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The Transformative Role of E-Portfolios in Online Graduate Education Lifelong and Lifewide Learning

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With changes in teaching and learning approaches in higher education and particularly graduate online education from transmission models to more learner-centred, constructivist, and transformative models, parallel changes are also coming to the modes of assessment that need to be used (Batson, 2011; Hoven, 2014; Hoven & Palalas, 2016). Since the early 2000s, electronic portfolios (or e-portfolios) have been gaining traction (Crichton & Kopp, 2008; Farrell & Seery, 2019) as a means whereby learners at all levels of higher education are able to document their learning journeys in a manner that provides learners with a sense of both ownership and control over perspectives on how their learning is progressing. In addition, they provide instructors with an alternative means of assessing the learning that is both personalized and transformative for learners (Barrett & Wilkerson, 2006; Kenny, Moisey, & Hoven, 2010). E-portfolios have subsequently grown in popularity and range of implementation in North America since 2015/2016 when they were declared to be a high-impact practice (HIP) (Hubert, Pickavance, & Hyberger, 2015; Kuh, 2017; Watson, Kuh, Rhodes, Light, & Chen, 2016). One of the primary reasons for this recognition comes, in the words of Hubert et al. (2015), because “students make connections across various assignments and courses and, more importantly, decide how those connections ought to be displayed.”

An e-portfolio is essentially a portfolio in electronic or digital format. However, what adds value to an e-portfolio is three new elements made possible by using an electronic or digital format: the capacity to incorporate live, real-time links; the digital literacy (or multi-modal literacy) skills that are necessary; and the inclusion of critical self-reflection on one’s learning and learning journey. These three elements provide learners with a vehicle and the skills to more fully develop themselves, while also enabling transitional learning from academic contexts to their workplace, professional, and personal lives (Crichton & Kopp, 2008; Cross, 2012, Eynon & Gambino, 2017). E-portfolios are more than “simply electronic versions of physical portfolios” (Roberts, 2006). They are also dynamic and interactive—creating opportunities for peer, instructor, and general public feedback, commentary, and annotation. They are owner-managed in that learners can recombine different elements of pages to create new pages or collections of pages for

different purposes and permission to access an e-portfolio can be granted to different audiences. These characteristics are discussed in more detail below.

E-portfolios take the concept of the paper portfolio long used in disciplines such as art, architecture, and teaching to a new level by moving it into the online environment. E-portfolios can therefore be thought of as being net native in that they can be tagged, searched, archived, syndicated, and displayed in multiple formats on a wide variety of presentation devices ranging from cell phones to lecture-hall projectors. This transition to an online or net-enhanced format affords other capabilities not possible in a paper portfolio, such as hyperlinks to other online content, possibly created by the students/learners themselves, as well as video, audio, images, graphics, cartoon strips, discussion forums, chat excerpts, group projects, social media, and quotations that learners find meaningful. Some learners use such quotes or visual elements to create a theme for each of their artifact pages, while others insert them within their text at strategic points to illustrate their meaning, demonstrate skills acquired, or to segue to a new topic. The online format also affords learners the advantage of giving peer feedback and receiving feedback from both peers and instructors.

What Is an e-Portfolio?

There are different forms and functions of e-portfolios, namely, process, showcase, and assessment (Abrami & Barrett, 2005). As long ago as 1991, Jonassen was writing (pre-dating e-portfolios) that “instruction should focus on providing tools and environments for helping learners interpret the multiple perspectives in creating their own world view” (Jonassen, 1991, p.12). This is consistent with constructivist theory, including ecological constructivism (Hoven & Palalas, 2016), which argues that learners actively construct their own knowledge, either individually, through their own perceptions and thought processes, or through working with others, rather than simply receiving it from instructors, authors, or other sources. Thus, e-portfolios have evolved in the different forms that learners can use to construct their knowledge for different purposes, as described below.

At any given time, an e-portfolio may serve more than one function. It is the intent of a *process portfolio* for learners to document their growth and progress through their program or period of study. In such a case, it is expected that the learner will provide evidence of self-evaluation, decision making, reflection, and self-correction (Pitts & Ruggirello, 2012). This is the kind of e-portfolio that is used in the Master’s of Education (MEd) program discussed in this chapter. The final course in the MEd is the creation and presentation of a for-credit capstone e-portfolio in which learners reflect on their process of learning across all their previous courses in the program. Alternately, a *showcase portfolio* focuses less on describing the journey, but rather demonstrates what has been accomplished. These portfolios are useful for documenting skills and levels of achievement. Learners may develop a showcase portfolio, subsequent to graduation, for potential employers in order to demonstrate the learning they have achieved, the competencies they have developed, their capacity for self-reflection, and how they approach learning and work tasks from a reflective, critical practice perspective. Such a showcase portfolio may be derived from elements of a learner’s MEd capstone portfolio,

