Managing Communication and Professional Development in Online Graduate Programs with Electronic Portfolios

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Abstract

Four years ago, two online graduate programs at a mid-size university in the western United States implemented ePortfolios to foster communication and connectedness among students and faculty, develop community that extends beyond course boundaries, and promote professional goal formation and achievement among students. This article describes choices made by administrators prior to and during implementation that resulted in current practice. It highlights successes and challenges associated with ePortfolio development in online programs, including coaching needs for students and faculty, access to ePortfolio content, and sustained production. Suggestions are provided for practitioners wishing to implement similar activities in their own online, graduate programs.

The number of online courses and programs offered by educational institutions in the United States (U.S.) has steadily grown over the years and continues to increase in order to meet demand. Online enrollments grew 21.1% from fall 2008 to 2009. Almost 5.6 million higher education students enrolled in an online course in fall 2009 and approximately 30% of students in higher education took at least one online course (Allen & Seaman, 2010).

Undergraduate students make up the majority of higher education students who enroll in online courses. However, in the academic year 2006-2007, over 1.7 million (14%) online students enrolled in graduate-level courses at degree-granting postsecondary institutions in the U.S. (Parsad & Lewis, 2008). Numerous accredited universities offer online graduate certificate, master, and doctoral degree programs.

Although online degree programs are comparable in quality and rigor to face-to-face programs (Tabatabaei, Schrottner, & Reichgelt, 2006), geographic distances between faculty and students can create difficulties with communication, feelings of isolation, or perceived support (McInnerney & Roberts, 2004; Rogers, 2003). In an effort to reduce potential problems and promote learning communities, some programs recently introduced electronic portfolios (ePortfolios) (Authors, 2010; Chen & Chen, 2009; Gaytan & McEwen, 2007). The implementation of ePortfolios is not an easy task. Portfolios in traditional programs require buy-in from faculty and students. Faculty must align portfolios with course and program goals, communicate expectations pertaining to the selection of artifacts, and develop assessment criteria (Delandshere & Arens, 2003; Zeichner & Wray, 2001). This paper describes how faculty members at a research university integrated ePortfolios into graduate-level online education programs to facilitate a programmatic, systematic graduate student supervision approach.

Literature Review

Graduate Student Advising and Supervision

Green (2005) stated that graduate student supervision includes the "total environment" in which students find themselves (as opposed to solely the student-supervisor relationship) and focuses equally on "identity formation", knowledge construction, and "knowledge production" (p. 153). The proper mentoring and socialization positively influences many aspects of graduate student life (Paglis, Green, & Bauer, 2006). Supervisors are instrumental in the success of graduate students (Golde, 2000; Seagram, Gould, & Pyke, 1998). The supervision of doctoral students is similar to an apprenticeship structure (Manathunga & Goozée, 2007). Yet, scholars suggest that being part of a larger learning community can be advantageous to graduate students in their development as scholarly writers (Green, 2006; Parker, 2009); this is particularly the case when students study via distance (Crossouard, 2008). With the increase in graduate programs offered in a variety of blended and online environments, there is a need to examine approaches, practices, and faculty and learner needs (Power & Vaughan, 2010).

Challenges exist for graduate students and advisors/research supervisors in the traditional learning environment. Student thesis and dissertation supervision is time consuming, complex, and introduces many challenges to learners and instructors that require commitment (Anderson, Day, & McLaughlin, 2006; de Kleijn, Mainhard, Meijer, Pilot, & Brekelmans, 2011). Even when master's students are not required to produce a thesis, "substantial input in terms of time and resources on behalf of both the student and the supervisor" is required for program decisions, career advisement, and professional growth (Drennan & Clarke, 2009, p. 494).

Challenges for students and supervisors are compounded in distance learning environments (Authors, 2012). Many graduate students attend school on a part-time basis, which makes their integration into academic and research cultures difficult (Drennan & Clarke, 2009).

