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# Collective Approaches to ePortfolio Adoption: Barriers and Opportunities in a Large Canadian University

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# Collective Approaches to ePortfolio Adoption: Barriers and Opportunities in a Large Canadian University

**Abstract**
University programs that prepare graduates for professional fields are adopting ePortfolios to achieve program learning goals and promote lifelong learning. However, various structural and cultural barriers exist to implementing ePortfolios, particularly in large universities. Members of a community of practice (CoP) that participate in collaborative inquiry into the adoption of ePortfolios, using and producing Scholarship of Teaching and Learning (SoTL) in their "collective working," create shared knowledge and pooled resources for assessing adoption challenges and developing strategies to overcome them.

In this reflective practice inquiry, two academics who provide leadership and instruction in education and medical science programs in a large Canadian university consider the learning and administrative value of using ePortfolios in blended undergraduate and online graduate programs, as well as the challenges that face their implementation. The inquiry provides a literature review, force field analysis, and reflective dialogue to identify key barriers and opportunities to adopting ePortfolios in programs that provide job-ready and job-embedded learners. Inquiry findings propose that CoPs and SoTL are mutually beneficial for how they foster opportunities for program leaders to build experience and evidence-based cases for the institutional and program-based support ePortfolio implementation and assessment.

Les programmes qui préparent les étudiants à une carrière professionnelle adoptent les ePortfolios pour atteindre les objectifs d'apprentissage de ces programmes et encourager l'apprentissage tout au long de la vie. Toutefois, il existe divers obstacles structurels et culturels à l'emploi des ePortfolios, en particulier dans les grandes universités. Les membres d'une communauté de pratique (CoP) qui participent à une enquête en collaboration sur l'adoption des ePortfolios ont créé un partage des connaissances et ont rassemblé leurs ressources pour évaluer les défis présentés par l'adoption des ePortfolios et développer des stratégies pour les surmonter, faisant usage de l'Avancement des connaissances en enseignement et en apprentissage (ACEA) dans leur travail en collaboration.

Dans cette enquête réflexive sur la pratique, deux professeurs qui offrent du leadership et qui enseignent dans des programmes d'éducation et de sciences médicales dans une grande université canadienne examinent l'apprentissage et la valeur administrative présentés par les ePortfolios dans des programmes hybrides en ligne de premier cycle et de cycles supérieurs, ainsi que les défis qui surviennent lors de leur mise en oeuvre. L'enquête fournit un examen des publications, une analyse des forces et un dialogue de réflexion afin d'identifier les obstacles principaux ainsi que les opportunités présentés par l'adoption des ePortfolios dans des programmes qui produisent des étudiants prêts à l'emploi et incorporés à l'emploi. Les résultats de l'enquête suggèrent que les CoP et l'ACEA sont mutuellement bénéfiques dans la manière dont ces groupes favorisent les opportunités pour les dirigeants des programmes et les aident à mettre sur pied des expériences et des cas fondés sur des faits pour favoriser le soutien institutionnel des programmes et pour la mise en oeuvre et l'évaluation des ePortfolios.

**Keywords**
community of practice, ePortfolio, reflective practice, collaboration, professional learning, scholarship of teaching and learning

**Cover Page Footnote**
Thanks to Catharine Dishke-Hondzel, Jenn Martin, and Lauren Anstey for providing feedback on a draft of this article.

As collections of evidence of learning over time, ePortfolios enable students to demonstrate knowledge and skill-based competencies in professionally focused programs (Sherman & Byers, 2010). In the contexts of competing priorities, resource scarcity, and academic autonomy within large higher education (HE) institutions, successful ePortfolio adoption requires coordination and collaboration among administrative, instructional, and technological stakeholders. Those seeking to implement ePortfolios, and who, as change agents, discover barriers and challenges to that implementation, may find value in a practice community that brings together diverse stakeholders to share and engage collaborative brainstorming and problem-solving. Communities of Practice (CoPs) and Scholarship of Teaching and Learning (SoTL) are two ways to pool knowledge of research literature on ePortfolios and analyze institutional barriers, programmatic needs, and stakeholder concerns about ePortfolio adoption (McNeill & Cram, 2011). CoPs and SoTL may enable ePortfolio proponents to gain a better understanding of the diverse challenges and opportunities of implementing ePortfolios within a post-secondary institution.

As change agents within our own post-secondary institution, in this exploratory inquiry we conducted a literature review, completed gap analyses and force field analyses for our own cases, then engaged in reflective dialogue to investigate CoPs and SoTL for aiding ePortfolio adoption. This emergent inquiry method was developed to gain a thick description of the contexts of our respective programs to determine organizational change readiness as well as the needs, challenges, and benefits of developing CoP and SoTL as means of seeding change for seeding ePortfolio adoption. We aimed for our findings to be significant for leading collective change in our own institution, and we hope that our reflective and collaborative inquiry process may be a useful preliminary information-gathering approach for other CoP participants and SoTL researchers engaging in ePortfolio adoption.

## The Researchers and Their Contexts

At the time of writing, we as co-investigators each provide leadership and instruction at two different university faculties. Our collaboration began when we were individually identified for our ePortfolio innovations on campus and were invited to participate on an ePortfolio panel presentation to other members of the institution. In our early discussions we reflected on our program-level ePortfolio initiatives, sharing what seemed to work and what did not. We also engaged in discussions about the potential direction for ePortfolios across campus. Following these meetings, we were instrumental in developing an ePortfolio CoP that included staff and faculty members across the campus. In as early as the first CoP meeting, participants from different units were keen to support an institution-wide ePortfolio implementation plan and expressed interest in conducting Scholarship of Teaching and Learning (SoTL) research within and across our units. In subsequent meetings, we have shared research relating to ePortfolios and discussed the benefits of SoTL as collective strategies for improving ePortfolio implementation.

Our institution has had no institutional mandate for ePortfolios or a prescribed ePortfolio system. At the time of writing, our institution's faculties and departments utilized ePortfolios in silos, without shared ways to advocate for new technologies or measure the impact of ePortfolios. While we acknowledge the former is unlikely to

change in the near future, our goal is to promote a research-informed and collaborative approach to organization-level change, rather than continuing to work in our own silos. As program leaders, we are change agents tasked with thinking about the people, systems, and structures that are impacted by change (Cawsey, Deszca, & Ingols, 2015). We also must be aware of the levels of *change readiness* within our organization, a term that describes "members' beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization's capacity to successfully make those changes (Armenakis, Harris, & Mossholder, 1993).