but would not include the critical self-reflection on learning that grew from mistakes or unexpectedly negative experiences. The main goal of an *assessment portfolio* is to allow external evaluation or judgment. It has been suggested that e-portfolios support greater *authenticity* in assessment because they offer more contextualized evidence of learning; as learners develop their e-portfolios, they are able to collaborate with members of their communities during the learning process (Abrami & Barrett, 2005). The e-portfolio in our graduate programs has a partial assessment aspect in that the reflections accompanying each artifact and the culminating discussion with an instructor and their peers provide learners with the opportunity to demonstrate and discuss what have learned and the competencies they have attained during the program of studies.

E-portfolios may also be classified according to their implementation pattern. *On-going portfolios* are developed over a period of time. *End-of-program portfolios* are retrospective in nature and involve learners selecting artifacts from courses throughout their program of study for retrospective reflection. There are advantages and disadvantages of each of these approaches. In the study reported here, with 23 participants in the capstone e-portfolio MEd course that I teach, learners articulated varying preferences for each of these. In post-graduation semi-structured interviews, approximately 78% of respondents cited the difficulties they had in remembering how they went about assignments or how they experienced various interactions in courses that they took earlier in the program. These learners recommended integrating journalling and e-portfolio preparatory and skill-building tasks across all courses from the beginning of the program. At the same time, as one of these learners added: “On the other hand, doing it all together might have helped me create a very coherent narrative, because I was pulling back and taking in the whole journey at the same time.” Other learners (the minority), who had taken the initiative to begin journalling early on, or who self-selected courses that incorporated journalling or reflective tasks, felt that they were able to review their learning progress from course to course for the duration of their studies. Among these learners, comments included statements to the effect that when they reflected on an assignment or learning experience immediately after it, their reflections were fresher in their minds and this in-the-moment reflection allowed them to then set their own goals for their next courses. These learners also recommended adding reflective skill-building activities into all courses— a recommendation that is now being implemented in the MEd program, as detailed below.

Creating an e-portfolio involves skills of selection and curation. In our online MEd program, for example, learners are encouraged to begin identifying possible instances of learning to be used in their portfolios from the very first course in the program. Ideally then, by the time they reach their final capstone e-portfolio course, learners have a range of artifacts with accompanying reflections to choose from, to present for their final program grade. After several years of trialling, research, and documentation, the capstone e-portfolio course was instituted as an alternative to the comprehensive exam in 2012, subsequently granted full-credit status in 2016, and has been refined and revised, with additional support resources cumulatively incorporated with each semester. This revision and refinement have, of necessity, included some backward engineering of all other program courses. This has entailed incorporating journalling or reflective pieces within

each course, either as part of an assessment activity or as a culminating or summative activity, thereby providing a transformative element to the online graduate learning experience. In many cases, certain assignments or course activities are overtly identified as potential artifacts for an e-portfolio. The e-portfolio is therefore a program-wide portfolio, which means that by the end of their coursework, learners are able to step back and reflect on how each of their courses, as represented by their collection of artifacts, has contributed to their learning journey and the shaping of themselves as lifelong and life-wide learners. As one learner commented: “I think this course—the critical self-reflection on my growth—was transformative in my approach in understanding of who I am.”

Learners feel a sense of personal ownership of their e-portfolios because they can shape their artifact pages as they see fit and they can set the permission level depending on the level of privacy they desire. On a purpose-built e-portfolio platform, such as Mahara, learners are able to set the permissions of each artifact page or their complete e-portfolio to any one of private for their own viewing and editing, all logged-on users, members of the university community, or open to the World Wide Web. Learners generally choose the most private setting while they are developing their pages and refining them, and then subsequently change the permission level to open them to other users within the confines of the university password-protected environment, including peers and instructors, when they are ready to solicit feedback and comments. They can also repurpose their e-portfolios from academic requirements to meet workplace, job application, or promotion needs, often re-fashioning them from a process portfolio to a showcase portfolio. In other words, learners own their experiences of learning and how they express and illustrate these. With their different personalities, backgrounds, and educational experiences, learners are able to express themselves in different ways. As our programs are fully online, they attract a demographically diverse student body from many diversely distributed cultures—many of whom remain in their own countries for the duration of their studies. The cultural differences observable in e-portfolios thus add a richness and depth to the program and to the experiences of peers within the e-portfolio learning communities.