When students attend either very few courses on campus or none at all, the traditional apprenticeship model is less clear (Wikeley & Muschamp, 2004). The process of becoming academically acculturated can be less visible, hence it can appear less structured. Graduate students who study via distance may have less opportunity to interact with peers and faculty members and to partake in professional activities compared to on-campus students (Crossouard, 2008). Faculty advisors must assist distance students with their transition to academic culture, supervise progress with research and writing, and transform students into independent writers and researchers.

Many online courses are designed using constructivist learning theory (Bangert, 2004). Constructivists believe learners create their own knowledge by integrating new insights with existing information and by engaging in the sense making process (Piaget, 1954). Harel and Papert (1990, 1991) proposed the theory of constructionism which explains that individuals learn by active involvement in meaningful activities. The authors pointed out that learners need to personally experience situations, experiment with content, and practice skills in order to relate existing knowledge to newly acquired information. Constructionists believe that learners construct knowledge through the creation of meaningful artifacts.

Electronic Portfolio Use

Portfolios are a collection of work used to demonstrate knowledge, skills, and professional development over time (Habib & Wittek, 2007; Milman & Adamy, 2009). They are collections of creative projects, work samples, media files, reflective entries, and so forth created by individuals to demonstrate evidence of experience, knowledge, skills, abilities, beliefs or attitudes. In higher education, areas such as art, business, and teacher education have utilized portfolios for several decades to assess student learning or to meet accreditation requirements (Hallman, 2007; Wetzel & Strudler, 2005). Educational settings implement portfolios to document and reflect on student accomplishments over time (Hartman, 2004; Palloff & Pratt, 2009; Zepeda, 2002).

ePortfolios are traditional portfolios stored on electronic media, Intranet systems, or the World Wide Web. Several programs require ePortfolios to satisfy graduation requirements for undergraduate and graduate students. Indeed, they are used in institutional, departmental, and program settings (Cambridge, Cambridge, & Yancey, 2009; Stefani, Mason, & Pegler, 2007).With the development of user-friendly software and interactive Web 2.0 tools, ePortfolios are increasingly being integrated in online learning (Chen & Chen, 2009; Gaytan & McEwan, 2007). Because students actively generate and negotiate their own knowledge while creating, selecting, and explaining artifacts that represent their learning, these experiences align with constructivist and constructionist learning theories and their application in online learning.

ePortfolio Benefits

Student-centered learning and assessment. ePortfolios can create a student-centered learning environment. They allow instructors to provide authentic learning experiences, address different learning styles, apply authentic assessment approaches, and integrate formative and summative assessment stages. They can be used to document a variety of requirements such as assessment, presentation, learning, and personal development (Authors, 2013; Stefani et al., 2007).

User-created content. Students can easily create nonlinear content by linking internal pages or inserting hyperlinks to external Web sites and Web 2.0 applications; modify content; attach documents and multimedia or rich-media files such as pod- and vodcasts; and transport and transfer documentation (Stefani et al., 2007). These activities promote student learning by actively engaging them in the development process (Wang & Turner, 2008).

Community and collaboration. ePortfolios can promote learning communities and facilitate feelings of connectedness among students and instructors (Authors, 2010; Zubizarreta, 2009). Their use may assist in the creation and support of an online learning community when students share their projects, engage in peer review, and provide peer feedback via e-mail or discussion boards (Stefani et al., 2007; Wang & Turner, 2008). This approach allows students to provide feedback and share resources deemed valuable for distance learners (Collis, 2005). ePortfolio development ideally evolves as a dynamic interaction among instructors, learners, and mentors. This interaction fosters an interpersonal approach to teaching and learning (Johnson, Mims-Cox, & Doyle-Nichols, 2006).