We conducted our exploratory inquiry under the premise that there is value in gaining preliminary knowledge about not only recent research in the field but also the forces that drive and restrain change in relation to ePortfolio adoption. We also hoped to explore how collaborative activities, such as discussing and undertaking SoTL in a cross-campus CoP, would better position ePortfolio adoption for success in our organization (Johns, 2006).

## Literature Review

For more than two decades, SoTL researchers have examined a variety of issues related to ePortfolio adoption, implementation, and assessment (Jafari & Kaufman, 2006). A selection of this literature is summarized below by three themes: (a) the value of ePortfolios for preparing students for professional fields, (b) strategies for adopting ePortfolios with CoPs, and (c) investigating ePortfolios with SoTL.

### ePortfolios in Programs Preparing Students for Professional Fields

There is good evidence that ePortfolios are beneficial for promoting deep learning (Cheng & Chau, 2013; Eynon, Gambino, & Török, 2014; Peacock, Murray, Scott, & Kelly, 2011). Various professional fields have adopted these tools because they allow individuals to select, represent, review, and reflect on the curation of their work as a way to deepen their learning (Fernsten & Fernsten, 2005). For example, the Royal College of Physicians and Surgeons of Canada, which prioritizes continued professional development, values the use of ePortfolios (Gordon & Campbell, 2013). As the medical curriculum shifts towards competency-based curriculum, ePortfolios will be an important tool for assessment for how they enable the demonstration of competencies with learning artefacts.

Another professional program that has invested in ePortfolios is preservice teachers (Oakley, Pegrum, & Johnston, 2014). In Miller and Morgaine (2009)'s reflective research on the benefits of ePortfolios, students identified that ePortfolios highlighted their knowledge, skills, and abilities, helped them make connections with content and gave them a better understanding of higher education. ePortfolios have been linked to self-regulated learning (SRL) in HE, and it has been suggested that ePortfolios can promote SRL (Blackburn & Hakel, 2006; Cheng & Chau, 2013). A shift to outcomes-based education will require tools that demonstrate and track such learning (Tubaishat, Lansari, & Al-Rawi, 2009).

Support for the use of ePortfolios to promote SoTL has been increasing, particularly in programs preparing graduates for entry and advancement in professional fields (Yao, Aldrich, Foster, & Pecina, 2009). Specifically, researchers have reported on

initiatives that allow students to take ownership of their learning through formative assessment (Christie, Tietzel, & Strohfeldt, 2014). The use of ePortfolios for formative assessment has been shown to increase student engagement and the quality of submitted work. The benefits of ePortfolios as a tool for online formative assessment have been extensively reviewed. Gikandi, Morrow, and Davis (2011) conclude that tools such as ePortfolios can improve engagement and generate community, which positively influences learning. Reflection is an integral component of SoTL on ePortfolios. Pelliccione and Raison (2009) reported that incorporating ePortfolio reflections engaged teacher candidates in the process. The use of ePortfolios also provides learners with opportunities for reflection and learning to extend beyond the classroom (Fuller, 2017).

## Strategies for adopting ePortfolios with CoPs

When considering ePortfolio integration into the curriculum, extant literature has shown that there is value in creating a CoP that connects educators, administrators, and technologies. A CoP is described broadly as a group of people who interact regularly to improve their work (Wenger et al., 2012), and can be generated at different stages of ePortfolio implementation. For example, Botterill, Allan, and Brooks (2008) incorporated a CoP during their ePortfolio trial. The results of this trial, in conjunction with the CoP, were the development of a student resource that focused on career development (Botterill et al., 2008). Others have reported that educators may benefit from a sustainable ePortfolio CoP (Hallam, Harper, Hauville, Creagh, & McAllister, 2009). Through discussion and development, CoPs are themselves meaning-making activities that promote learning (Vygotsky, 1978) through inviting interaction and building social relationships (Wenger, 1998). Those positive interactions strengthen not only the connections but also the learning of those who participate in the CoP.

ePortfolios are complex tools, and it can be a daunting task to create and implement an ePortfolio system in one's course, program, or institution. Some universities have made policy and financial commitments to ePortfolio systems (Pennsylvania State University, 2017; Portland State University, 2017; University of British Columbia, 2017). However, individuals seeking to adopt ePortfolios in their programs may find it difficult to obtain the systemic support they require for successful implementation. Allan and Cleland (2012) described their experience embedding ePortfolios in teacher education and highlighted a CoP as a support strategy. The main challenges with ePortfolio integration that have been reported are associated with the technology and the instructional implementation (Wilhelm et al., 2006). Therefore, generating a network of expertise, support, and collegial relationships can alleviate challenges that individual change agents might otherwise face alone.

## Investigating CoPs for ePortfolios with SoTL

While CoPs may facilitate and support technology adoption, SoTL provides useful assessment data regarding their impact on student learning. Further, CoPs can be starting points for SoTL. Priest and Sturgess (2005) argue that group reflection is a scholarly activity that not only promotes a community of learning but can lead to scholarly publication. Pelliccione and Raison (2009) identified that they were able to reflect on ePortfolios amongst their colleagues and that such engagement led to SoTL.

Only more recently have ePortfolio studies deliberately taken a multidisciplinary approach to investigate collective experiences (Chaudhuri & Cabau, 2017).

This review grounds our inquiry into using CoPs and SoTL to develop ePortfolios for programs that prepare students for professional knowledge and skill development. We have found evidence-based support for CoPs and SoTL during ePortfolio adoption, particularly in situations in which leaders must seek stakeholder buy-in (Stefani, Mason, & Peglar, 2008) and also establish effective teaching and administrative practices. However, a paucity of research exists on the ways in which different programs who share a similar institutional context may benefit from collaborative efforts for ePortfolio adoption. Inquiry into the contexts, change agents, and change readiness is needed to plan for adopting ePortfolios.

