing and using ePortfolios both across programs and for graduate employability. Priscilla was a featured speaker at PebbleBash 2016 and has presented numerous case studies on implementing and using ePortfolios. Priscilla is now working on medium and long-term projects involving ePortfolio implementation and practice across the Australian Higher Education sector and is part of Griffith University’s PebblePad implementation project team.

Goksu Dines

Goksu Dines is a learning designer and educational consultant with extensive experience in working with academic staff to design student centred learning experiences with a particular focus on the use of educational technologies.
EPortfolio for Reflection and Assessment for Pre-service Education Students

Sharon Whippy
Central eLearning Team, Monash College

Abstract

The Mahara eportfolio tool is being used in the Monash College Diploma of Education program as a method for students to document and share their reflections of their learning and which also contribute to their summative assessments. The students enrolled in this unit intend on becoming primary school teachers. The practice of collaboration, reflection, and selection of their learning artefacts as evidence of their learning, scaffolds the development of skills and understanding required for the classroom, and facilitates ownership of learning (Strampel, Sibson & Main, 2017).

The benefits of eportfolio as an appropriate form of assessment rests upon its authentic, dynamic, and interactive features, which take into account process as well as product, and the social and cultural context of learning and assessing (Mason, Pegler and Weller, 2004). This paper is about the challenges and benefits of using eportfolio by the lecturer and students in the Understanding Learners and Learning unit, in the Monash College Diploma of Education. The eportfolio tasks and assessments embedded in this unit facilitated the development of pre-service Education students professional identity, built confidence and allowed the instructor insight into the student’s learning journey.

Keywords: eportfolio, reflection, education, assessment, scaffolding

Introduction

A learning design workshop for the Understanding Learners and Learning highlighted the opportunity for students to use eportfolio to document and share their reflections on their learning with their lecturer. The combination of theory and practice, and the opportunities for reflection on learning over the course of time was the key concept that was considered when making this decision (Strudler & Wetzel, 2005; Barrett, 2005; Brooks, 2017). The main purpose of this study was to evaluate the benefits and challenges that arose in this context when eportfolio was used within the aforementioned unit.

The decision to use the open source web application, Mahara, addressed the need to provide an eportfolio tool that functionally aligned to the Monash College eLearning strategy. At an organisation-wide level, this was to increase authentic learning opportunities and facilitate an evidence based learning environment for students and staff to build quality professional eportfolio. For our students eportfolio supports the development of learning and the assessment of learning artefacts as evidence and achievement of learning outcomes, this would be for
showcasing and accreditations, and would be typically outward-facing, for employment.

The Monash College Diploma unit Understanding Learning and Learners introduces contemporary learning theories to enable students to reflect on their own learning experiences in order to understand how others learn. The unit runs over twelve weeks and consists of three face to face sessions a week with some content delivered through flipped learning approach. The student group involved in this study was made up of twelve international students, working towards a degree in Education at Monash University

Methodology

Background
The lecturer and the students had no prior experience using Mahara. However, the lecturer was willing to adopt the tool, and make the best out of the opportunity. The lecturer was supported by the divisional Learning Technologist and the Central eLearning Team. The students were supported by the lecturer in class and using a video resource that was made available through the LMS showing them how to set up their journals.

Approach
Our approach for the use of eportfolio was to embed the activities throughout the unit to scaffold the learning and the use of the technology (McAllister & Hauville, 2017). The students enrolled in this unit were required to build their eportfolio by participating in weekly class activities that involved presentations and peer feedback, they were also asked to respond to questions on their theoretical understanding in connection to their classroom practice and their peer observations. The students also participated in teacher observations as part of a week-long Primary Professional Placement in local primary schools. These tutorial-based tasks and their observations in the primary schools provided opportunities for collaboration and feedback, which is considered to be a valuable element of the pedagogy that underpins folio thinking (Jafari & Kaufman, 2006). The cycle of collaboration, observation, feedback and reflection was a vital component of building a successful eportfolio pedagogy that was embedded at the task level as well as across the unit, and which culminated in the two main summative assessments (Shepherd, et, al. 2004; Brooks, 2017).

Example Tasks
The following are two examples of tasks the students completed that informed their reflections. These are accompanied by a short reflection from the lecturer, Nhai Nguyen (Ph.D.).

Activity: Reflection on Australia cultural diversity – field trip.

1. Class visit to the National Gallery of Victoria, themed Aboriginal Arts and Melbourne Museum of Immigration.

2. Lecturer (Nhai) divides the class into two teams, each of whom are in charge of researching the NGV or the museum to design one learning activity.
3. In the NGV, students are guided by a gallery volunteer. Students are asked to record the guide during the tour, to take notes and ask questions for collecting information.

4. An extra learning activity to be conducted by each team in the NGV and Melbourne Museum of Immigration.

5. Follow up with a post-trip debriefing and reflection in class.

6. Reflection video production posted on Mahara and shared with Nhai (Lecturer).

7. Nhai (Lecturer) to provide feedback to students.

Lecturer Reflection

‘To my surprise, my students were captivated by the museum guide’s information as we toured through the museum. They took careful notes, paid attention to what the museum tour guide explained and raised a number of questions. Upon the completion of the field trip, they posted a number of photos they took on Mahara with meaningful captions and comments. The experiences gained from that field trip and the opportunities that helped them reflect on theories of culture and diversity in Australia appeared to have a significant impact on raising their awareness of not just Australian diversity but also a clear idea of how they saw themselves and their teaching positions in contributing to social equity and equality in their future practices. This has been an excellent indicator of the early engagement with and the shaping of their professionalism, ethics and professional identities. A majority of my education students have incorporated their field trip experiences and their reflection into the second reflection entry for assessment and their Learning Portfolio. This activity is followed by my students producing a three-minute video reflection on their field trip and shared with me in Mahara’ (Nhai Nguyen Ph.D., Lecturer, 2017).