Reflection. One of the most valuable benefits of ePortfolio integration is giving students the opportunity to reflect on their learning process and achievement over time. Learners can create knowledge by connecting their learning to evidence-based artifacts, using critical self assessment, and practicing and extending the integration of reflection beyond their formal educational experience into their professions (Cambridge et al., 2009).

ePortfolio Drawbacks

The integration and development of ePortfolios can be difficult and time consuming for both instructors and students. Instructors need to define a clear purpose and scope pertaining to creation and assessment. They need to provide clear instructions to students about the development process and content. Instructors may also need to modify existing curricula. Training resources for mentors/tutors/facilitators is necessary (Zeichner & Wray, 2001). In addition, students may require coaching on personal and professional goal setting, reflection and self assessment, ePortfolio tool use, and peer assessment (Authors, 2013; Wray, 2007).

Students may also lose interest in maintaining and updating their ePortfolios after graduation (Authors, 2008; Mason & Rennie, 2008). Authors (2008) indicated that when ePortfolios focused on assessment or accountability, students quickly discontinued their use because they were perceived as another course or degree requirement.

Although experts describe how ePortfolios can promote reflection, assessment, and community in online programs, few studies include administrative and management aspects. Authors (2012) wrote there is a need to address supervision approaches because "the research is sparse and inconclusive", p. 4). The purpose of this paper is to provide a rationale for ePortfolio integration in online graduate programs

at a mid-sized research university in the U.S., describe the implementation of the systematic approach used, and offer insights to other educators and practitioners who wish to integrate ePortfolios.

Background

Setting

The setting is a medium-sized, land-grant, research-extensive university with an annual enrollment of approximately 13,000 students. The university offers over 190 programs, including more than 90 graduate study areas. Two areas, housed in the college of education, are adult and postsecondary education and instructional technology. Both programs offer three degrees (Master's, Ed.D., and Ph.D.) that are either delivered primarily or entirely online.

Courses for master's degrees in both programs are completed online; however, students travel to the main campus at the conclusion of their last course to participate in a final defense. Ed.D. programs are completely online with the exception of two on-campus orientations (one at the end of their first year and one near the conclusion of their courses). Ph.D. students complete a 2-year residency; most of their courses are available online with the exception of doctoral seminars and advanced research.

Prior to 2009, students accepted into master degree programs were required to create a paper or Web-based portfolio as part of their final, capstone course. Students presented these portfolios as part of their capstone defense. However, most students did not create their portfolios until the end of the program. Doctoral students were not required to create portfolios prior to 2009; instead they participated in a series of traditional exams and defenses.

In 2008, faculty in both programs began discussions regarding problems with community. Advisors experienced difficulties supervising distance-based graduate students. They felt there was a disconnect between advisors and students. The use of asynchronous communication technologies and lack of verbal cues sometimes led to miscommunication. Additionally, advisors did not get to know their students outside academic settings. Only minimal discussions regarding personal and professional interests, career goals, and current challenges occurred. Students often expressed misunderstanding regarding program milestones, professional development, or procedures to become an academic. Few spaces existed where information could be communicated to all students and they could enter and influence the conversation. Although requirements and expectations were posted on program Web sites and mailing lists, student questions and comments required other forms of communication, often handled on a case-by-case basis. Based on these limitations, faculty sought ways to foster connectedness, improve sense of community, and extend two- and three-way communication that reached larger audiences.

Additionally, the faculty was not satisfied with master's students creating portfolios near the end of their program. When students created portfolios, they received no peer review or formative feedback from others. Most students were unaware what goals their peers pursued, how they worked towards and obtained those goals, and how they helped students progress professionally. Without this knowledge, students experienced difficulties identifying similarities in their own professional pursuits and gaining support from other students. Little personal or cooperative reflection occurred. The faculty also felt that doctoral students should be involved in authentic assessments. Doctoral students progressed through their courses and examinations successfully but without setting and working towards explicitly stated professional goals, documenting their accomplishments, and reflecting on progress. The faculty wanted to facilitate a systematic graduate supervision approach and give all students the opportunity to track their progress, communicate and share ideas with other students and faculty, and become reflective practitioners. In order to investigate the feasibility of ePortfolio integration in online programs, a pilot study was conducted in 2009.

