

An Embedded ePortfolio in a Master's Degree: Is It Working?

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ePortfolios are embedded into several degree programs at Charles Sturt University in Australia to maximize the value of ePortfolio purposes for students working in or towards a profession. ePortfolio design has been embedded into a Master of Education curriculum for five years. Graduates of this degree program are classroom teachers, and some have leadership positions in education. The aim of this article is to report findings of a research project investigating continued use of the Master of Education ePortfolio processes; it ascertains whether the ePortfolio capstone task was an effective means for students to: draw together key elements of their study within the Masters program; and to reflect and identify changes in philosophy, thinking, or practice in professional work. Finally, the project studies whether recognizing the skills they used to create the ePortfolio encouraged the students to use those skills with their peers and colleagues or in teaching situations. The research took a Case Study approach, collecting graduate interviews and capstone ePortfolios. Analysis provided details about effective aspects and processes that embedded the ePortfolio into the higher degree program. ePortfolio curriculum and design require considerable planning if academic educators are to support the use of ePortfolios in Higher Education.

Several degree programs at Charles Sturt University (CSU) in Australia include embedded ePortfolios. ePortfolios for the purposes of reflection, development, showcase, and assessment have been valuable in individual courses; however, several program directors have understood the value of collecting evidence of learning over time and have embedded progressive and purposeful stages in curriculum design through ePortfolio in order to scaffold and steer students to optimally present themselves to their professional peers during the transition from student to graduate. CSU, a “National University for the Professions” (CSU, 2012, p. 3) with campuses located mostly in rural New South Wales, has a strong online presence for distance and blended learning. The research project that is the topic of this article relates to the profession of Education, within the university's Faculty of Arts and Education. ePortfolio learning design has been embedded into a Master of Education curriculum since 2011 by specifically introducing a reflective and assessment ePortfolio into the beginning of the program and returning at the conclusion of the program with a capstone reflection and development ePortfolio. The curriculum in the program provides advanced skills for already accredited teachers. All students need an undergraduate Education degree as a requirement for enrollment. Therefore, students entering this master's degree program are usually classroom teachers, and some have leadership positions as professional educators.

In the existing master's degree, all students undertake a compulsory first year course entitled Education as a Profession in the 21st Century, which expects students to “reflect on their new understandings and learnings through the lens of their own contexts, experiences, and beliefs . . . [and to] use ICTs and digital technologies to support learning . . . in the preparation of an ongoing ePortfolio”

(Laughlin, Major, Munday, & Tinkler, 2011). Students then choose courses from a number of specializations before completing a final capstone course titled Reflecting on Education as a Profession in the 21st Century, which completes the ePortfolio with “substantial reflection . . . [including] the changes . . . within their practices” (Munday, 2012). The higher degree program takes two years to complete.

ePortfolios take considerable effort and time by their academic creators, and need careful learning design by curriculum architects. However, the final or progressive outcome yields positive changes in thinking and practice, because ePortfolios can have different purposes within a degree program: they enable the creator to demonstrate development of professional skills; to provide evidence of reflective practice; to showcase exemplary work; and to provide a well-designed web-based document for assessment.

The main aim of this article is to report on findings of research that investigated whether the outcomes and skills learned in a Master of Education ePortfolio led practicing teachers to continue using the skills, and whether they used ePortfolio processes, techniques, and skills in the classroom with young children or in their professional workplace.

Theoretical Framework

The embedded ePortfolio in the MEd program is based on Constructivist theories of learning (Dewey, 1965; Ernest, 1995; Honebein, 1996; Jonassen, 1994; Lebow, 1993; Piaget, 1971; Vygotsky, 1978; Wilson & Cole, 1991). Xamani (2013) described this way of learning as enabling

students to construct knowledge, integrate it, and transfer it to new situations, taking their prior

knowledge and experience as a basis, and to benefit not only from interaction and collaboration with their teachers and peers, but from a wide range of resources to develop their critical thinking, among other key competencies. (p. 3)