## Method

In qualitative research, methodology is the process of a knower gathering a desired knowledge and understanding using established or emergent methods (Mertens, 2005). For our inquiry, we chose an exploratory qualitative case paradigm (Yin, 2003) that uses both reflective practice and collaborative dialogue as method to understand our distinct teaching, learning, and administrative contexts in relation to ePortfolios. We share some organizational policies and support units, yet work in different professional units, thus need to build a shared understanding of the different forces that drive and restrain change within our organization regarding ePortfolio adoption. Given that credibility for qualitative research involves establishing an early familiarity with the culture of the organization (Guba, 1981), we decided to collect self-reflective data as reflective practitioners working within both shared and discrete units, then analyze that data collaboratively (as one would in a CoP), would be a preferable approach that could productively ground future research with the larger CoP. This preliminary inquiry thus works in the service of providing what Geertz (1973) coined as a "thick description" of rich details about our context (Mertens, 2005) that will provide a based of knowledge for examining ePortfolios using other inquiry methods in our institution in the future (Flyvbjerg, 2006). To outline the rationale and procedure for our study, we describe the major concepts grounding our inquiry perspective and process, and present salient background information regarding ePortfolio adoption in each of our faculties and programs.

### Concepts Underlying CoPs and SoTL

We hypothesized that ePortfolio implementation in our organization may be more effective when it is addressed collaboratively (though CoPs) and systematically (using SoTL). ePortfolios, CoPs, and SoTL are grounded in a number of conceptual terms. ePortfolios and CoPs are both learning activities that have roots in the concept of situated learning (Lave & Wenger, 1991), which is based on a constructivist (rather than cognitive) model, whereby participants share their understanding about their actions and the meaning of those actions. As a learning theory, constructivism proposes that reflecting on one's beliefs and being exposed to the beliefs of others enables learning (Fosnot & Perry, 2005). ePortfolios enable learners to curate artefacts of practice to demonstrate and reflect on learning, while CoPs enhance individual and collective

understandings through sharing, what Lave and Wenger (1991) describe as legitimate peripheral participation.

Readers will be familiar with the epistemological underpinnings of SoTL, which will be to some degree discipline specific but tends to share an emphasis on reflection-on-action in teaching and learning (McKinney, 2006; Schön, 1983). Kahn, Goodhew, Murphy, and Walsh (2013) described the value of SoTL as a means for articulating the common purpose and shared effort in teaching and learning, what he describes as "collaborative working" (p. 901). More than just communicating, cooperating, and exchanging information, collaborative working entails transformative learning amongst participants for a collective purpose. Thus, for both CoP and SoTL, knowledge is produced through common work, shared inquiry, and the exchange of knowledge for mutual understanding. It is with this conceptual framework that we aim to gain more information about our organizational contexts so as to make more informed decisions about planning for change.

## Our Inquiry Method and Tools

Our inquiry focused on reflective practitioner knowledge elucidated by combining (a) reflection, and (b) conversation methods. Our reflection method was grounded in subjective experience and reflection on those experiences. As we are both leaders and educators in practice, we used a reflective approach that values the perspective of practitioners for their knowledge derived from reflections on professional work activities (Schön, 1983). Reflective practice theory proposes that practitioners have the capacity to engage in a process of continuous learning through reflection on everyday actions. The reflective practice operates from a constructivist stance that posits we are active agents of meaning making. As co-investigators we are the instruments through which information is gathered, and bias inevitably influences how our data are assessed and communicated. We recognize that our perspectives are inherently limited and partial, and that our own cases cannot be immediately generalizable to other contexts. However, we attempted to remain aware of our bias through being self-reflexive, comparing and contrasting information as it was shared, and challenging one another's assumptions through comparison with our own perspectives and with previous research and theory (Anderson, 2010).

As our goal was to develop an early familiarity with the culture of our organization (Guba, 1981) with respect to promoting ePortfolio adoption, our conversational method provided insights to each other's faculty cultures and contexts, while encouraging us to probe more deeply in terms of understanding our own. We relied on our collaborative dialogue about our own reflections as a *social* mode of thinking that aids understanding and problem solving through co-constructing meaning (Mercer, 2002). We took the view that social thinking can produce valid data so long as findings are corroborated with established literature in the field. Our relational and open-ended conversation method required us, as co-investigators, to have a certain amount of credibility through our experience and knowledge of ePortfolios, for where there is credibility there is trust that can lead to deeper conversation and richer insights. At the same time, because this conversational method evokes stories of our own contexts, respectful and ethical treatment of each other's experiences was required (Mercer, 2002).

Guba (1981) identifies multiple strategies for meeting four criteria that establish trustworthiness in qualitative research: credibility (internal validity), transferability (generalizability), dependability (reliability), and confirmability (objectivity). Table 1 presents a summary of how our reflection and conversational methods establish trustworthiness in our inquiry.

Table 1
*Criteria for Trustworthiness of the Reflection and Conversation Methods*

| Inquiry Method | Criteria | Strategy | Design of Study |
|---|---|---|---|
| Reflection | Credibility | Familiarity with culture of organization | Use of established data collection tools (gap analysis, Force Field Analysis) that deepen understanding of organization |
| | | Reflective commentary | Consideration of authorship perspective and bias as inherent in reflective practice inquiry processes |
| | | Investigator experience | Identified by institution as innovators in the area of ePortfolio adoption |
| | | Thick description | Describing rich details of faculty and organizational contexts |
| | Confirmability | Reflective practice | Critical reflection on cases ensures that findings are the result of experiences and ideas, not characteristics and preferences of researchers |
| | Transferability | Knowledge claims transferable to other contexts | Though claims are not transferable, information may relate to the findings of readers' own positions |
| | | Contextual information | Details on who and what was studied |
| | Dependability | Research design details | Operational details of the inquiry provided |

| Inquiry Method | Criteria | Strategy | Design of Study |
|---|---|---|---|
| Conversation | Credibility | Familiarity with culture of organization | Comparison of data collection tools (gap analysis, force field analysis) that deepen understanding of organization from different perspectives |
| | | Triangulation of data sources | Data sources include: literature review, individual reflections and comparative reflections derived from organizational analysis tools, document analysis |
| | | Informant honesty | Critical collaborative questioning following individual reflection |

Our inquiry perspective placed value in our experiential knowledge of our organization's culture and contexts with respect to ePortfolio adoption. Organizational contexts play an under-appreciated role in understanding organizational behaviour (Johns, 2006). There are many tools for elucidating a rich understanding of the organization and the factors that facilitate and restrain change. A gap analysis is a basic diagnostic tool for determining the differences, or "gaps," between current state and evidence-based practices or goals. Whenever possible, gap analyses should include evidence and claim statements, and avoid generalities (Johns, 2006).