Pilot

Two graduate-level online courses were redesigned for the Spring 2009 semester. Students who enrolled in these courses developed a professional ePortfolio as a course assignment and encouraged to continue developing it during the remainder of their program.

Tool Selection
Students were directed to use Google sites to develop their ePortfolio because it is a free Web 2.0 tool that provides templates for Web site development, is relatively user friendly, does not require Web development skills (e.g., CSS or HTML knowledge), allows for individualized privacy options, and allows 100 MB of storage per site. With tuition, fees, and course materials rising, the faculty did not want to require students to purchase a program or pay additional fees for the use of Web storage space. The faculty was also concerned about student privacy issues and the availability of student information or documentation on an open site. They believed that students should have a choice about how much and what pieces of information they wanted to make publicly available on the Web.

User Support
Students were provided with detailed ePortfolo instructions, a paper-based tutorial, and a fictitious sample ePorfolio in the course management system. A copy of the tutorial was also made available in online student handbooks. Google also provided online tutorials and forums.

ePortfolio Requirements
The ePortfolio project included eight components: an introduction, resume or curriculum vitae, personal learning philosophy, course timeline, summary of goals and achievements, evidence and reflections of goals and achievements, personal evaluation, and program evaluation. Goals and achievements aligned with four core areas of the programs: educational foundations; learning and development; technological understanding; and research and scholarship. Students included artifacts and reflections that made up a core of evidence regarding their professional skills and expertise. They were expected to add artifacts over time and reflect on their development.

Review Process and Results
Courses utilized formative evaluation during two stages. Once students completed their ePortfolios, the instructor assigned peer reviewers to share feedback via e-mail using the same grading criteria as the instructor. After peer review and revisions, the instructor provided formative feedback to each student, allowing for additional revisions prior to a summative evaluation in each course.

Results of the pilot study revealed that ePortfolio implementation in online graduate-level courses was successful. Researchers found that ePortfolio development and sharing helped students feel more connected to each other and more aware of program procedures and milestones (Authors, 2010). Students also indicated that tools associated with ePortfolio construction were easy to use, sufficient support to reflect on program progress was provided, and the process was beneficial to their professional development (Authors, 2011). Based on these responses, program faculty required ePortfolios for all newly admitted graduate students in both online program areas beginning spring 2010.

Primary Implementation

Process changes. Since the decision was made to adopt ePortfolios on a larger scale, changes were made to better support students in all degree programs. Initial ePortfolio production was introduced in a seminar course for new masters and doctoral students. During this course, students were introduced to program expectations and milestones, current research, journals associated with their field, writing and research guidelines, and other introductory material. Students also created their initial ePortfolio, selected goals, and received feedback from peers and the course instructor.

To help students gain a better understanding of ePortfolio processes (including layout and organization, sample goals, and evidence and reflection expectations), several example sites developed by alumni or students in the later stages of their program were made available via links in the course management system. Students were also asked to work with their graduate advisors each semester to select and review goals and milestones.

The ePortfolio remained an integral part of master's students' final examinations. During the oral defense, committee members, peers, and guests asked questions about ePortfolio artifacts, goals, and accomplishments. Beginning master's students were encouraged to attend these defenses (all of which take place on a single day that is shared with students one year in advance) to gain a better understanding of the process.

For doctoral students, the ePortfolio became a component of preliminary examinations (taken at the conclusion of course work). Doctoral students shared their ePortfolios with committee members who asked questions during the oral defense. Once students successfully passed the preliminary examination, they were encouraged but no longer required to update their ePortfolios. Although all doctoral students are encouraged to attend these defenses, their scheduling is dependent on individual readiness. Thus, dates are not set well in advance. Ph.D. students completing residency requirements on campus can attend these defenses. However, they are more difficult to attend for Ed.D. students. To alleviate this challenge, advanced doctoral students who attend their second Ed.D. orientation are required to present their ePortfolios. This provides students with an opportunity to share experiences and address instructor and student questions. Additionally, these presentations help students to get to know one another on a personal and professional level, share knowledge, build community, and extend existing networks.