Since the students are already in the field or profession of education when they enter the Master's degree program they have a wealth of experiences from which to draw as they embark on their higher degree studies. The online degree program aims to enable the sharing of expertise and experience through synchronous and asynchronous engagement with educational leaders and peers. CSU prides itself on its leadership in online learning in Australia and has created an Online Learning Model, which strives to increase student engagement (CSU, 2017). Students are given reflective opportunities throughout the master's degree (Schön, 1987), and are asked particularly to reflect on the way they see themselves as professional practitioners as they enter and conclude the program, in order to critically demonstrate the development of their skills and knowledge throughout the learning process. Students also measure themselves according to professional standards in order to demonstrate that "as professionals, teachers need to engage in reflective practice to critically think about their skills and knowledge . . . and become an active member of learning communities to meet their professional needs" (Australian Institute for Teaching and School Leadership, 2014).

ePortfolios: Context at CSU

At CSU, Education ePortfolios were initially introduced as collections of work in single courses where the academic teacher understood the value of students providing evidence of their learning along with the reflection of a meta-narrative (Keppell & Munday, 2010). To maximize the value of electronic portfolios and their different purposes, they have been embedded in education degree programs where developmental assessment and reflective skills can be showcased at various strategic points of the degree, climaxing at the conclusion with employability or promotion of higher knowledge as the goal.

In 2010 a national review of ePortfolio use by Australian university students described the extent to which ePortfolios were being used in universities as "patchy" (Hallam & Creagh, 2010, p. 186). In the intervening years, there has been a more consolidated uptake of ePortfolios purposefully designed within higher degree programs, with researchers paying more attention to the opinions of students regarding their value in university programs (Birks, Hartin, Woods, Emmanuel, & Hitchins, 2016).

The design of the embedded ePortfolio in the Master of Education degree was intended to enhance students' skills in the online space and in a dedicated ePortfolio environment. CSU uses Pebble Pad® as its ePortfolio environment, and students are able to use reflective and documentary tools within the environment as well as collect artifacts of their learning. The embedded ePortfolio tasks in the aforementioned program enabled students to acquire and enhance several skills as they are required to demonstrate the requirements for reflective practitioners "who have the skills and attitudes that are needed to meet the demands of professional audit, appraisal, and professional revalidation" (Cotterill, McDonald, Drummond, & Hammond, 2005). Graduates of the program needed to consider how to design an engaging web presence with a convincing narrative around their personal learning; demonstrate their abilities as reflective practitioners; provide evidence of development of learning and skills from the beginning of the master's degree program; and, showcase best examples of their practice in the capstone assessment submission.

The design of the learning materials in the master's degree had positive and altruistic motives, so it was important to undertake evaluative research to ascertain whether the assumptions underlying the learning design were valid. Course designers assume that students will understand and recognize that they have gained new skills through the creation of the ePortfolio, and there is an expectation that students, through their understanding of the value of these skills, will transfer that knowledge and understanding to children or peers with whom they work in their professional careers. However, as a study conducted in the University of Mississippi (Cummings, Forgette, Goldberg, Krueger, & Myatt, n.d.) reported as a main finding, that ePortfolios "serve as a condition for the transfer of learning" (p. 1), rather than an assured outcome. Therefore, it was important to investigate whether the intended progression of outcomes were occurring in this higher degree program.

The Research Participants

In order to enroll in the Master of Education (MEd) degree, prospective students must have an undergraduate degree in education. Many research participants who completed the MEd with CSU reported they had completed their undergraduate study some time before enrolling in the higher degree program, and many had been classroom teachers or professional educators for at least several years. The MEd has been designed and created for online learning, which means that student cohorts consisted of Australians working nationally and overseas and

Table 1
Number of Students Graduating From the Master of Education Program Over the Past Five Years

	2012	2013	2014	2015	2016
No. of students	122	111	106	148	96

international students or residents from countries other than Australia.