1. Pre-service teachers participate in their placement in schools.

2. They record their class observations and other related duties on a daily basis.

3. At the end of each day, they write their reflection on their placement activities for that day and start exploring traces of emerging learning episode.

4. Pre-service teachers share reflection and receive feedback on their performance.

Lecturer Reflection

‘Another prominent hindsight is using their personal experiences to serve as a useful referencing point based on which they were able to explore at great depth how primary students’ learning happens in an actual classroom during their placement in an Australian primary school in Melbourne in week 10. It has been a fantastic experience for students and me personally. Every single day during their placement time, students kept posting their observation notes and reflection entries on Mahara. As a teacher, reading their first-hand experiences, emotions and enthusiasm alongside with their difficulties and challenges was a meaningful way to
support and escort them emotionally during this challenging placement. I was absolutely stunned by the level of depth my students, who became pre-service teachers and officially recognised as my colleagues, engaged, observed, assessed and evaluated their primary students’ learning in light of theories taught in my unit. Equally it was an opportunity to reflect on my teaching effectiveness, albeit my daily habit of reflecting on my teaching that I felt completely refreshed, insightful and thus have had more meaningful linkages between my teaching effectiveness and student learning effectiveness’ (Nhai Nguyen, Ph.D., Lecturer, 2017).

Data collection and Analysis

The data was collected through a survey gathering students’ feedback. The lecturer created a reflective essay to record her thoughts. The student evaluation was conducted at the end of the trimester as an anonymous survey. Students were asked to respond ‘Strongly Agree, Agree, Neutral, Disagree, Strongly, Disagree’ to ten statements relating to the usability of the tool, they were also invited to make comments and suggestions.

Findings from the Student Surveys

Similar to Mason, Pegler & Weller (2004) and Strampel, Sibson & Main (2017) findings, 63.3% of the participants agreed that the reflective writing tasks and the Learning Portfolio was a fair assessment of their understanding and learning. Another benefit suggested by the evaluation is that 80% of students believe their reflective writing tasks and the Learning Portfolio helped their evaluation and reflection on their learning process.

The suggestion that students are able to track their progress through the process of developing their eportfolio is reflected in the response with 80% of the students indicating it helped the students to stay on track of their learning experiences, and allowed them to identify their strengths and weaknesses.

Regarding the skills students needed to use Mahara, 50% of students responded as ‘neutral’ when asked if skills required to use Mahara were easy to develop. It appears that students have faced challenges using the technology, and was also reflected in one student’s comments, “I need to watch the video for ‘how to share your Mahara journal’ every time I need to share”. This highlights the need for more training and support for student’s on how to navigate eportfolio. Another challenge relates to students perceptions of the use eportfolio for their professional development, over 50% of the students indicated they believed it would be useful to continue to use eportfolio for their professional development however, nearly 20% of the group ‘strongly disagreed’ with the statement.

Findings from Lecturer Feedback

The lecturer proposed a number of techniques which she saw as fundamental to helping her students to achieve success in the unit and their use of Mahara for building their eportfolio. These techniques included a combination of designing the appropriate activities, scaffolding of assessments to build into each other, using a common language for key messages of the benefits for developing an eportfolio for building a learning and teaching philosophy and the collation of evidence towards graduation and career pathways, and for promoting a community of practice. For
the lecturer, one of the main benefits of using Mahara was as an ‘interaction channel’ that provided the opportunity for her students to share their observations, reflections and assessments on their learning journey, in a ‘stimulating, safe, confidential learning environment’ as both ‘insider and outsider’ either retroactively or proactively, and enhancing their learning autonomy.

The lecturer wanted to develop a robust support system to facilitate her student’s use of the tool. She saw the importance for getting students to work in Mahara from the very first week of the unit, which she believed would allow them to take ownership of their learning.

The lecturer also highlighted that over the duration of the unit, how she witnessed a shift in her role from an “instructor” to ‘the facilitator of their learning who escorted them along the way”. In this way, the eportfolio served as the ‘window into...emergent identity’ and ‘an instrument for the construction of the professional self’ (Antonek, McCormick & Donato, 1997, p.16).

As part of her feedback she outlined the most valuable aspects of using eportfolio for reflection in this unit as including; being a practical, prompt method of delivery and scaffold toward assessments, providing the opportunity to develop strong links with other Diploma of Education units, being able to transform student learning to active and deep learning, the development of learning autonomy, the promotion of a community of practice, the mobilisation of international talents and the ability to build research capacities.

Conclusions

The findings from the student evaluation and the lecturer reflection indicate the use of the Mahara eportfolio tool for reflection and assessment in the Understanding Learners and Learning unit has been a positive experience, even though there were initial technological challenges. In particular, the lecturer has seen Mahara as having promoted “the spirit of community practice, portfolio building and research capacity building” (Nguyen, 2017), within her group of students. As part of this success the lecturer recently advised that three of her students have been accepted to present at the Third Global Teacher Education Summit, 2017, to be held at Beijing Normal University. The guidance and support the lecturer has provided her students with eportfolio and their use of Mahara and by emphasising the importance of the eportfolio process has promoted their use of the tool.