Faculty Reflection: Positive and Negative Aspects

Benefits. ePortfolio implementation yielded several benefits for students and faculty in the online programs, including increased professional goal setting, reflection, and greater understanding of student interests and needs. These benefits led to greater familiarity between students and faculty and more focused communication via shared experiences.

Reflection. The opportunity to consider, document, and reflect on learning experiences throughout the program is one of the most important ePortfolio benefits. Students often enter their programs with vague end goals. Some desire a graduate degree to obtain promotions in their current employment. Others seek career changes but lack familiarity with the profession to match interests with career options. As entering students explore the dimensions of their field, they better identify areas of interest and select goals focused on desired outcomes. These goals are refined as students reflect on information presented in additional courses, conversations, and ePortfolio entries.

Through ePortfolio development and advising, one Ed.D. student interested in pursuing a career in higher education realized that he lacked research experience. Based on this realization, he changed his course sequence to take research methods courses earlier than originally planned. He also began research conversations with his advisor and developed a pilot study aligned to mutual interests. Taking the time to reflect on experience helped this student identify a goal, align it to advisor and program interests, and guide professional development. Ultimately, this goal led to several regional presentations and a peer-reviewed publication. Although program milestones require students to conduct original research for dissertation purposes, identifying and working towards ePortfolio goals helped this student begin the process sooner and align efforts to professional (as opposed to solely program) requirements.

Most students admitted to the master's and doctoral programs enroll part-time and complete their course or degree requirements in three to five years. By taking the seminar course near the beginning of their program and working on their ePortfolios, they have several years to update their work, reflect on goals, and modify or enact actions to meet personalized, professional needs. ePortfolios become authentic assessments that offer valuable insights into individual thinking, learning, approaches, and practice (Trevitt & Stocks, 2012).

Student understanding. ePortfolios also help faculty and peers learn about student personal and professional interests. ePortfolios have become an important piece in building and sustaining a learning community for both students and faculty members. Students get to know one another and may connect with each other on a social and academic level through details expressed in ePortfolio entries. Although

students introduce themselves in every course, these introductions are brief, mainly impersonal, and are rarely revisited during the semester. Because ePortfolios are not housed within course management systems, they remain accessible during all stages of program completion. This allows students to move beyond brief personal introductions as they continue adding information and reflecting on their accomplishments. Learning philosophies, personal evaluations, evidence of accomplishments, and other reflections establish a more robust depiction of each student.

ePortfolios help to flesh out online students. They become more than names on course and advising lists. They help to bridge the distance in online learning environments by providing a basis for authentic assessment as well as a social context that can lead to increased feelings of connectedness. The details captured and shared in ePortfolio entries help students, peers, and faculty identify commonalities between each other, focus conversation, and facilitate collaboration.

Challenges

Despite benefits, several challenges remained during implementation. These included ePortfolio sharing, sustained development, and faculty support and goal selection.

Sharing. Because ePortfolios may contain information that students do not want to share with the general public, they originally had the option to keep their sites private. This required students to manually add e-mail addresses for everyone they wanted to share their work. Google sites would then provide invitees with an invitation to view the site. Not only was this process cumbersome and time consuming, students and faculty often lost these messages in their inboxes.

Sustaining development. Although students reported communication and connectedness benefits within courses associated with ePortfolio tasks, development waned following course assignments. Research in subsequent semesters indicated that students quickly discontinued ePortfolio development following course milestones. This relegated development and communication to infrequent advisor meetings, defenses, and Ed.D. orientations. Conversations regarding goals and achievements once again occurred between faculty and individual students rather than broadening the conversation to groups of students.

Faculty support and goal selection. Faculty members also experienced difficulties in fostering ePortfolio development. Ideally, a review of student goals should occur every semester. However, faculty members with heavy advising loads rarely discussed ePortfolio goals with their students. ePortfolio tasks were also rarely discussed in courses where they were not required assignments. Thus, conversations regarding course alignment to ePortfolio goals rarely occurred. Additionally, new students often had difficulties forming goals because they lacked professional experience. With conversations quickly eroding after ePortfolio centric courses, changes were required to promote community and maintain communication.