Several participants were already leaders in the profession of education, whilst others aspired to be leaders or had recently been promoted to a leadership position and expected the higher degree program to assist with development of their leadership capabilities. Many students said that they felt they had reached a point in their profession where they needed to know more about learning, and since the Master's degree catered for knowledge specializations, many were keen to learn more about a specific aspect of knowing, such as Literacy, ICT, and Educational Research.

ePortfolios: Context in Previous Research

Many studies of the effectiveness of ePortfolios in Higher Education degrees are currently in progress; however, some findings are already apparent, and early studies have highlighted the need for sustained technical support to make both academic teachers and students capable of managing the virtual nature of the online environment competently (Allan & Cleland, 2012). Curriculum designers and employers have perceived portfolios from the view of early hard-copy versions used to showcase their work, but ePortfolios are more complex in nature. The provision of online Personal Learning Spaces means that students can collect a variety of file formats and provide convincing narratives around the artifacts of their learning (Matthews-DeNatale, 2014). At the same time, Higher Education institutions are expected to assist their graduates to be more competitive in over-subscribed professions, and accrediting agencies are moving to accept electronic portfolios of evidence to allow entry to professional status or as proof of higher abilities for leadership positions (Mayowski, 2014).

The issues cited above were uppermost in the minds of the designers of the embedded ePortfolio in the CSU Master of Education degree. The choice of Pebble Pad as an ePortfolio environment gave the users a suite of tools and flexibility of design for web-based assessment tasks. Pebble Pad have continued to improve the intuitive nature of their online environment and have provided graduates with ongoing access to their artifacts and creations beyond graduation, thereby enhancing the possibility of evidence of skills developed over time for professional practitioners.

The assessment tasks within the MEd program supported students in reflecting deeply on their values and beliefs about education and learning, and enabled the collection of various types of evidence through file-types more conducive to the online space, such as images, audio, and video. The flexible nature of the forms of evidence and the ePortfolio environment meant students could purpose and re-purpose artifacts of learning for different viewers or assessors. For example, the viewers of the graduating capstone portfolios might be academic assessors as well as potential employers, accrediting bodies that judge leadership potential, or peers and colleagues who could benefit from shared understanding of the graduate's learning.

Method

The research is a single case study because ePortfolios created by these master's level students "are simply less amenable to more superficial measures and tests (or indeed any substantive form of quantification)" (Willis, 2014, para. 14). The case is a single-case study in which graduate interviews and their capstone ePortfolios are the units of analysis (Yin, 2014). Graduates of the Master of Education program were chosen for the case study because after completion of their degree, they were in a position to give objective reflection when responding to interview questions and could discuss the contents, design, and construction of the ePortfolio. Denscombe (2007) reminded us that case studies can be used for theory-testing and it was important to ascertain whether the ePortfolio capstone task was an effective means for students to do a number of things: draw together key elements of their study within the master's program; provide them the opportunity to reflect and identify changes in philosophy, thinking, or practice in their professional work and, ultimately, whether recognizing the skills they used to create the ePortfolio encouraged them to use those skills with their peers, colleagues or in teaching situations. For this research, all graduating students from the past five years of the master's degree program were sent emails in the year following their graduation, inviting them to participate in the study and have their ePortfolio analyzed; they were also invited to express interest in having a (virtual) meeting and interview, with the ePortfolio as the topic of discussion. Table 1 shows the numbers of students graduating from the Master of Education program for each of the past five years.

From all the invitations, 105 graduates responded and agreed to provide their ePortfolios for the study,

including those who were interviewed. The ePortfolios included embedded images, linked photographs, and videos, and were very rich sources of data due to their reflective nature and collections of evidence of developed skills. Thirty interviews were conducted by Skype or by telephone, 10 in 2012 and 2013, five in 2014 and 2015, after which interview data-saturation was deemed to have been reached (Daly et al., 2007, p. 47)—no further “thickness” of interview data was required due to the “richness” of the ePortfolios themselves (Fusch & Ness, 2015, p. 1409). An equal number of males and females were interviewed, which reflected the general enrolment in the degree program.

Langan-Fox, Armstrong, Balvin, and Anglim (2002) tell us that “self-regulatory processes are critical determinants of performance and of the development of competencies . . . components of self-regulation include self-monitoring and self-evaluation” (p. 109). The capstone ePortfolios provided a wealth of information in this regard as students were asked to reflect on changes in their abilities as professional educators after engaging with specified learning in an almost personally devised higher degree program of study. Personal recognition that they had acquired the specific skills of ePortfolio production at the time they were creating them were not included in the reflections for the capstone ePortfolio. Some of these skills were “organization, collecting and classifying of evidence; utilization of tools and reflection *on* and *in* discipline specific knowledge, learning and tasks; higher order thinking such as synthesis and evaluation of learning” (Rowley & Munday, 2014, p. 83). It was therefore deemed appropriate by the researcher to ask graduates to be interviewed and consider questions that re-reflected on their learning, particularly in regard to the ePortfolio.