The unit design embedded the use of eportfolio and the cycle of collaboration and reflection throughout the curriculum which motivates students and allows the opportunity to gain insight into their learning journey as part of a community of learning. Eportfolio will continue to be used across the Diploma of Education, which will give students the opportunity to continue to reflect on their pre-service journey into their degrees, with the intention that it could continue into their professional lives. Considering their recent success with being accepted to attend the summit in Beijing, students have already begun to see the rewards for their effort within the professional community of practice.

When students can see their development of learning across an extended period of time and have more than one opportunity to develop an appreciation for the value of using an eportfolio tool (Strampel, Sibson & Main, 2017).
The success of using an eportfolio tool for documenting reflections on learning and practice in pre-service education, is that it facilitates the development of a professional identity and builds confidence. While also allowing the instructor insight into their student’s learning journey.

Bibliography


Appendices

Appendix A

MCD8010 Understanding Learning and Learners Assessment Details

Assessment 1: Engagement with Learning Portfolio
- Status: Individual
- Part 1: Tutorial-based tasks (800 words)
- Part 2: Learning portfolio (1600 words)

Details of task: This assignment helps you to explore and demonstrate understanding of learning theories. The assignment has two parts.
- PART 1: Tutorial-based tasks.
In the first part of Assignment 1, you will prepare two reflective writings (400 words in length each) based on the tutorial questions. The tasks are due in week 3 and 4.

You will receive a set of suggested tutorial questions relating to weekly topics (weeks 1-4) as shown in the unit schedule in week 1.

You should participate individually and in pairs or groups to take notes of the teacher’s and classmates’ feedback on your reflective writings after your presentation. You have to read the course readings and actively engage in discussion/feedback during the tutorials.

- **PART 2: Learning Portfolio (1600 words).**

The learning portfolio includes a collation and discussion of the two written tutorial-based writing tasks of the Part 1. This assignment is due in week 6 through Moodle submission.

The portfolio must:

- Briefly summarise the topic, "What is learning and what is teaching?"
- Develop your learning portfolio in full writing. Your writing must show improvements based on the feedback you have received from your teacher and classmates throughout the first four weeks. You must include evidence of readings and tutorial discussions.
- Assess and explain "What you have learned about learning and how this understanding is important in education'.

**Assessment 2 – Reflective Essay on Learning**

- Status: Individual
- Word count: 2400 words
- Due Date: Week 13 through Moodle Turnitin submission.
- Details of task: The focus of this assignment is to reflect on learning and the factors that contribute to learning.

Use the portfolio you completed for your first assignment as a 'model',

Choose ONE topic from weeks 6-12 to write a reflective essay on learning.

To complete this essay, you will reflect on, analyse and explain personal insights of yourself as a learner also using the associated readings you explored in the tutorial/workshop activities during weeks 6-12.

In the reflective essay, you will:

- Describe your personal learning episode in this course.
- Discuss:
- Where you define and explain learning; and
- What factors you believe affect learning.
- Relate the learning factor(s) to your personal learning experiences and how you understand yourself as a learner.
• Reflect on and assess your learning journey (i.e., what you now come to understand, and what it means to you as a pre-service teacher).

Appendix B

Student Survey Questions

1. I successfully completed my Learning Portfolio Assessment 1 for MCD8010. Yes / No

For the following questions, students were asked to rate their experience on a scale of Strongly Agree / Agree / Somewhat Agree / Disagree / Strongly Disagree:

2. Mahara was easy to use.

3. I found the skills required to use Mahara were easy to develop.

4. I believe Mahara is a useful tool for learning and teaching.

5. I believe Mahara would be useful for my other units.

6. I believe the reflective writing tasks (Part1) and the Learning Portfolio (Part2) is a fair assessment of my understanding and learning.

7. It was easy for me to share my reflective tasks with my lecturer.

8. Using Mahara to do my reflective tasks and Learning Portfolio helped me to evaluate and reflect on my learning process.

9. Mahara helped me keep track of my learning experiences and helped me identify my strengths and weaknesses.

10. I think it would be useful to continue to use Mahara for my professional development.

11. Biography

Sharon Whippy

Sharon Whippy was an English Language teacher prior to joining the Central eLearning Team at Monash College. She brings a wealth of experience of teaching and learning pedagogies and course delivery skills. She contributes to learning design and Technology Enhanced Learning projects at Monash College.
ePortfolios, should we even bother? A literature review

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Abstract

Paper-based portfolios (PBPs) have been widely used in tertiary health education programs to evaluate student performance and demonstrate competency towards completion of their degree. Due to current trends towards the increasing use of technology, tertiary education providers have inevitably shifted their attention from traditional PBPs to electronic versions.

This review of current literature aimed to explore the advantages and barriers to the utilization of ePortfolios for healthcare students. Literature was gathered from electronic searches using ‘SCOPUS’ database with the keywords: “ePortfolio”, “competency”, “readiness”, “employment”, “health”, “student*”, “healthcare” and “nurs*”. Additional resources were manually selected from the reference lists of results. A total of 33 texts were utilized for this literature review.

From the literature, ePortfolios can be used to: stimulate reflection, provide evidence of learning and encourage immediate feedback whilst being portable and easily accessible. Common barriers included a lack of guidance of ePortfolio technology for students and assessors. Potential of ePortfolios to enhance development was also inhibited as students found it difficult to create meaningful reflective entries. Student engagement with their ePortfolio was seen to decrease with increased complexity and rigid structuring. Students voiced privacy concerns by expressing fear of self-incrimination and uncertainty as to how their ePortfolio information may be used. Accessibility to ePortfolios during clinical hours can be difficult due to limited computer access and negative staff attitude towards online technology.