Current Developments

The structure for online student ePortfolio development is in place but continued work is required to make it a systemic process. Current work focuses on providing more structure for continuous ePortfolio development and increasing access to students and faculty.

Structure. Because ePortfolio-based advisor meetings are rare, program faculty developed several example goals that are measurable, align to program pillars, lead to tangible artifacts, and align with course assignments and program expectations. These examples are included in online student handbooks and posted within courses. As students select these or similar goals, they may receive feedback from peers and instructors by completing course assignments that align with professional goals. This alignment may help instructors to remind students that they should consider ePortfolio goals and artifacts and assist students in their selection and assessment in every course.

Access. In an effort to extend conversation beyond course boundaries, program faculty created a private, social networking site 1.5 years ago. To respect privacy, membership is by invitation only. Students and faculty create profiles and are able to share personal and professional resources with the community. Faculty members often post job opportunities, conference calls, funding opportunities, and other professional materials. Yet, they also post recent vacation and holiday photos. Students also post professional and personal photos, comment on others' profiles, and create discussions regarding professionally relevant topics (e.g., MOOCs, plagiarism in online environments, Internet security). However, as students generate profiles, they are asked to provide a link to their ePortfolio. Because the network is only available to current and former students and faculty, it is a secure place to share goals, achievements, and personal reflections.

Personal profiles, ePortfolio links, and other information provide well-rounded depictions of students and faculty. By perusing others' posts, students, faculty, and alumni can identify common interests, provide feedback regarding program and career milestones, and share that information with larger audiences. Additionally, access to ePortfolio resources is eased by tying links to a familiar, program-specific, secure medium organized around individual users. Although a recent implementation, it appears that this social network is building program community and helps students and faculty better focus on ePortfolio goals beyond limited course and program milestones.

Next Steps

With these implementations in place, students appear to have the resources they need to complete ePortfolio tasks. Few students seek assistance with content population in Google sites. It appears that tutorials, help forums, and continued updates by Google have made the tool more robust and user friendly. Sample ePortfolios and goals aligned to specific courses and program pillars have also facilitated development. Together, these resources appear to provide student coaching in ePortfolio activities. However, future attention is needed on faculty coaching and support in ePortfolio assessment, tool use, and course alignment.

Assessment
Although ePortfolios are currently used for myriad assessments, the process can be time consuming and difficult. Much energy can be spent verifying the accuracy of included artifacts, critiquing reflective statements, and aligning ideas with professional standards. While ePortfolios have merit as summative assessments, their purpose in this implementation is professional goal formation and subsequent progress. Because students document progress over time, ePortfolios can become intimidating documents filled with various artifacts. As faculty sift through these artifacts, it is easy for them to focus on minutia (e.g., writing skill, APA guidelines, robust argument formation) and lose sight of stated goals and the stories regarding their attainment. As faculty members remember assessment foci, conversation and time focused on ePortfolio practices may be better spent on formative, professional development activities.

Tool Use
Although the two programs have used Google sites as the main ePortfolio tool since 2009, only a handful of faculty members are comfortable with it. Fortunately, most students experience minimal problems with the tool (Authors, 2011). However, when questions arise, individual faculty may not be able to provide guidance or respond. Program faculty need periodic training sessions on Google sites and the social network tool (Kopcha, 2010; Martin et al., 2010). To make these sessions meaningful, they should take place within the regular work day, include opportunities for practice, and provide follow-up sessions and support over an extended period of time (Spillane, Healey, & Parise, 2009). Tying these sessions to existing program meetings, brown bags, and other activities may increase attendance. Identifying support personnel familiar with the applications, providing existing tutorials, and introducing online forums may also increase comfort levels. Few faculty members will regularly use ePortfolio tools. However, knowing how to obtain answers to questions will better support student use.