Since the granting of credit for the e-portfolio, learners have chosen to incorporate a variety of assignments and learning experiences into them. Learners who are in professional positions related to the content of the program, such as teaching, instructional design, educational leadership, or program management, are able to relate assignments and artifacts back to the workplace. Others have been able to use workplace or real-life experiences and problems as the topic or content for assignments and thus artifacts. One former student, for example, in reflecting on a groupwork assignment in the program, had involved developing conflict resolution and negotiation skills, which were subsequently invaluable in planning their wedding—a classic case of learning for life and life beyond formal study. Process e-portfolios thus afford two-way transitions between a formal learning context and informal or non-formal learning.

Kinds of e-Portfolios and the Role of Reflection

As mentioned at the beginning of this chapter, e-portfolios were identified as a high-impact practice (HIP) in post-secondary education in 2015/2016. HIPs can be defined

as those practices that include, among other activities or characteristics, learning communities, writing-intensive courses, collaborative assignments and projects, and capstone courses—such as the e-portfolio in our program. Each of these elements, as well as the other HIPs, have been identified as making a high impact on post-secondary student learning and contributing to students' success both in their studies and in their employability or transition into the workforce (Kuh, 2008). Just as online pedagogies have evolved (see, for example, Hoven & Palalas, 2016 for a discussion of ecological constructivism) and assessment practices along with this (Harring & Luo, 2018; Hoven, 2016), so too has the definition of reflection, critical reflection, or self-reflection (Rose, 2013).

As reflection, particularly self-reflection on one's own learning, is critical to the value that e-portfolios provide for learners, I now turn to a discussion of what reflection is or can be. From the early 20th century and into the 21st, conceptualization, understandings, and definitions of reflection evolved and changed. Being a positivist, Dewey described his conception of reflective thinking as “that attitude of mind, that habit of thought, which we call scientific” (1933, p. v) and as having the function “to transform a situation in which there is experienced obscurity, doubt, conflict, disturbance of some sort, into a situation that is clear, coherent, settled, harmonious” (1933, pp. 100–101). After Dewey, this positivist approach evolved into more post-positivist conceptualizations in the 1980s and beyond with the work of Schön (1983), Moon (2010), Jacoby (2011), Rose (2013), James and Brookfield (2014), and Hoven (2014). While Schön's (1983) writing on reflection, predominantly for classroom teachers, focused on reflection-on-action (retrospective contemplation on an action) and reflection-in-action (spontaneous, intuitive responses during an action or at decision points) (1983, p. 21), Moon, Jacoby, Rose, and others writing in more recent years have strived to return to an original meaning and interpretation of reflection.

Rose (2013), for example, pleaded “to reclaim the traditional meaning of the word as a form of deep thought that takes place in conditions of quietude and slowness—as, even more, a mindful, careful way of being in the world” (p. 16). She then summarized as follows:

Reflection would seem to be a dynamic, non-linear mode of thought in which the mind assimilates random bits of material that have been garnered serendipitously, from readings, conversations, and experiences. The mind recombines these pieces and, in conditions of silence and withdrawal, spontaneously and unexpectedly produces a flash of insight, an entirely new idea or way of thinking about something. Reflection is therefore “deep” in the sense that it probes below the level of the known and the obvious to discover new, elusive ideas and perspectives. It is also, in that sense, fundamentally creative [...]. (2013, p. 21)

The terms *critical thought* and *critical reflection* have also been appearing in the literature in recent time, possibly in response to the confusion over interpretations of the term *reflection* by itself. As Jacoby described it, “Simply put, critical reflection is the powerful process of making meaning out of a purposeful combination of experiences and academic content. It adds depth and breadth to meaning by challenging simplistic solutions, comparing varying perspectives, examining causality, and raising more and

more challenging questions” (Jacoby, 2011, p. 2). However, Rose made the point that “In fact, critical thought and reflection are so intertwined that they have given rise to an apparent oxymoron ‘critical reflection,’ a term that merges generative, independent thought with analytic processes aimed at dismantling discourses and deconstructing praxis.” (Rose, 2013, p. 34).

In their book encouraging educators to incorporate creativity and playfulness, James and Brookfield (2014, pp. 15–16) propose fourteen things that encourage reflective thinking, across a range of approaches and activities that encompass imagination, creativity, cognition, metacognition, and visual and kinesic elements. Following on from these scholars, and considering the needs and experiences of learners in our program creating process e-portfolios, my definition of reflection is expressed as follows:

Reflection is what happens in the interstices in our minds and being between stillness, cognition, movement, and affect (feelings, emotions, and beliefs). It is where creativity and deep understanding emerges—including creativity of construal, thought, ideas, and insight. It is this embodied emergence of imagination and creativity that propels innovation and brings about transformation.