The interviews were conducted using the methodology employed in the LEX (Learner Experience of e-Learning) project (Mayes, 2006), because this method captures the “affective, social and cognitive aspects of the student experience” (p. 4) and uses “the idea of ‘interview plus,’ where an artifact is used to initiate and guide the dialogue” (p. 8). The artifact in this research study was the capstone ePortfolio of the graduates being interviewed.

Since the higher degree program is conducted wholly in an online space, the students are dispersed and located anywhere in Australia or overseas, so the interviews were conducted via telephone or Skype, and arranged to suit the time zone of the interviewee. The interviews were conducted with consenting participants from graduating cohorts between 2012 and 2015. There has been academic discussion regarding how many interviews are enough for a qualitative study (Baker & Edwards, n.d.; Guest, Bunce, & Johnson, 2006), and there are varied views. In the case of this research study, it was deemed that the number should be

“practical to conduct within [the] given time and financial constraint,” whilst “any more . . . would have produced too much data to analyse adequately within the given time frames” (Shah, n.d.). Therefore, 30 interviews from the assenting participants were deemed sufficient to provide a reasonable cross-section with regard to age, position, gender, and nationality; in addition, as mentioned above, saturation point had been reached by the time 30 people had been interviewed. All ePortfolios were collected from graduates who agreed to allow them to be collected for analysis, including the 30 participants who were interviewed. The interviews were semi-structured, with the same questions asked at the beginning of the interview, followed by unstructured questions regarding their individual and specific experiences. The set interview questions are included in the Appendix.

The data was coded and analyzed using qualitative content analysis with a summative approach (Hsieh & Shannon, 2005). Structural and Emotional coding were used because while there were specific interview questions with regard to the participants’ self perceptions of skills and transfers of skills, it also seemed important to code for emotional words and responses due to the investment of time and effort the ePortfolio required of a student as a capstone assessment before graduating the program of study (MacQueen, McLellan, Kay & Milstein, 1998; Saldana, 2013). In this article, results from the interview questions will be discussed and examples provided in the next section as a way of presenting the outcomes of qualitative research (Burnard, Gill, Stewart, Treasure, & Chadwick, 2008).

Results and Discussion

Preliminary findings of the study (Munday, 2014) showed that the ePortfolio processes used in the master’s degree program were highly successful and that many of the graduates were using their learned skills in their professional work as classroom teachers and leaders of education. After coding the interview transcripts and analyzing the emergent themes, the recurrent themes were grouped and clarified as shown in the following paragraphs: (1) ePortfolios lead to better teaching outcomes; (2) ePortfolio skills are frequently transferred to classroom practice; (3) ePortfolios encourage the use of learner-centered technologies in teaching practice; (4) ePortfolios enhance metacognition by pinpointing moments of change; (5) ePortfolios convince and inspire others when shared; and (6) ePortfolios enable deeper explanations of “self” and development over time.

ePortfolios Lead to Better Teaching Outcomes

The interviewees consistently reported that they recognized the skills of ePortfolio and continued to use

them in their professional work: "It's good to have access and be able to look at different things along the way, of challenging how I think, and then I've used that to challenge how other people think" (Graduate C Interview, 2013). As part of the assessed ePortfolio, reflective questions were given that required students to consider their learning and the impact of that learning. The reflections were deep and thoughtful, with clear evidence of impact:

The formal learning in which I have been engaged in throughout the Masters program has strongly influenced my teaching practice and my personal growth. It is with awe that I reflect on all these changes that have impacted on me [*sic*] thus far, yet look forward to engaging in further informal learning as I continue to implement and evolve as a teacher and learner. (Graduate A41 ePortfolio, 2014)

The tools, or collection of reflective tools, within the ePortfolio environment were noted as providing potential for the students of graduates. For example, one student said, "The realization that the use of [this] technology can be used as a tool to . . . augment what learning looks like . . . and redefine the learning experience, potential engagement and skill development possible for my students" (Graduate V Interview, 2015). This finding is in agreement with Foti and Ring (2008), who reported that students' experiences are augmented in a revolutionary way by the new tools of technology and ePortfolio environments.

ePortfolio Skills are Frequently Transferred to Classroom Practice

Parkes, Dredger, and Hicks (2013) have highlighted the need to help students understand the nature and purpose of the ePortfolio, which meant the interviewees were being asked to re-reflect not only on their learning but also on the ePortfolio itself, and to recognize and explain the needed abilities to create, arrange, and narrate the outcomes, as well as consider whether these skills were explicitly being taught in their current classrooms or teaching environments.