In organizational change planning, gap analyses are often combined with force field analyses (Cawsey, Deszca, & Ingols, 2015). For over 60 years, force field analysis (Lewin, 1951) has been widely used to understand change in organizations. Schwering (2003) explains that "the goal of force field analysis is to help leaders and other stakeholders identify, document, and understand those forces likely to influence plan implementation. Based on this understanding, leaders can then act to leverage helping forces and mitigate hindering forces" (p. 362). Although force field analysis is a useful tool to develop multi-dimensional action plans that can bring contentious stakeholders into productive dialogue, Schwering (2003) notes that cognitive bias and heuristic errors can emerge in force field analyses, and therefore suggests using a gap analysis, prompts, and focused discussion to avoid a mono-dimensional approach as well as reduce bias.

## Our Reflective Practice Inquiry Process

In Stage One, Experience and Knowledge Collection, we defined the scope of the project through a thorough survey of published research, using subject searches on ePortfolios, higher education, and SoTL published in the past fifteen years as inclusion criteria. We also described our discrete cases, identifying the various contexts, goals, needs, challenges, and opportunities for ePortfolio use in our respective faculties based on our prior experience with ePortfolios, our understanding of current contexts, and our faculty/organizational goals and outcomes as described by strategic plan and learning outcome documents.

In Stage Two, Organizational Data Collection, we identified appropriate tools for measuring change readiness and the effects of change upon various stakeholders. Using

the gap analysis template, we individually developed a "current state" synopsis of the landscape of assessment, program progression, and the need to meet program learning outcomes and degree-level expectations. The gap analysis also included discussion of a "future state," how the use of ePortfolios could bridge that gap, the changes needed to implement ePortfolios, and the target recipients of the educational activity, referencing research literature and successful models of other organizations.

Once we identified needed changes, we each completed a force field analysis template, which included organizational level prompts (macro, meso, and micro factors) as well as subjects (e.g., skill, system, style, staff, shared values, structure, strategy) (Schwering, 2003). The force field analysis identifies forces acting in the situation, understands how those forces might be altered to manage change, and determines ways to increase support and reduce resistance to change (Cawsey, Deszca, & Ingols, 2015). We completed a force field analysis for our own case, identifying the most important driving and restraining forces at multiple organizational levels, drawing on faculty information (size of program, number of faculty), resources and supports available through the institution, and the strategic planning and degree level expectations that drive the strategic direction.

Finally, in Stage Three, Reflective Discussion and Emergent Themes, we analyzed the force field analyses together by comparing our individual analyses, paying attention to major change factors and stakeholders. We engaged in an unstructured discussion, questioning each other's responses to draw out bias and heuristics, that led to coding similar challenges (restraining forces) and opportunities (driving forces), as well as different challenges (restraining forces) and opportunities (driving forces) between our two cases. Our coding paradigm was informed by our phenomenon under study, the conditions related to that phenomenon, and the framework of organizational change that informed our use of the gap analysis (current/future state) and force field analysis (driving/restraining forces) as data collection processes (Strauss & Corbin, 1990). We each kept collaborative notes using Google Docs as we engaged in dialogue, writing, comparing, and reducing themes together in real time. Finally, we verified our emergent themes with those identified in our literature review.

The table below lists the three stages, each with two sub-stages with actions taken first independently by each researcher and then collaboratively by both researchers.

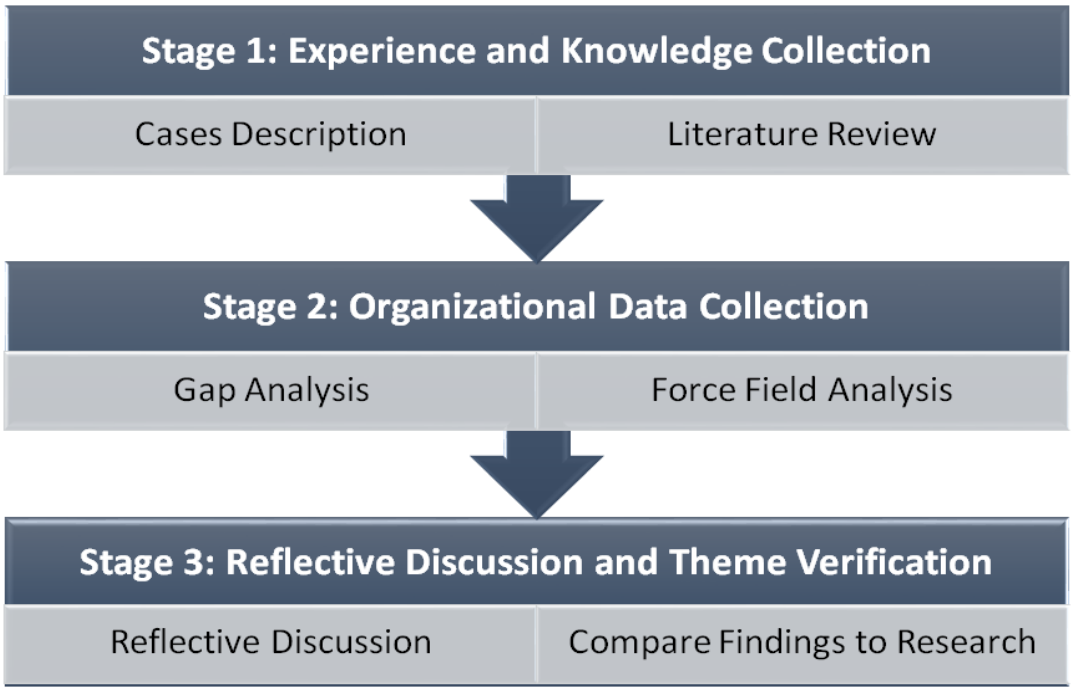


*Figure 1.* Reflective practice inquiry process.

Following each sub-stage, researchers met to debrief about the process, make adjustments, and plan for the next stage of the study. This gradual process of layered data collection from extant, contextual, and experience, coupled with reflection on practice (Creswell, 2005), provided a deeper understanding of our past challenges, current practices, and future opportunities for our cases. Given that we were participant researchers in our own reflective practice inquiry, ethics clearance for this study was not necessary.

## Two Cases of ePortfolio Adoption in Programs for Professional Learning

We met following our participation on an ePortfolio panel organized by our learning centre and agreed to be part of a new ePortfolio CoP that the centre would host. The CoP is open and voluntary; its members are primarily faculty who have an interest in adopting ePortfolios in their courses. The goal of the CoP is to create a community as well as "groundswell" for introducing ePortfolios across campus. At the meetings, which are held about monthly, we bring our diverse perspectives, experiences, and research knowledge from our own respective cases to share with others.