Course Alignment
Several sample goals developed by faculty members already align with course and program objectives. Yet, as faculty members consider potential goals in their courses, it may help them discuss ePortfolio topics more regularly during instructional episodes and provide feedback to course projects that align with ePortfolio expectations. Similar to tool use, these discussions should occur more regularly in faculty and program meetings. Reminding faculty about ePortfolio purposes on a regular basis may facilitate discussion that moves beyond specific meetings to include students and alumni. Discussions in the social networking site, faculty meetings, and individual courses may help broaden the conversation.

Conclusion

The purpose of this paper was to introduce readers to the process of ePortfolio implementation in graduate-level online programs to facilitate a systematic graduate student supervision approach. For over four years, graduate programs in adult and postsecondary education and instructional technology have used ePortfolios to promote professional development and reflection, increase communication and connectedness among students and faculty, and facilitate student supervision. During this time, we noticed increased connectedness and communication among students and faculty (Authors, 2010). Students indicated that they understood program expectations better because of the ePortfolio and associated feedback. Entries also helped students and faculty connect with each other through shared personal and professional interests. Although challenges remain in online programs with community formation (Authors, 2012), when coupled with other initiatives (e.g., secure, program specific social networks, regular advising meetings, program orientations, and other milestones) it appears that ePortfolios can help graduate advising focus on the larger picture of goal formation and knowledge production addressed by Green (2005) and Parker (2009). ePortfolios appear to help students and faculty disclose personal and professional information about themselves that leads to conversation and identity with others. Although prolonged discussions beyond identified courses do not occur as frequently as desired, the process has shown that ePortfolios can be used effectively by faculty and students.

ePortfolio successes do not occur immediately. Over several years of implementation, programs involved made several changes in the way ePortfolio practices were conducted and supported. Consistent with Wray (2007) the authors found that coaching is essential for successful implementations. Fortunately, coaching can take several forms. In addition to advising sessions among faculty and students, coaching can also occur through tutorials, forums, and sample documents. Although we feel that sufficient support was provided for students over the past several years, consistent and timely coaching is also required for faculty and staff who support ePortfolio practices. Without broader faculty support, students quickly discontinued ePortfolio after completing program expectations and milestones (consistent with Mason and Rennie (2008) and Authors (2008).

Finding a balance between privacy and disclosure was integral in extending ePortfolio conversations among faculty and students. Because online programs often lack informal conversations (e.g., hallway chats, drop-in visits, community encounters) that occur in face-to-face programs, students needed a space where they could gain information about others outside of established classroom settings. Although ePortfolios provided better information in this regard than course introductions, accessing them remained inefficient until they were combined with the program social network. Though tentative, it appears that the combination of these two spaces allows students and faculty to articulate and organize personal and professional interests in a manner that is more accessible and self-directed.

Similar to advice from Zeichner and Wray (2001), those interested in developing ePortfoilios to assist graduate supervision in online programs should first establish and communicate clear purposes among students and faculty. These purposes should be the driving force behind ePortfolio development and assessment. Maintaining focus on these purposes will help students and faculty as they work on ePortfolio objectives. Additionally, remaining focused on original ePortfolio purposes will aid those assessing myriad artifacts and reflections collected over time. Consistent with research by Spillane et al. (2009) and Martin et al. (2010) training must occur often and throughout implementation. Support networks in the form of tutorials, examples, question and answer forums should also be developed prior to large scale implementation.

Despite these recommendations, those who attempt to implement ePortfolios in online programs to facilitate supervision should expect periodic revisions to practice and implementation. The needs of students and faculty can change. What is familiar one year may not be

familiar to new students. Practices that made sense a few years ago may need updating. Sustained evaluation of ePortfolio practices (both formative and summative) will identify areas of strength and weakness within any program. Setting modest expectations and making periodic changes to improve implementation are integral to buy-in and success among students and faculty.