If these barriers are overcome, ePortfolios have the potential to become a useful contemporary tool in developing work readiness in healthcare students.

Keywords: ePortfolio, work readiness, reflection, barriers, competency

Introduction

Paper-based portfolios (PBPs) have been widely used in tertiary health education programs as a tool to evaluate student performance (Garrett, MacPhee, & Jackson, 2013) and demonstrate competency towards the completion of their degree (McAllister, 2015). Through critical reflection, students are encouraged to assess their own abilities and identify areas of further learning (Garrett et al., 2013). Critical
reflection is vital amongst healthcare professionals as it forms the necessary framework for clinical staff to: apply best practice guidelines for appropriate scenarios, link theory to practice, keep up to date with professional development and make contributions to the healthcare field (McKendry, 2016). As a result of the exponential growth of technology, higher education have shifted their attention from traditional PBPs to an electronic version (Tzeng, Kuo, Talley, Chen, & Wang, 2015). The shift from PBPs to ePortfolios to enhance learning has not been without some degree of controversy (Garrett et al., 2013). Acceptance of ePortfolios from students and clinical staff has had varying results (Buckley et al., 2009).

Methods

Multiple electronic searches using ‘SCOPUS’ database were carried out. These searches used a combination of the keywords from groups A, B and C (see Table 1) with the Boolean operators and/ or. Combinations of groups used were from: A, B and C; A and C; A and B. When searching for results exclusively using combinations from group A and B and searches with the keyword “student*”, the subject areas were restricted to ensure results were relevant to the health field. The subject areas used were “medicine”, “nursing” and “dentistry” which were predetermined areas by SCOPUS. Search results not accessible online and in English were excluded. Articles were then screened using their titles and abstracts for relevance. Further papers were obtained by manually reviewing references from the papers obtained through the electronic searches.

Table 1: Keywords used to obtain articles

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePortfolio</td>
<td>Competency</td>
<td>Health</td>
</tr>
<tr>
<td></td>
<td>Readiness</td>
<td>Student*</td>
</tr>
<tr>
<td></td>
<td>Employment</td>
<td>Healthcare</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nurs*</td>
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</tbody>
</table>

Results

The electronic searches yielded a total of 41 results. From these, 35 were selected based on the exclusion criteria described earlier. After reviewing the titles and abstracts, 3 articles were excluded as they were not relevant to ePortfolios for tertiary students. After reviewing the full text, 23 articles and 1 book were selected. 9 articles were obtained through reference lists of articles obtained from the original searches. Thus, a total of 33 articles were used for this literature review (see Figure 1).
Discussion

Common advantages of PBPs and ePortfolios

As the shift from PBPs to ePortfolios is a platform change rather than a conceptual change, the two share several benefits (Butler, 2006). The benefits of portfolios include:

*Stimulation of reflection*

Reflection is vital to enhancing learning as it allows individuals to draw upon previous experiences and knowledge to learn or improve skills (Norris & Gimber, 2013). Students should view reflection as a skill that they already possess and need
Reflection transforms a portfolio from an online database into a dynamic learning tool for students in which they can use to encourage both personal and professional growth (Karsten, 2012). Portfolios encourage students to reflect upon their learning experiences and evaluate their strengths, weaknesses, achievements and knowledge (Karsten, 2012; Ruiz et al., 2009; Tailor, Dubrey, & Das, 2014). Furthermore, it aims to promote critical thinking as students are required to collect and select pieces of evidence that will best illustrate their learning (Norris & Gimber, 2013).

Woodward and Nanlohy (2004) argue that ePortfolios may reduce the quality of reflection as it shifts attention from content to form, however, Driessen, Muijtjens, van Tartwijk, and van der Vleuten (2007) found that the quality of reflection was the same for PBPs and ePortfolios.

Evidence of reflection

Students are constantly engaging in informal reflection through discussion with peers, colleagues and family (Boyd, 2012) (Awang, 2008). Thus, reflection is a skill that students possess which can remain unrecognised (Kardos et al., 2009). The use of portfolios allow students to document these reflections with the possibility of looking back on them in the future (Perlman, Christner, Ross, & Lypson, 2014).

Records are able to be shared amongst peers or colleagues and can be further developed at a later time (Duncan-Pitt & Sutherland, 2006). As information from previous years can be stored on the ePortfolio, students can revisit these records to evaluate their personal and professional development (Duncan-Pitt & Sutherland, 2006; Gwozdek, Springfield, & Kerschbaum, 2013). It is not the entries or artefacts themselves that act as evidence of learning. It is the deep reflection connecting artefacts together that finds significance in each clinical experience and demonstrates student learning (Gwozdek et al., 2013).

Accurate evaluation of student learning

Portfolios allow for a more holistic assessment of a student’s abilities as they shed light on student development over time as well as provide a platform for assessments (Kimball, 2005). The process of developing a portfolio is as important as the final product (Walton, Gardner, & Aleksejuniene, 2016). They provide an insight into student development as assessors can monitor their progression (Duque et al., 2006). Hence, portfolios are seen as a more accurate tool of student evaluation as they assess both growth and competency of students (Butler, 2006).

Advantages of ePortfolios

Due to its web-based nature, some exclusive benefits of ePortfolios compared to PBPs are:

Use of multimedia

ePortfolios allow students to incorporate multimedia such as images, videos and audio into their entries to enhance learning (Karsten, 2012). For example, students
can record themselves performing particular skills and integrate this into their ePortfolios to demonstrate competency (Karsten, 2012).