One interviewee who had been teaching in several international schools in Europe, and at different grade levels, noted:

They all use Google docs . . . I'm teaching Grade Three at the moment . . . they all have their own Blogs and they gather evidence throughout the year of their learning journey and at the beginning of the year they set goals for themselves and they have to provide evidence digitally, like a digital portfolio type of thing that they use to show their learning

throughout the year and then they reflect on that and then what is really powerful is that the community like parents or people in the classroom or anyone could go on and they write comments and reflect on it. So yeah for sure . . . a big part of the school and of the classroom. (Graduate D Interview, 2013)

This participant has clearly recognized the metacognitive processes and their value in children's learning. Other participants were able to reflect on this aspect of their learning and to understand that the transfer came not only from products but also from understanding the processes and skills. For instance, one student wrote, "It requires knowledge of yourself as an educator and your beliefs. The educator's role is to prepare students for lifelong learning and give them the relevant skills to participate in society" (Graduate W82 ePortfolio, 2015).

ePortfolios Encourage the Use of Learner-Centered Technologies in Teaching Practice

This case study was qualitative research; however, all of the interviewed graduates were able to provide meta-reflections on the skills of ePortfolio and articulate to what extent the skills were being used in their current professional practice. The meta-reflections in this case agree with Walton, Gardner, and Aleksejuniene's (2016) definition and discussion, in which meta-reflections consider previous reflections and the participant is able to give an indication of a change in understanding or experience. Walton et al. (2016) also found that only half the students in their study "thought that the time spent on the ePortfolio reflections was appropriate and worthwhile" (p. 125). Of the 30 interviewees in this study, only four made a reference to the extra time needed to complete the capstone ePortfolio, and those four also made a point of stating that they were fairly new to online study when they commenced the higher degree program and were still in the process of becoming confident in the use of technological skills. For instance,

My goal was to improve my leadership and I think that technology is a tool, and I use it for a tool that improves what I do as a leader . . . Technology is not necessarily, is part of it but not a major component. (Graduate T Interview, 2013)

The other participants were very positive about technology tools and an online platform for ePortfolios and other spaces for higher order thinking and adapting of traditional practices. For example, one student noted,

My perspectives have changed now because of my recent experiences of teaching and guiding my

colleagues . . . I have been challenging myself and others to teach by evolving traditional instructional strategies which embrace technologies and engage students in active learning. (Graduate T9 ePortfolio, 2013)

ePortfolios Enhance Metacognition by Pinpointing Moments of Change

The requirements of the capstone ePortfolio included reflecting on learning over the period of the master's degree and identification of specific milestones of learning that produced change. Change in these examples is as described by Carson, McClam, Frank, and Hannum (2014), "in practice, change in competence of practice, change in identity, change in behavior, change in ideas, and change in the meaning-making process" (p. 75). Two student quotations highlight this. First, one student noted,

One particular reading stands out . . . opened my eyes to the way in which change is approached . . . From this I have taken it upon myself to . . . try and see situations from differing perspectives . . . in day to day conversations with staff and students alike. (Graduate S93 ePortfolio, 2015)

A second student wrote,

To begin to describe my learning would be to say that I have experienced significant changes to my understanding of leadership. One of the defining moments in my learning was understanding the difference between management and leadership whilst completing the Mapping the Field of Education . . . Reflecting on this was transforming because I decided to move into curriculum management as opposed to a principal position. (Graduate M12 ePortfolio, 2015)