Reflection, therefore, becomes the means whereby learners bring to consciousness their decisions during their learning journeys and the trigger points or “aha!” or “oh no!” moments that stimulated their thought processes: to question, ask for assistance, form relationships, search for answers, resolve problems, or negotiate solutions. For some learners, these strategies come naturally, while for others, instructors need to bring into the process various scaffolding or prompting resources, questions, and strategies (Harring & Luo, 2018). The development and refinement of these scaffolding techniques in our graduate program is the topic of the following section.

Steps in the Process of Creating a Program-Wide Process e-Portfolio

As the first step in the process of introducing an e-portfolio as the capstone experience for the learners in our MEd program, we began by introducing an e-portfolio as an alternative to the final comprehensive exams and conducted a research study on learners’ and faculty responses and experiences of this (Kenny, Moisey, & Hoven, 2010). This study provided valuable information on how better to structure, scaffold, and resource the experience for learners. Using this information, the learning objectives or outcomes of all courses in the program were reviewed and these were then synthesized and distilled to produce six major areas of competency or attributes expected of graduates of our program, supplemented by several sub-competencies for each of these major areas. These six areas are:

- 1 Problem solving, analysis, and decision making
- 2 Instructional design and development
- 3 Communication technologies and networking
- 4 Communication and interpersonal skills
- 5 Research
- 6 Management, organization, and leadership

After reviewing and considering the literature available on e-portfolios at the time (Abrami & Barrett, 2005; Acosta & Liu, 2006; Batson, 2010; Butler, 2006; Lorenzo & Ittelson, 2005; Pitts & Ruggirello, 2012), a process capstone e-portfolio was then conceived and implemented in the fall of 2012. Since that time, the course has become fully accredited and has been taught by several different faculty members, including the original researchers and other newer faculty. In the follow-up study in 2014/2015 discussed here, I aimed to ascertain to what extent this approach to an e-portfolio was meeting learners' needs for knowledge-building, employability, and transition to the workplace, as well as providing a means whereby learners could reflect on their learning across the program as a whole and themselves as lifelong and life-wide learners. This study has since been supplemented and expanded by graduate students, including Ternan (2018) and Zuba Prokopetz (2019). Through this ongoing practice of researching and refining the course, we are attempting to ensure that the resources remain useful and that the structure, design, activities, and outcomes of the course remain current.

The MEd capstone e-portfolio requires learners to select five artifacts from across all courses in their program and create a webpage for each of these artifacts, including a brief description of the artifact. The main content of each page comprises the learners' reflections on why they chose the artifact, their reflections on the learning they gained from the artifact, and how they thought through the decisions they made and the selection of strategies they used. Each page then concludes with their reflections on what they would do differently next time, or if they could do the assignment or repeat the interaction. Alternatively, the learning may be particularly applicable to their workplace or professional lives, in which case learners conclude their page with their reflections on how and why they have been able to do this. Throughout the reflective component of the page, learners integrate sub-competencies from the six main areas, in parentheses within their reflections on their learning, where they feel these are best demonstrated. Other requirements of the MEd e-portfolio are that it be aesthetically pleasing in terms of both illustration and layout, and that there is a place on each page for instructors and peers to provide comments and feedback to the e-portfolio owners. As two of the core courses in the MEd are focused on technical aspects of instructional design, all learners in the program have practice in designing and creating webpages. However, we do also provide access to Mahara, a purpose-built e-portfolio platform for those learners less confident in their technical skills. Altogether, learners create seven pages for their capstone e-portfolios, including an introduction page and a conclusion page.

On their introduction page, learners present a short biography or description of themselves to welcome others to their e-portfolios. This page also includes a list of the courses they have taken and the learning goals that they had when they came into the program or enrolled in their first course. This requirement is in keeping with recent research across disciplines (Harring & Luo, 2016) that has found that, in the process of making their learning goals overt, learners are better able to identify where their learning has taken place and how they have met their goals. Learners also provide an overview rationale for their selection of the artifacts to be included in their e-portfolios. These rationales are often very insightful for learners, as this is the first point where they really start to self-examine their thought processes and decisions, where they begin to realize

what were the most impactful aspects of their learning across the program, and where they become conscious of just how far they have come in their learning journeys.