*Increases student motivation:*

Several authors have found to increase student engagement with ePortfolios compared to PBPs (Avila, Sostmann, Breckwoldt, & Peters, 2016; Driessen et al., 2007; Porter, Kleve, & Palermo, 2016). Driessen et al. (2007) suggest that students find the electronic presentation of ePortfolios more appealing than their paper counterpart. ePortfolios with the option of customisation were also found to be appealing to students who were creative as it allowed them to express their individuality (Porter et al., 2016). Increasing interest towards ePortfolios encourages students to dedicate more time and effort into developing their portfolios. As a result, students are able to maximize the developmental benefits that come with successful portfolio use (Driessen et al., 2007).

*Accessibility and portability*

Due to their web-based format, ePortfolios are stored online and can be accessed in many locations simultaneously by several viewers (Pincombe et al., 2010). This permits more opportunities for cross-markings as assessors can easily access the ePortfolios (Jafari & Kaufman, 2006).

*Feedback*

Feedback is a crucial factor in the effectiveness of ePortfolios (Gwozdek et al., 2013). The immediate assessor feedback permitted by ePortfolios transforms the once static learning tool into a dynamic platform for students (Duque et al., 2006). 

*Versatility:

The ePortfolio can be transformed into a presentational portfolio to display achievements and competency to future employers (Vernazza et al., 2011). This can be used to complement a resume or curriculum vitae (CV) (Gwozdek et al., 2013).

*Potential barriers to the effectiveness of ePortfolios*

From the literature reviewed, potential barriers to successful ePortfolios use were identified. Common themes found include: guidance and mentoring of ePortfolios, its structural design, privacy concerns and accessibility.

*Mentoring and guidance in ePortfolios*

The success of ePortfolios increases when clear guidance and supportive mentors are available to students (Mc Allister, 2015). Many students find ePortfolios challenging at first (Pincombe et al., 2010) however, become more familiar and comfortable with them over time (Birks, Hartin, Woods, Emmanuel, & Hitchins, 2016). This unfamiliarity combined with a lack of guidance decreases student engagement with ePortfolios (Pincombe et al., 2010). Students believe that more training is beneficial to guide them through the technological and academic aspect of ePortfolios (Avila et al., 2016).

Supportive mentors are a necessity to effective ePortfolio use as they can encourage deeper reflection in students by providing feedback to students (Bogossian & Kellett, 2010; Driessen et al., 2007). Students often find self-reflection difficult and are hesitant to do so without encouragement (Driessen
et al., 2007). This is supported by Goodyear, Bindal, and Wall (2013) who found that students could describe their clinical experiences with ease but struggled to explore their thoughts and feelings towards the events. Thus, mentors are essential to the success of ePortfolios as they guide students to reflect upon their clinical experiences and encourage deeper reflective writing.

Clinical staff may be reluctant to guide and support students and their ePortfolios due to poor computer literacy skills (Bogossian & Kellett, 2010). Bogossian and Kellett (2010) suggest that poor computer literacy skills is due to a generational gap as older staff members would have completed their education before technology became prevalent (Bogossian & Kellett, 2010). Consequently, students may feel more inclined to use PBPs as they allow for better staff engagement in these cases (Bogossian & Kellett, 2010). Thus, the poor computer literacy capabilities of mentors can be a potential barrier that prevents students from fully engaging in their ePortfolios. It is recommended that ongoing technical support is also readily available to assist both mentors and students (Garrett & Jackson, 2006).

**Structural designs of Portfolios**

Thorough planning of ePortfolio designs is required to ensure that it is relevant, clear and user-friendly (Pincombe et al., 2010). Complex designs have been viewed as cumbersome and tedious by students resulting in poor engagement of ePortfolio (King, 2013) (Hall, Byszewski, Sutherland, & Stodel, 2012). The perceived user-friendliness of ePortfolios considerably impacts their perceived usefulness (Duncan-Pitt & Sutherland, 2006).

Rigid structuring has been shown to reduce the effectiveness of ePortfolios (Vernazza et al., 2011). Structured ePortfolios may resemble tick the box exercises (Grennan, Crowley, Quidwai, Barrett, & Kooblall, 2016). These encourage students to mechanically complete their entries instead of fostering a space for students to self-reflect and learn from their clinical experiences (Vernazza et al., 2011). It is difficult to find equilibrium between a structured ePortfolio that meets registration requirements of accrediting agencies and one that is flexible to the learning needs of students (Vernazza et al., 2011).

ePortfolios need to be continuously updated in order to suit the learning needs of students (Vernazza et al., 2011). Ayala (2006) found that students were rarely involved in the design process of ePortfolios. Incorporating ideas and concerns from students allow ePortfolios to become student-centred and foster a sense of ownership (Ayala, 2006).

**Privacy concerns of ePortfolios**

It was found that confidentiality of ePortfolio entries was not clearly defined in literature. Johnson et al. (2012) surveyed 80 medical trainees and found that 81% were unsure whether information disclosed in their ePortfolios could be used in Fitness to Practice hearings or in criminal or civil courts. This fear of self-incrimination may deter students from fully engaging in the reflective activities of ePortfolios and inhibit personal and professional development.