These two quotations demonstrate the ePortfolio's reflective capacity for making thinking visible with regard to the recognition of milestones in learning (Johnsen, 2012). Reflecting in this metacognitive way helps the ePortfolio creator consider their internal feelings and their own ideas, leading to a change in the "sense of self" (Rowley & Munday, 2014, p. 79). Another student noted, "I reflect back on the idealistic perceptions I had of teaching, myself and the students at the commencement of the Masters program, and recognize the significant journey on which I have travelled, intellectually, emotionally and intrinsically" (Graduate W82 ePortfolio, 2015).

ePortfolios Convince and Inspire Others When Shared

The ability to re-design and re-create versions of ePortfolios for different audiences is one of the advantages of an electronic portfolio in comparison to a hard copy version. Eynon, Gambino, and Török (2014) found that well-designed ePortfolios shared with authentic audiences "help deepen faculty, staff, and institutional learning" (p. 108). During the interviews, the participants were asked if they had an opportunity at any point to share their ePortfolio with people other than the academic assessors in the master's degree. For instance, one student said,

Linking it to a leadership theory or a strategy if you like and I found that being able to demonstrate improvement in that and then showing it [the ePortfolio] with those links . . . rather than just be rabbiting on about you know I've done all these things. I think it shows what a difference that's made to me as a leader and ultimately the school outcomes. (Graduate A Interview, 2012)

Similarly, another student explained, "I share my learning with staff and encourage them to pursue professional growth as well as try new practices" (Graduate J102 ePortfolio, 2015). A third student noted,

Maintaining my own reflective blog is an important step in the reflective process, but I think it is also equally important to share your own knowledge (and reflective process) with others. The Internet is a fantastic tool for the 21st century teacher. (Graduate L91 ePortfolio, 2015)

Whilst in the master's degree program the students engage in dialogues about topics and challenges in discussion boards and are encouraged to share the artifacts and evidence of learning with their peers. Those who engage fully with these opportunities attest to the benefits of collaborative comment and criticism in enhancing the quality of their work, and as Chau and Cheng (2010) observed, they are "active agents involved in constructing knowledge, refining their understanding, and learning socially through sharing with peers and teachers" (p. 933).

Whilst several participants agreed they shared their ePortfolios with others, all students were required to address key professional standards in the capstone assessment portfolio. Submitting such reflection and evidence to academic assessors and receiving feedback on this material strengthened the students' abilities to present convincing arguments to accrediting bodies and promotional boards. One student noted,

It is by looking at the Teacher Standards, as prescribed by the UK government, that I can truly reflect on my journey through the MEd program . . . Throughout my Masters journey I have grown significantly in my knowledge of, and experience with, educational information technology. I have matured in my understanding of educational theory and feel I can now demonstrate this knowledge in a far more constructive and skilled way. (Graduate B83 ePortfolio, 2015)

ePortfolios Enable Deeper Explanations of “Self” and Development Over Time

An unexpected outcome that was observed by the author once students began to submit their capstone ePortfolios at the completion of the master's degree was the power of metaphoric or symbolic images to assist students to give deep explanations about themselves as professional teachers, both at the beginning of the degree program, and then regarding the changes over time within the capstone. This has been a topic of discussion and further research since the depth of reflective explanation has been impressive (Munday & Rowley, 2017; Rowley & Munday, 2014).

In the commencing course in the master's degree, students are required to find or create an image as a metaphor or symbol of themselves as a professional educator in the 21st century; in the capstone course, students are asked to re-reflect on the first image and, if necessary, to provide another that is more appropriate after their subsequent learning. No student remains content with the initial image, and they can describe deeply the changes in themselves that the images illustrate. For example, one student wrote,

As I've transitioned through the Masters program, it has become apparent that my thinking and learning have evolved significantly, resulting in me needing to select a new image as a metaphor for myself, the teacher, learner and evolving individual. I have experienced some defining moments . . . and have evolved my way of thinking about teaching and learning in such a way that my teaching practice will be forever transformed and progressive. (Graduate A95 ePortfolio, 2015)

As another example, a second student wrote,

As I approach the end of my master's journey, a new metaphor that represents this learning journey is a symbol of a leaf-shaped butterfly. Symbols of butterflies often represent freedom and emancipation—here I use it as a metaphor to represent the skills, knowledge, and expertise that has

been gained and the confidence to now spread my wings and go forth. (Graduate B83 ePortfolio, 2015).