Case 1 involves an undergraduate interdisciplinary medical science program. The researcher is one of two faculty members as well as the department counsellor for this program. Many students enrolled in this program have broad academic backgrounds and have goals to pursue further education in medicine, dentistry, graduate school, etc. The interdisciplinary nature of this program results in students with diverse knowledge, making this cohort excellent candidates to monitor learning via ePortfolios.

Case 2 concerns fully online professional graduate education programs, in which one researcher is director of one program and instructor in another. There are over 800

students in 14 different 2- and 3-year professional programs; both faculty and adjunct instructors from various education disciplines teach in them. The size of the programs and number of online instructors who never meet face to face make it difficult to coordinate ePortfolio tool use. These cohort-based programs are designed for adult learners who are educators and/or leaders, and cumulate in a capstone project to demonstrate learning as applied to practice.

## Results

We developed the following case summaries to share current opportunities and barriers for ePortfolio adoption in each program without the support of a CoP or SoTL research. Then, we applied a Force Field Analysis to each case. Finally, we compared our analyses, then engaged in a reflective dialogue to determine similarities and differences in our view of the role that CoPs and SoTL may play in reducing gaps identified by the gap analyses. We ensured credibility by explicitly discussing how our biases affected our perspectives, by questioning and probing each other's thinking, and acknowledging that as change agents, that we had only a partial understanding of the factors that shaped the level of change readiness in our organization and in our individual faculties.

### Piloting ePortfolios in Two Cases

The researcher in Case 1 invested in a subscription-based ePortfolio program and piloted a volunteer project with students. The results of the pilot program were positive; students appreciated the feedback they received throughout the process. Students also identified that, if the ePortfolio was incorporated into the program, it should be for credit. There are numerous benefits to adopting ePortfolios in undergraduate curriculum for both students and faculty, such as a tool for reflection and mentorship when the students lack a fourth-year supervisor. However, challenges include getting buy-in from students and faculty and obtaining sufficient administrative support. Also, the program has only one faculty member who coordinates the mandatory fourth-year courses. Therefore, the researcher will need support from various stakeholders on campus to ensure continued success with ePortfolios.

The researcher in Case 2 has piloted two ePortfolio systems within single professional program cohorts. The first was using an open source ePortfolio system in a full year of the program before final capstone assessment. The second was the use of the university's learning management system only in the final capstone course as a "mini-portfolio." The ePortfolios provided opportunities for social engagement among students, multimedia demonstrations of learning, and efficiencies in program administration. Anecdotal evidence suggested that students enjoyed using the ePortfolios, but found the ePortfolio tools difficult to use with limited technology supports. A key challenge is a lack of buy-in and training to integrate ePortfolios into an established curriculum of multiple programs. Faculty members have expressed concerns about technology barriers and privacy issues, and while these issues can be ameliorated, they take time, interest, and resources.

Figure 2 shows a summary comparison of the force field analyses for Cases 1 and 2. Driving forces that act in favour or against ePortfolio implementation in both cases are listed at the top of the figure. Different forces that act in favour or against ePortfolio

adoption in each case are listed at the bottom of the figure. Such a comparison enables program leaders to identify shared opportunities and challenges, and where needs may be unique.

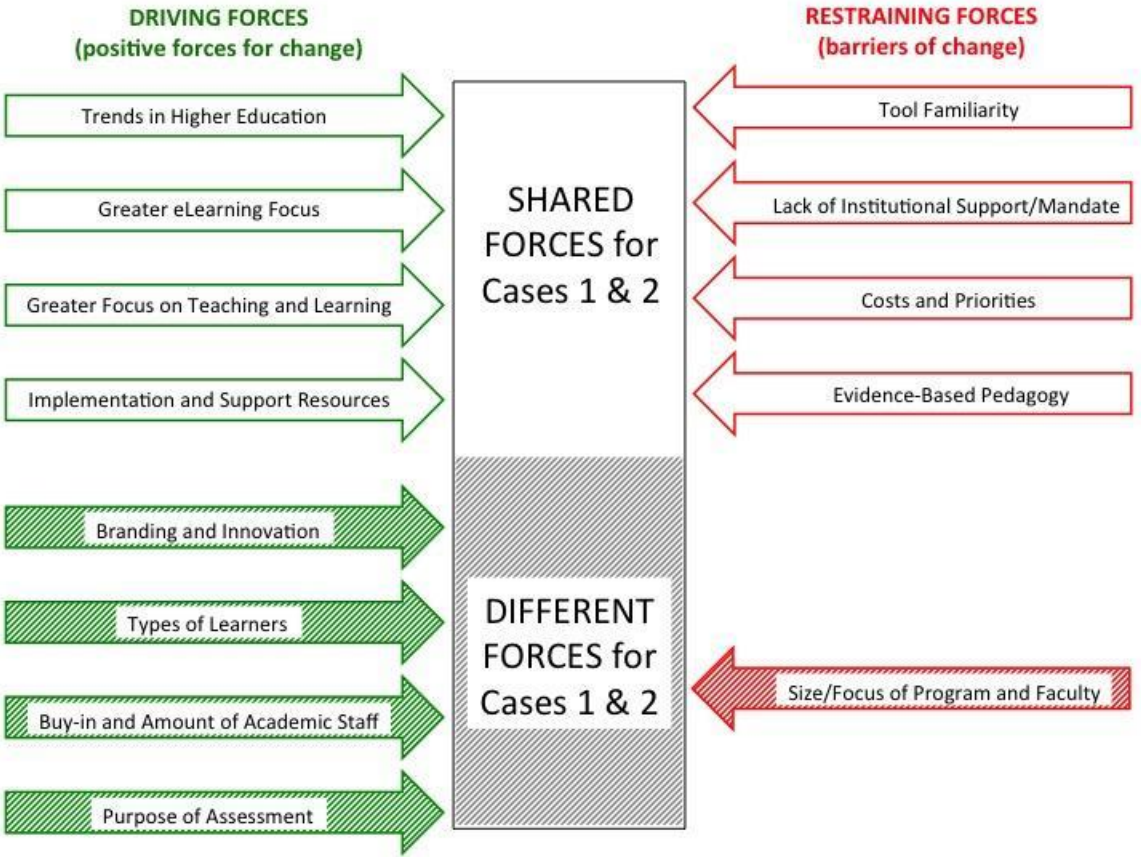


*Figure 2*. Comparing force field analyses for Cases 1 and 2.