This lack of transparency in regards to how ePortfolio information may be used is also demonstrated in a study of nursing students by Garrett, MacPhee and Jackson (2013). Students expressed concerns about privacy as clinical instructors had access
to all the students’ past and current journal entries because instructors could develop pre-conceived ideas about respective students (Garrett et al., 2013). They preferred that instructors only had access to current ePortfolio information (Garrett et al., 2013). Whilst restricting instructor access to only current entries is not technologically difficult and still allows for student assessment to be completed, it undermines the nature of ePortfolios to show growth over a period of time (Garrett et al., 2013).

**Accessibility of ePortfolios**

Whilst ePortfolios are easily accessible outside of clinical hours, students have expressed difficulty accessing their ePortfolios in the clinical setting (Bogossian & Kellett, 2010). In a study by Bogossian and Kellett (2010), 7 out of 42 nursing students found that they had to compete with clinical staff for access to available computers during heavy workload hours. Garrett, MacPhee and Jackson (2013) suggest this barrier to ePortfolios can be overcome as hospitals increase the number of computers available. This is contrary to Bogossian and Kellett (2010) who argue that accessibility to ePortfolios during the clinical setting is more complex than just the number of available computers for students.

Access to ePortfolios by students during work hours is also dependent on the attitudes of the surrounding clinical staff (Bogossian & Kellett, 2010). In Bogossian and Kellett’s (2010) study, nursing students commented that clinical staff did not believe completing ePortfolios during working hours was an effective way of learning (Bogossian & Kellett, 2010). In addition to this, students believed that staff access to available computers for patient needs held priority over their own academic requirements (Bogossian & Kellett, 2010).

To overcome the limited access to computers, portable handheld devices have been introduced to allow students access to use their ePortfolios and reflect at the bedside (Bogossian & Kellett, 2010; Garrett & Jackson, 2006). In a study by Avila et al. (2016), medical students were given access to ePortfolios through their mobile phones. 62% of these students felt that these mobile capabilities were beneficial to ePortfolio development (Avila et al., 2016). On the other hand, use of these devices has been viewed negatively by some students due to fear of appearing unprofessional or incompetent by patients (Bogossian & Kellett, 2010). Additionally, some students found it difficult to secure space to complete their academic tasks, especially during busy work hours (Bogossian & Kellett, 2010).

To minimise the issue of poor accessibility of ePortfolios during the clinical work hours, students should complete their academic requirements at home. 71.5% of nursing students in Bogossian and Kellett’s (2010) study completed their ePortfolios at home (Bogossian & Kellett, 2010). At home, they do not need to compete with other clinical staff for computer access and have less distractions compared to the busy clinical setting (Bogossian & Kellett, 2010).

**Conclusion**

With the rapid advancements in technology, today’s students will encounter countless technological innovations throughout their careers. These creations will continuously evolve to ultimately improve patient outcomes. Likewise, tertiary healthcare education programs need to embrace the new ePortfolio technology to evolve their current PBPs to better suit student learning. ePortfolios are not a
conceptual change to the traditional PBPs, but rather a platform change. Thus, ePortfolios share the advantage of encouraging reflective skills which are essential to healthcare professionals. Their online platform encourages feedback amongst assessors and students to ultimately transform traditional PBPs into a more dynamic learning tool to enhance student learning.

To maximise the effectiveness of ePortfolios, potential barriers to its success need to be addressed. Thus, ePortfolios need to be flexible, simple and continuously developed based on student and staff input. Training, workshops and ongoing technological support need to be available to staff and students to guide them through the ePortfolio technology and reflective writing. Furthermore, ePortfolio providers need to be transparent as to how information recorded may be used to alleviate any privacy concerns. Finally, education of clinical staff towards the importance of ePortfolios may shift their attitudes and alleviate the accessibility issue of ePortfolios during clinical hours.

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Biography

Susan Ho

Susan Ho is currently in the final year of studying a Bachelor of Medical Imaging and Radiography (Honours) at Monash University. Susan is interested in looking at ePortfolios and their effects on healthcare students, and how this can be implemented in the radiography course she is currently studying.

John McInerney

John McInerney is an early career researcher at Monash University in Melbourne. He is somewhat of an accidental tourist in the world of technology. He is not quite sure yet if he believes that technology is as ubiquitous as might be suggested. He is therefore in a good position to research it as he has no preconceptions about its usefulness or not. In effect he is aiming to convince himself in either the positive and negative direction. He does however firmly believe that "IT skills" are over rated for average users of technology and that attitude is the key to acceptance of technology. He also firmly believes in the individuality, creativity and intellectual pursuit that ePortfolios allow users.
A Mobile first Clinical Assessment model

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Abstract

La Trobe University undergraduate nursing students have been using an online clinical assessment tool since 2014 with positive results and challenges. The management of over 3000 students and an ever-changing workforce of clinical nurse educators and nursing preceptorship models has been difficult with diminishing administrative resources. In 2017, we redesigned our approach to a radical model for a student driven, mobile first clinical assessment tool. The design was intentionally changed to return the responsibility to the student to connect them to their assessors and clinical placement assessment. The design was driven to minimize the administrative overhead of creating accounts for clinical nurse educators and pairing them with students. This evaluation looks at the success of this design with key stakeholders of students, clinical educators and academic teaching staff.

This proposal is aligned to the theme of students “owning their journey” for clinical assessment. We have intentionally designed our clinical assessment to facilitate the need for students to take responsibility of their clinical assessments whilst on placement. These assessments are key documents for their nursing portfolios and clearly document their growth, development and competence over their three year learning journey. These documents will be used to showcase their ability and skills for future job applications.