This self-awareness of learning progress is further reinforced and brought full circle on the conclusion page. Here learners return to their learning goals from the beginning of the program, as expressed on their introductory page, to self-assess and reflect on the extent to which they feel they have met those goals. Some find that they have successfully met their goals, while others identify considerable overachievement. Some goals also fall by the wayside; are rejected as being too broad or too narrow; or change in nature as learners reflect on changes in their jobs, life circumstances, families, and outlook. The conclusion page is usually the one in which learners incorporate the most visual or poetic imagery as they strive to illustrate and demonstrate how they now see themselves as lifelong and life-wide learners. At the same time, they celebrate coming to the end of this part of their journey and begin to anticipate life after completion of their formal studies and how they intend to use the learning they have experienced.

In a well-conceived e-portfolio, therefore, learners create a repository of artifacts consisting of assignments and other products they have constructed as well as interactions they have experienced during the learning process. These artifacts are accompanied by reflections on the learning experience, and these reflections document metacognitive processes and keep track of goals and progress. In addition to e-portfolio development, these reflections can be used to create resumés for job applications and notes for interviews—or the e-portfolio itself can be opened to potential employers or promotion committees as evidence of reflection (Cherner, 2018), problem identification and solution-seeking, written and multi-modal literacy skills, capacity for teamwork, and writing or presenting for an audience, among other attributes (Becker & Foster, 2018).

Summary: Issues and Implications

Current hot topics in research and literature around e-portfolios include questions around whether/how to grade them, professional development or mentoring for instructors in e-portfolio process and reflection, the kinds of feedback that learners need and want, and the role of e-portfolios in learning and curriculum design, progressing to campus-wide implementation.

In our Master's of Education program we took the decision not to grade learners' e-portfolios on the principles: (a) that it would be unreasonable to grade learners' capacity for and expression of self-reflection, and (b) our reticence to constrain the creativity of learners in expressing themselves through their e-portfolios. Granting of credit for the course is listed as Pass or Resubmit, under which conditions learners are permitted to extend their completion time for up to 90 days or re-enroll for up to three semesters. We therefore decided to provide a supportive and well-resourced environment, including samples of the e-portfolios of successful past students, research literature on e-portfolios, and selected recordings of past students' presentations and discussions of their e-portfolios with instructors and peers. These resources have been progressively built upon on the basis of student suggestions in each semester and the various research studies undertaken in our program (Hoven, 2014). Learner creation and development of their e-portfolios therefore grow from ongoing, iterative instructor and peer feedback

and the opportunity for learners to revise and refine their pages up until they and their instructors agree that it is ready for presentation. The culminating presentation comprises learners' synchronous oral and visual presentation of their e-portfolios with their rationales and reflections on various choices they made throughout their learning journeys to date. This is followed by discussion with the instructor and peers about the learning journey, their experience of the program, and their future goals and aspirations, including how they see themselves using the learning they have gained. In this way we have attempted to address the caution of James and Brookfield (2014, p. 22) that "any time we tie reflection to the evaluation and assessment of students' reflection it becomes an exercise of teacher power," though numerous rubrics have been created elsewhere for e-portfolios (Dalal, Hakel, Sliter, & Kirkendall, 2012). For similar reasons we have resisted the urge to provide templates, but rather endeavour to provide a broad range of past student sample e-portfolios from across disciplines, ethnicity, gender, age, education, background, and professions (Batson, 2018).

Educating the Educators

Just as our learners have different capacities to be reflective, so do our colleagues. Some teachers/instructors will naturally gravitate toward using reflective practices in their teaching and others will not. In the initial stages, at least, of integrating e-portfolios into teaching and learning and the curriculum, our experience has been that it is more important to allow teachers to self-select as e-portfolio instructors. Then we gradually introduce workshops (Haskins, Wade, Stuart, & Mills Duffy, 2018), employ samples (not exemplars), and simultaneously model the practice and the range in variety of expression and modes of reflection, while also mentoring graduate students into the process and in creating their own e-portfolios and research around them. Graduate research, together with instructor studies, are now accumulating a considerable body of evidence that demonstrates the high impact that reflective, process e-portfolios combined with peer and instructor feedback have on enhancing learner outcomes (Hoven, 2014; Lewis, 2017; Zuba Prokopetz, 2019). This is, in turn, creating a groundswell of interest and activity in implementing e-portfolios at the course level, program wide, and for campus-wide curriculum innovation (Harring & Luo, 2016). An evolution is taking place in higher education in the dissemination of information about and experience with e-portfolios in education for lifelong and life-wide learning (Eynon & Gambino, 2016; Hubert, 2016; Reynolds & Shaquid Pirie, 2016).

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