## Similar Drivers and Restraints for ePortfolio Adoption

In comparing force field analyses for Cases 1 and 2, in which we listed and rated the intensity of forces that acted for and against our change goal (i.e., ePortfolio adoption), we found numerous similar cultural and technological forces that drive and impede change (see Figure 2). These included the influence of broader trends in higher education that are competency and practice-focused, a greater focus on eLearning in programs, more emphasis on improving teaching and learning, and the limited availability of resources for implementing and supporting ePortfolios. Both cases showed ePortfolios as a driver for recruitment and retention, with Case 2 noting the added benefit of a signature technological innovation in a fully online program.

Our force field analysis comparison showed an even greater number of shared forces that restrain change. Barriers to ePortfolio adoption in both cases include lack of tool familiarity within the institution and the local programs. There is an absence of institutional support or a mandate to use ePortfolios; consequently, tools vary while implementation is siloed and uncoordinated. Because ePortfolios require coordination, time, effort, resources, and commitment to adopt, implement, and assess, stakeholders have shown reluctance to use ePortfolios. Local units have been forced to source their

own decentralized and largely self-supported eLearning tools, and the *status quo* remains in place without coordinated efforts.

### Different Drivers and Restraints for ePortfolio Adoption

In contrast, the cases showed curriculum design as differently influencing the utilization of an ePortfolio system. For Case 2, ePortfolios provided an opportunity for storing and curating artefacts for each course in online, cohort-based programs, offering a technology that connects learning across multiple courses. While the ePortfolio serves as a capstone activity for both Case 1 and 2, for Case 2 the ePortfolio had added potential for social interaction among students as well as administrative efficiencies in fully online, cohort-based programs.

Program size offered different driving forces. Case 1 had few faculty members working in the program, which meant that those involved may have more easily agreed on pedagogy decisions. In contrast, Case 2 had significantly more faculty members involved in numerous programs, which meant that consensus could be slower (if possible). Yet, in a fully online program, ePortfolios provide students with a means of getting to know each other and their work, which was less of a concern in Case 1. Finally, the ePortfolio as an assessment tool was regarded as a shared driving force, but how and what was assessed was predicted to be different across Cases 1 and 2. The implications of ePortfolio assessment are discussed further in the Discussion section.

The different restraining forces were largely program specific. In Case 1, undergraduate students were perceived as less likely to "buy in" to ePortfolios because they did not yet see themselves in a professional field, while in Case 2 adult professionals were perceived to view ePortfolios as more relevant to their workplaces. For Case 1, fewer faculty members left ePortfolio adoption to those who did not have sufficient resources to support ePortfolios effectively within their unit. Case 2 noted resistance from tenured/tenure-track faculty who have always selected their own technologies, and reluctance from adjunct faculty who may be unfamiliar with new technologies, which in turn requires support on a recurrent basis.

## Discussion

We found forces that drive and restrain change for ePortfolio adoption in mid-sized HE institutions. Some are unique to programmatic contexts, while others are shared across programs within the institution. Through comparing and contrasting the various "forces" that act for and against technology adoption, we considered how collaboration and coordination through CoP and SoTL could address gaps and promote sustainable change towards developing capacities for effective ePortfolio adoption, as discussed in this section. Early findings in this reflective qualitative study align and reinforce conclusions drawn by research studies in the field.

### CoPs for ePortfolio Adoption

There are benefits to engaging in CoPs as members of a community who share knowledge and practices (Wenger, 1998). A CoP provides an opportunity to build enthusiasm, support, and problem-solving capacities. Faculty members working together

collectively can more effectively lobby for needed technology purchases and additional staff support from centralized sources. Further, within CoPs, instructors can engage in pedagogy discussions about how ePortfolios can be integrated into the curriculum.

Multidisciplinary CoPs also benefit individual faculty and department units, who learn through the exchange of diverse views and perspectives, which can lead to new insights for situated learning activities and reflective assessments for students. Formulating a CoP for ePortfolios at our institution has been a positive experience insofar as it has initiated new conversations with stakeholders at the university about funding to support the initiative. Meanwhile, the CoP members have devised a plan to develop appropriate pedagogical approaches for institutional implementation.

### SoTL for ePortfolio Assessment

There is obvious value in knowing and conducting SoTL research on ePortfolios. Greater familiarity with ePortfolio SoTL may enable better data-driven decision making at both institutional and programmatic levels. SoTL research also validates the costs and effort associated with ePortfolios, while elevating teaching and learning with technology at the institution.

Perhaps, most importantly, SoTL for ePortfolios will provide the ability to track learning outcomes (Tubaishat et al., 2009). Self-regulated learning promotes lifelong learning, which links to the development of 21st-century learning outcomes and competencies (Blackburn & Hakel, 2006; Cheng & Chau, 2013). Currently, there is no centralized, technology-supported way at our campus to track student progress with learning outcomes. ePortfolios offer a solution to this problem, whereby educators could explicitly identify outcomes and monitor how well they are achieved with certain ePortfolio systems. Outcome validation can be applied at all learning levels, and if conversations shift towards competency-based education, the need to track outcomes will become even more important.

Even from our few CoP meetings, we have seen a shared interest in developing SoTL initiatives to verify and validate our views and experiences. ePortfolios provide reliable information for teaching and learning, improving how educators conduct authentic and summative assessments for student learning and providing opportunities for formative assessments that in turn enable more feedback cycles for instructors. Multidisciplinary SoTL research on ePortfolios could also provide more novel contributions to the emerging field (Chaudhuri & Cabau, 2017).

## Implications and Conclusion

Through our CoP meetings, we have discovered that there are other change agents within the institution who are ready to support collective ePortfolio efforts. Both CoPs and SoTL offer structured ways for “collaborative working” (Kahn et al., 2013, p. 901) that help people to learn together (Lave & Wenger, 1991). CoPs enable participants to share energy and efforts related to emerging teaching and learning trends, tools, and technologies, building a groundswell of interest and abilities in the context of limited directive or resources. Barriers may be lessened when they are shared. As a systematic form of inquiry into teaching and learning practice, SoTL may also be undertaken

collectively to demonstrate the need for ePortfolio supports and resources, and the value of shared work for increased efficacy and cost savings.