Keywords: ePortfolio, portfolio, nursing, clinical assessment, clinical practice, mobile device, mobile technology.

Introduction

Clinical assessment is a key component of undergraduate and post graduate nursing degrees. Students have the opportunity to apply theoretical knowledge in real world authentic situations. The clinical experience is assessed by clinical educators who provide feedback to students about their performance against a prescribed set of professional standards and competencies at an expected level for an undergraduate student.

The School of Nursing & Midwifery and Rural Health School replaced a cumbersome paper-based clinical tool with an online clinical assessment tool in 2014 (Young & Jokwiro, 2016). The first online tool was successfully implemented but over time, the feedback from our clinical partners was increasingly less positive. The main criticism was due to the challenge of administering over 3000 students and matching them with a constantly changing workforce of over 1000 clinical educators
in a dynamic environment with reduced administrative resources. This led to delays in clinical assessment and many calls to the support team.

The range of technical issues led to reconceptualising a new ePortfolio assessment design and implementation for students and clinical educators, in the hope that the new design and approach would lead to increased positive feedback and decreased issues, particularly for clinical educators which could then lead to an increased positive student experience. This paper reports on the rationale for ePortfolios within a clinical nursing context, the approach taken at La Trobe and the theoretical underpinnings that have informed the design and the intended outcomes. We also tentatively report upon early anecdotal findings and further research planned to evaluate outcomes, future iterations and improvements.

ePortfolios in the nursing context

Portfolios hold a strong history of use to demonstrate professional development across a range of disciplines (Williams & Jordan, 2007) and there has been recognised common use within nursing education (Haggerty & Thompson, 2017) particularly over the past decade (Feather & Ricci, 2014).

Multiple researchers have identified benefits to using portfolios and especially ePortfolios within educational contexts, including for reflection (Bryant & Chittum, 2013; Wuetherick & Dickinson, 2015) building student agency over learning (Bryant & Chittum, 2013; Challis, 2005) and for demonstrating growth over time (Feather & Ricci, 2014; Wuetherick & Dickinson, 2015). ePortfolios can promote a learner-centred approach and may be most effective when constructed and owned by students (Garrett, MacPhee and Jackson 2013).

Past research has indicated students have generally perceived ePortfolios positively compared to paper-based portfolios with key benefits related to ease of sharing with others (Feather & Ricci, 2014; Wuetherick & Dickinson, 2015), though with some identified challenges such as digital literacy (Wuetherick & Dickinson, 2015). Benefits for staff have included ease of administration (Haggerty & Thompson, 2017).

ePortfolios can be beneficial particularly for use in clinical placement and nursing assessment (Garrett, MacPhee and Jackson, 2013; Haggerty & Thompson, 2017). They can also be used as a medium for the demonstration of student nursing competencies. The use of formative and summative appraisals within the e-portfolio assist timely feedback for students and can foster a process whereby the student reflects on their performance and identifies learning needs (Green et al., 2014). Reflective practice and critical appraisal is required to care for the complexity of patients requiring hospitalization. E-portfolios can also be used as evidence of skills growth and readiness for employment in clinical settings including generating discussion with managers in interview settings (Feather & Ricci, 2014). However challenges for teaching staff in nursing assessment have been highlighted, including negative perceptions of and issues in consistency in competency based assessment (Garrett, MacPhee and Jackson, 2013), intrarater reliability issues (Feather and Ricci, 2014), and concerns related to privacy, security and trust when using digital assets (Bogossian, Kellett, & Mason, 2008). Garrett, MacPhee and Jackson (2013) have also argued that clinical educators require additional training to implement ePortfolio assessments effectively.
A new ePortfolio design and approach

In 2017, La Trobe University adopted a new version of PebblePad Version 5. This enabled the introduction of a few key functional features into the design.

A new design was implemented in early 2017. The key attributes of the design incorporated three principle aims:

Mobile-first design

Research indicates that students have high access to smartphones (Dahlstrom and Bichsel, 2014) similar to the wider population (Deloitte, 2016). Studies in nursing settings have also suggested that when working in clinics, access to computer technology is a challenge (Bogossian, Kellett, & Mason, 2008). We aimed to offer opportunities for students and mitigate these challenges through a responsive mobile design.

The mobile first principle supported the notion that we wanted to replicate the simple “Paper assessment” experience where the student would provide a paper document to the clinical educator and ask them to assess the student and sign the document on completion. Here the design encouraged moving to mobile format based on key considerations (as demonstrated within Figure 1):

- The ability for a student to easily provide input via mobile phones and devices (not available in the original assessment tool)
- The provision of a simple user interface with limited menu choices
- Clear delineation between student and educator areas for assessment and completion
- An improved assessment layout including tabular rubrics, thereby resembling familiar paper tables
- Digital signatures to be possible using input from stylus, finger or mouse - students could present their mobile device to the clinical educator for assessment and a digital signature.
While a mobile first approach has been taken for previously described benefits, some studies have noted students currently only use mobile technologies in learning contexts at a low or moderate level (Dahlstrom and Bichsel, 2014). There are also potential challenges or resistance in the clinical setting including student attitudes and digital literacy (Garrett and Jackson, 2008), access and space issues for technologies and limited staff utilisation (Bogossian et al, 2009).

**Student agency and responsibility**

The original online clinical tool allowed shared responsibility for completion of the assessment. The new version delegated sole responsibility back onto the student. Nurse educators were no longer provided with log in details instead students
provided the lead for completion of their tool. Where required students could provide their educator access to their tool for completion.