Brandes and Boskic (2002) undertook a study of the written metaphors students used in ePortfolios. They concluded their report with an encouragement to “educators to use metaphors and hypertexts, as well as other ways, to enhance deeper reflection that shapes ePortfolios so that they are not just the compilation of artifacts, but occasions for learning” (p. 10).

Implications of the Study

The CSU Master of Education is currently undergoing its cyclical review process. The ePortfolio will be further embedded into the curriculum design in the revised version. There are two main reasons for further embedment: the success of the existing ePortfolio; and new, updated criteria for practicing teachers in Australia, who need to provide specific evidence of expertise and knowledge of classroom teaching abilities. Even though the MEd attracts international students, the requirements will need to be addressed, and so professional standards will be more stringently adhered to in the capstone submission.

Research into the embedding of ePortfolios into higher degree programs shows that purposeful planning in curriculum design is the most effective way to use ePortfolio processes, skills and purposes (Rowley, 2017). The recognition that ePortfolios are much more complex in nature than an electronic resume is being endorsed by the number of Higher Education Institutions that realize the benefits of students collecting evidence of learning from the very first moment they enter a degree program and of expending academic time and expertise on their careful and integrated design.

The danger with overprescribing the contents of an ePortfolio by an institution or accrediting body is that it may become an online list of items to be checked off, rather than a complex reflective and developmental narrative that provides personal and professional insight. Devlin-Scherer, Martinelli, and Sardone (2006) explained that the product will provide shallow or missing work unless the learning design is supported and “tied back in to the original teaching objective” (p. 401). Therefore, investment in good curriculum and learning design to enable students to demonstrate a change in their development is essential, and regular review and evaluation of courses and assessments needs to be undertaken.

Conclusion

ePortfolio curriculum and design require considerable planning, and students are asked to dedicate time and effort to learn how to manipulate artifacts and narrative to present

a convincing and effective professional portfolio. If academic educators are to support the use of ePortfolios in Higher Education, it is important to research and collect data to demonstrate the value of the time and effort from the academic teachers' design, as well as students', in creating them. In this study, it has been shown that a carefully designed, embedded ePortfolio in a Master of Education program can support a number of positive, and in many cases, transformative learning experiences, including: (a) reflective practice in ePortfolios leading to better teaching outcomes in classroom practice; (b) the skills learned through creating an ePortfolio being transferred to use in the classroom and taught to students in learning environments; (c) the online technologies of ePortfolio having the potential to change teaching practice in both the online and classrooms; (d) the reflective nature of ePortfolios enabling the creator to identify moments of change in their personal and professional thinking and learning; (e) the ability to share an ePortfolio with different audiences offering opportunities for shared learning and understanding; and (f) the use of metaphors and other images enabling deeper reflection in the creation of individual narratives for personal and professional "selves."

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Appendix
Interview Schedule

1. In looking at your ePortfolio, can you tell me anything about the way(s) you went about designing or structuring it?
2. You have included an image as a metaphor. Can you tell me how you came to decide on that image? (If the image from the beginning ePortfolio has been included, a question about contrast can be used to follow-up). (If the ePortfolio has other images some questions or comments may be asked).
3. How did you feel about putting together your ePortfolio for **assessment**, at the end of your Master's degree?
4. Can you talk about the ePortfolio, and the tools in the ePortfolio environment, as effective or not, for **reflective** practice?
5. Were you able to demonstrate that you'd **developed** in skills and knowledge in the ePortfolio? (Look at the relevant sections and ask them to comment).
6. Was the ePortfolio a vehicle for you to **showcase** your best work? What kinds of evidence did you provide?
7. Have you shared your ePortfolio with anyone other than the academic assessor for the Master's degree? Have you re-used any other parts of the ePortfolio, or your collected artifacts, since submitting the ePortfolio?
8. The creation of the ePortfolio took a lot of work: what skills did you need to use, or learn, in order to fulfil the assessment requirement?
9. The skills you've identified (name them)—do you use these regularly in your professional teaching?
10. (If affirmative to the last question) Do you teach the use of these skills in the learning spaces in your professional teaching?
11. Do you teach these skills through the implementation of an ePortfolio?