Indeed, as working communities, CoPs and SoTL support not only ePortfolio adoption but also each other. In utilizing CoPs and SoTL as drivers for change, we increase our institution's own change readiness with these activities. While both CoPs and SoTL necessitate their own institutional supports (McKinney, 2006), they provide a structure and a process for sharing and learning. CoPs and/or SoTL are collective approaches whereby each initiative improves the other as well as the ePortfolio adoption initiative (see Figure 3).

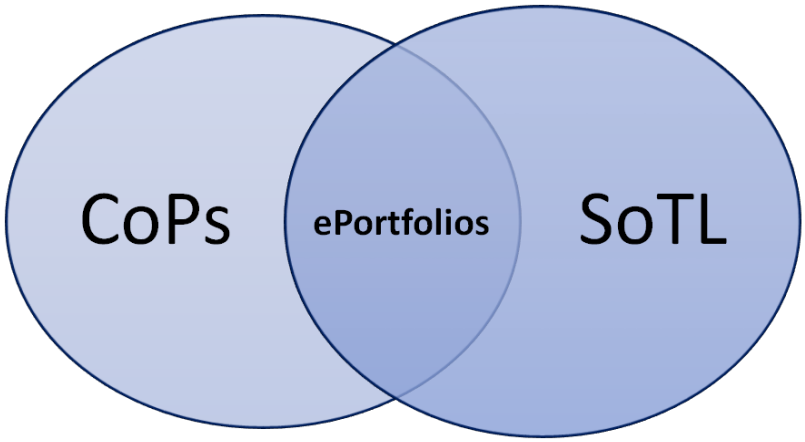


*Figure 3*. Collective Approaches to Improving ePortfolio Adoption

Our inquiry was a reflective and collaborative sense-making activity, which enabled us to discover parallel concerns, complementary knowledge, and overlapping goals for ePortfolio adoption. One of our biggest gains so far has been an eLearning specialist who, in leveraging the knowledge and resources of the institution's faculty development unit, has been able to advocate for our group, creating momentum for change on campus (a shared driving force). However, without policy or institutional mandate (a shared restraining force), it will remain a challenge to gain support and material resources for adopting a single technology that can be used across campus, especially when additional funds are required. As stated, the researcher in Case 1 received funds to pilot a subscription-based ePortfolio program. This investment has interested others, and the CoP will investigate if and how their own programs would respond to using this tool. As we found in our analyses, different departments will have specific educational needs that must be considered. Thus, more participation in the CoP and discussion of SoTL on ePortfolios, with other faculty members will be essential.

Despite our attempts to use strategies that minimize bias, we recognize that our findings are informed by our opinions and perceptions from our experiences. The sorting of self-response data was iterative, collaborative, and demonstrative of "social thinking." We believe that the goal of qualitative research is to see our organization from our perspective as human actors and change agents, which is an inductive, iterative, and non-linear process. There is value, as Schön (1983) posits, in organizations adjusting actions through learning based on the life experiences of the practitioners who work in them.

Our CoP is still developing, and our findings may not be representative of other cases. Further study will be necessary to verify improved learning and engagement with ePortfolios, and show the unique contributions that CoPs and SoTL can make to the implementation process. As described above, we sought not to undertake a study without first seeking an early understanding of our organizational contexts, so began with reflective and conversational inquiry methods that honoured our practitioner knowledge and perspectives. Following this analysis of our our institutional environment and our own experiences, we will be able to develop retrospectively a more informed theory of change for strategic and tactical ePortfolio planning in the future (Weiss, 1998). Future research using established research methods, such as narrative inquiry or action research, will confirm, challenge, and strengthen our reflections (Creswell, 2005).

With a better understanding of our organizational challenges and opportunities, and the similarities and differences among our units, we can encourage positive change at multiple levels of the organization, and in more informed position to measure and evaluate those changes. While further research planning continues, informal discussion in CoPs that involves discussion of SoTL literature can continue on a day-to-day basis to bring together those practitioners who share a desire to improve teaching and learning practice using ePortfolios.

## References


Allan, C. N., & Cleland, B. (2012). Embedding eportfolios in teacher education: Lessons from a multi-year implementation. *Proceedings of ascilite Wellington 2012*. Retrieved from http://www.ascilite.org/conferences/Wellington12/2012/images/custom/allan%2C_christopher_-_embedding.pdf

Anderson, C. (2010). Presenting and evaluating qualitative research. *American Journal of Pharmaceutical Education, 74*(8), 141. https://doi.org/10.5688/aj7408141

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). *Change readiness for organizational change. Human Relations, 46*(4), 681-703. https://doi.org/10.1177/001872679304600601

Blackburn, J. L., & Hakel, M. (2006). Enhancing self-regulation and goal orientation with ePortfolios. *Handbook of Research on ePortfolios* (pp. 83-89). https://doi.org/10.4018/978-1-59140-890-1.ch009

Botterill, M., Allan, G., & Brooks, S. (2008). Building community: Introducing ePortfolios in university education. *Proceedings of ascilite Melbourne 2008.* Retrieved from http://www.ascilite.org/conferences/melbourne08/procs/botterill-poster.pdf

Cawsey, T. F., Deszca, G., & Ingols, C. (2015). *Organizational change – An action-oriented Toolkit*. 3rd edition. Thousand Oaks, CA: Sage.

Chaudhuri, T., & Cabau, B. (2017). *E-Portfolios in higher education. A multidisciplinary approach.* Singapore: Springer. https://doi.org/10.1007/978-981-10-3803-7

Cheng, G., & Chau, J. (2013). Exploring the relationship between students' self-regulated learning ability and their ePortfolio achievement. *The Internet and Higher Education, 17,* 9-15. https://doi.org/10.1016/j.iheduc.2012.09.005

Christie, M., Tietzel, A., & Strohfeldt, T. (2014). Using e-portfolios to promote SOTL and independent student learning. *2014 International Consortium for Educational Development Book of Abstracts*, 202.

Creswell, J.W. (2005). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (2nd Ed.), Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Eynon, B., Gambino, L. M., & Török, J. (2014). What difference can ePortfolios make? A field report from the Connect to Learning Project. *International Journal of ePortfolios, 4*(1), 95-114.