The new design encouraged a model where the responsibility to complete the assessment was initiated and managed by the student, both in terms of assessment administration and in encouraging a discussion with the clinician to receive feedback at point of assessment. It was hoped that this approach would allow students more autonomy over their learning and assessment. In addition, completion of both assessments (student and educator alike) in this process should also facilitate communication between student and educator.

**Ease of administration**

The original assessment tool required linking individual students to their clinical educator in the system for visibility and marking purposes, and creating login accounts for external clinical educators. The new design eliminated the need for clinical educator login accounts to be created and removed the need to administer processes to match students to clinical educators.

**Implementation with students**

In Semester 1 2017, 2670 students were assessed in first, second and third years across multiple clinical sites in metropolitan and regional clinical sites using the new clinical tool.

An academic lead within the School of Nursing and Midwifery led a project team for the implementation of new communication guides for completion of the tool. These were provided for both student and educator. emphasis through these documents was that students were to be responsible for the completion of their tool and communicate with and liaise with their educator for feedback and be awarded a grade. At appropriate times during the clinical placement, the students were required to ask their clinical educator for both formative and summative feedback. The clinical educators needed students to login and give them access to the student devices to input assessment details and finally digitally sign the clinical tool.

**Early feedback**

Early anecdotal feedback from academic teaching staff suggested that the students generally found the new tool easy to use. Students had little difficulty understanding the tasks required of them and found the new interface better to use (compared to the original clinical tool) with less pages required to be completed. Students anecdotally seemed willing or indicated intentions to undertake initiating the assessment via mobile device. This feedback would suggest the renewed tool design had, at least in part, achieved the intended aims. However, this data is second-hand and not conclusive: we plan to verify this via a large scale student feedback survey; this is planned for August 2017, pending ethics approval.

However, initial anecdotal feedback from academic staff indicated additional unexpected outcomes on the side of clinical educators. Academic staff reported that the majority of clinical assessments were not being performed on a mobile device, but instead on a desktop or laptop computer. These challenges were multifaceted and seemed to include personal and logistical reasons.
Some clinical educators did not like inputting assessment on a mobile phone, they preferred to use a familiar desktop/laptop computer rather than input via the mobile device owned by the student. Some educators preferred to spend time reading the student’s self-reflection which was challenging on a mobile device when the student was present. Other reports suggested some clinical educators were also concerned about security of the system; in particular about the falsification of records using digital technology.

Other reasons appeared related to access and logistical issues. At times the wi-fi access in the hospital areas was not available and therefore a mobile device could not be used, a small proportion of students did not have a device to use, some areas also prohibited mobile devices to be used and therefore this modality was not feasible to be undertaken, To rectify these aforementioned issues, academic staff also reported that clinical educators were regularly asking students to provide them temporary access to the student clinical tool via email. This mode was designed to be a used as an emergency late access method and not the primary method for assessment.

Conclusions and further actions

Early feedback would tentatively suggest that desired aims of the project for a mobile first, student driven clinical with low administrative load, have seen improved perceptions for students. Further research is required to canvas students, educators and academic staff for their perceptions to confirm if this feedback translates into data indicative across a cohort.

The project has also however, highlighted additional challenges - acceptance by the clinical staff has not been effective as hoped. Anecdotal feedback suggests the new clinical assessment was not used by clinical educators as it was designed to be. Preliminary feedback has highlighted the challenges when implementing new ePortfolio designs in practice, including gaps between expectations of use compared to actual use. We considered what we assumed would be student preferences, and yet failed to acknowledge technology preferences amongst clinical educator staff. We recommend further research in order to uncover the decisions made by clinical educators in practice and the factors and considerations that affect these decisions, as it is currently unclear why clinical educators are reluctant to engage with the tool in the intended ways.

To address the current limitations in understanding, we plan to undertake further data collection and analysis of staff and student responses and report and act upon future findings. We have planned a much more comprehensive analysis of student and staff responses to support our initial conclusions based on initial anecdotal feedback. We have organised to undertake student surveys and staff focus groups in August 2017 from students, clinical educators and academic staff. We have currently applied for and are awaiting ethics approval.

However, these early responses have also highlighted the importance of consulting with and involving clinical educators in the design process. We recommend that when approaching a new assessment design or tool, that all key stakeholders be consulted and acknowledged in order to ensure buy-in. Clinical educators have anecdotally highlighted a number of concerns, not only related to tool and device use, but also concerns related to privacy and trust. Consulting with clinical
educators throughout the design process could see improved trust between parties and between clinical educators and the technology.

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Biography

Terry Young
Terry Young is currently a Senior Education Designer working at La Trobe Learning & Teaching. He has worked over the last 5 years with the Education and Health Science Disciplines promoting the use of Portfolios in curriculum and clinical assessment.

Kate Mitchell
Kate Mitchell supports teachers and academics to integrate educational technologies into their teaching practice. She currently works as a Senior Educational Designer at La Trobe University where she is able to integrate pedagogy and technology. She has several years' experience in tertiary staff development and training delivery, and over a decade experience of vocational and secondary education teaching and television and media production. She recently completed her Master of Education by Research thesis exploring vocational educators’ perceptions of the enablers and barriers influencing their use of e-Learning.

Rachel Cross
Rachel Cross is an academic lecturer in the School of Nursing and Midwifery at La Trobe University. Rachel is a subject coordinator and also works as the clinical lead for student placement for assessment and appraisals using e-portfolios. This role spans includes nursing and midwifery students across both metropolitan and rural/regional campuses for the university.