Fernsten, L., & Fernsten, J. (2005). Portfolio assessment and reflection: Enhancing learning through effective practice. *Reflective Practice, 6*(2), 303-309. https://doi.org/10.1080/14623940500106542

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry, 12*(2), 219-245. https://doi.org/10.1177/1077800405284363

Fosnot, C., & Perry R., (2005). Constructivism: A psychological theory of learning. In C. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practice* (2nd Ed.) (pp. 8-38). New York, NY: Teachers College Press.

Fuller, K. (2017). Beyond reflection: Using ePortfolios for formative assessment to improve student engagement in non-majors introductory science. *The American Biology Teacher, 79*(6), 442-449. https://doi.org/10.1525/abt.2017.79.6.442

Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York, NY: Basic Books.

Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & Education, 57*(4), 2333-2351. https://doi.org/10.1016/j.compedu.2011.06.004

Gordon, J. A., & Campbell, C. M. (2013). The role of ePortfolios in supporting continuing professional development in practice. *Medical Teacher, 35*(4), 287-294. https://doi.org/10.3109/0142159X.2013.773395

Guba, E. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology Journal, 29*, 75-91.

Hallam, G. C., Harper, W. E., Hauville, K. L., Creagh, T. A., & McAllister, L. M. (2009). *ePortfolio use by university students in Australia: Developing a sustainable community of practice.* Retrieved from https://eprints.qut.edu.au/31912/1/AeP_Report_ebook.pdf

Jafari, A., & Kaufman, C. (2006). *Handbook of research on ePortfolios.* Hershey, PA: IGI. https://doi.org/10.4018/978-1-59140-890-1

Johns, G. (2006). The essential impact of context on organizational behavior. A*cademy of Management, 31*(2), 386-408. https://doi.org/10.5465/amr.2006.20208687

Kahn, P., Goodhew, P., Murphy, M., & Walsh, L. (2013). The scholarship of teaching and learning as collaborative working: a case study in shared practice and collective purpose. *Higher Education Research and Development, 32*(6), 901-914. https://doi.org/10.1080/07294360.2013.806439

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9780511815355

Lewin, K. (1951). *Field theory in social science*. New York, NY: Harper and Row.

McKinney, K. (2006). Attitudinal and structural factors contributing to challenges in the work of the scholarship of teaching and learning. *New Directions for Institutional Research, 129* (Summer), 37-50. https://doi.org/10.1002/ir.170

McNeill, M., & Cram, A. (2011). Evaluating E-portfolios for university learning: Challenges and Opportunities. *Proceedings of ASCILITE Wrest Point 2001*. Retrieved from http://www.ascilite.org/conferences/hobart11/downloads/papers/Mcneill-full.pdf

Mercer, N. (2002). *Words and minds: How we use language to think together.* London, UK: Routledge. https://doi.org/10.4324/9780203464984

Mertens, D. M. (2005). *Research and evaluation in education and psychology: integrating diversity with quantitative, qualitative, and mixed methods* (2nd ed.). Thousand Oaks, CA: Sage.

Miller, R., & Morgaine, W. (2009). The benefits of e-portfolios for students and faculty in their own words. *Peer Review*, *11*(1), 8-12.

Oakley, G., Pegrum, M., & Johnston, S. (2014). Introducing e-portfolios to pre-service teachers as tools for reflection and growth: Lessons learnt. *Asia-Pacific Journal of Teacher Education, 42*(1), 36-50. https://doi.org/10.1080/1359866X.2013.854860

Peacock, S., Murray, S., Scott, A., & Kelly, J. (2011). The transformative role of ePortfolios: Feedback in healthcare learning. *International Journal of ePortfolio, 1*(1), 33-48.

Pelliccione, L., & Raison, G. (2009). Promoting the scholarship of teaching through reflective e-portfolios in teacher education. *Journal of Education for Teaching*, *35*(3), 271-281. https://doi.org/10.1080/02607470903092813

Pennsylvania State University. (2017). *Portfolios at Penn State*. Retrieved from http://portfolio.psu.edu/

Portland State University. (2017). *University studies portfolios.* Retrieved from http://www.pdx.edu/unst/our-portfolios

Priest, A. M., & Sturgess, P. (2005). But is it scholarship?: Group reflection as a scholarly activity. *Studies in Learning, Evaluation, Innovation and Development, 2*(1), 1-9. Retrieved from http://www.sleid.cqu.edu.au/viewissue.php?id=6

Schön, D. (1983). *The reflective practitioner: How professionals think in action.* London, UK: Temple Smith.

Schwering, R. E. (2003). Focusing leadership through force field analysis: new variations on a venerable planning tool. *Leadership & Organization Development Journal*, *24*(7), 361-370. https://doi.org/10.1108/01437730310498587

Sherman, G., & Byers, A. (2010). Electronic portfolios in the professional development of educators. In S. D'Agustino (Ed.) *Adaptation, Resistance and Access to Instructional Technologies: Assessing Future Trends in Education.* (429-449). Hershey, PA: IGI.

Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research: grounded theory procedures and techniques*. Thousand Oaks, CA: Sage.

Stefani, L., Mason, R., & Pegler, C. (2007). *The Educational Potential of e-Portfolios: Supporting Personal Development and Reflective Learning.* 1st Edition. New York, NY: Routledge. https://doi.org/10.4324/9780203961292

Tubaishat, A., Lansari, A .T., & Al-Rawi, A. A. (2009). E-portfolio assessment system for an outcome-based information technology curriculum. *Journal of Information Technology Education: Innovations in Practice, 8,* 43-54. https://doi.org/10.28945/3341

University of British Columbia. (2017). *ePortfolios.* Retrieved from http://elearning.ubc.ca/toolkit/eportfolios/

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, UK: Harvard University Press.

Weiss, C. (1998). Have we learned anything new about the use of evaluation? *American Journal of Evaluation*, *19*(1), 21-33. https://doi.org/10.1177/109821409801900103

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9780511803932

Wilhelm, L., Puckett, K., Beisser, S., Wishart, W., Merideth, E., & Sivakumaran, T. (2006). Lessons learned from the implementation of electronic portfolios at three universities. *TechTrends, 50*(4), 62-71. https://doi.org/10.1007/s11528-006-0062-9

Yao, Y., Aldrich, J., Foster, K., & Pecina, U. (2009). Preservice teachers' perceptions of an electronic portfolio as a tool for reflection and teacher certification. *Journal of Educational Research & Policy Studies*, *9*(1), 25-43.

Yin, R. K. (2003). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.