References

Allen, I. E., & Seaman, J. (2010). *Class differences: Online education in the United Sates, 2010*. Babson Park, MA: Babson Survey Research Group. Retrieved from http://sloanconsortium.org/publications/survey/class_differences

Anderson, C., Day, K., & McLaughlin, P. (2006). Mastering the dissertation: Lecturers' representations of the purpose and processes of master's level dissertation supervision. *Studies in Higher Education, 31*(2), 149-168. doi:10.1080/03075070600572017

Authors. (2013). [deleted for anonymity]

Authors. (2012). [deleted for anonymity]

Authors. (2011). [deleted for anonymity]

Authors. (2010). [deleted for anonymity]

Authors. (2008). [deleted for anonymity]

Bangert, A. W. (2004). The seven principles of good practice: A framework for evaluating on-line teaching. *The Internet and Higher Education, 7*(3), 217-232. doi:10.1016/j.iheduc.2004.06.003

Cambridge, D., Cambridge, B., & Yancey, K. (Eds.). (2009). *Electronic portfolios 2.0: Emergent research on implementation and impact*. Sterling, VA: Stylus.

Chen, C., & Chen, M. (2009). Mobile formative assessment tool based on data mining techniques for supporting web-based learning. *Computers & Education, 52*(1), 256-273. doi:10.1016/j.compedu.2008.08.005

Collis, B. A. (2005, April). *The contributing student: A blend of pedagogy and technology*. Paper presented at the annual meeting of EDUCAUSE Australasia. Auckland, New Zealand. Retrieved from http://www.caudit.edu.au/educauseaustralasia/2005/PDF/K2.pdf

Crossouard, B. (2008). Developing alternative models of doctoral supervision with online formative assessment. *Studies in Continuing Education, 30*(1), 51-67. doi:10.1080/01580370701841549

de Kleijn, R. A. M., Mainhard, M. T., Meijer, P. C., Pilot, A., & Brekelmans, M. (2011). Master's thesis supervision: Relations between perceptions of the supervisor–student relationship, final grade, perceived supervisor contribution to learning and student satisfaction. *Studies in Higher Education, 37*(8), 925-939. doi:10.1080/03075079.2011.556717

Delandshere, G., & Arens, S. A. (2003). Examining the quality of the evidence in preservice teacher portfolios. *Journal of Teacher Education*, *54*(1), 57-73. doi:10.1177/0022487102238658

Drennan, J., & Clarke, M. (2009). Coursework master's programmes: The student experience of research and research supervision. *Studies in Higher Education, 34*(5), 483-500. doi:10.1080/03075070802597150

Gaytan, J., & McEwen, B. C. (2007). Effective online instructional and assessment strategies. *American Journal of Distance Education, 21*(3), 117-132. doi:10.1080/08923640701341653

Golde, C. M. (2000). Should I stay or should I go? Student descriptions of the doctoral attrition process. *The Review of Higher Education, 23*(2), 199-227. doi:10.1353/rhe.2000.0004

Green, B. (2005). Unfinished business: Subjectivity and supervision. *Higher Education Research & Development, 24*(2), 151-163. doi:10.1080/07294360500062953

Green, R. (2006). Fostering a community of doctoral learners. *Journal of Library Administration, 45*(1-2), 169-183. doi:10.1300/J111v45n01_09

Habib, L., & Wittek, L. (2007). The portfolio as artifact and actor. *Mind, Culture, and Activity, 14*(2), 266-282. doi:10.1080/10749030701623763

Hallman, H. L. (2007). Negotiating teacher identity: Exploring the use of electronic teaching portfolios with preservice English teachers. *Journal of Adolescent and Adult Literacy, 50*(6), 474-485. doi:10.1598/JAAL.50.6.5

Harel, I., & Papert, S. (1990). Software design as a learning environment. *Interactive Learning Environments, 1*, 1-32. doi:10.1080/1049482900010102

Harel, I., & Papert, S. (Eds.). (1991). *Constructionism*. Norwood, NJ: Ablex.

Hartman, C. (2004). Using teacher portfolios to enrich the methods course experiences of prospective mathematics teachers. *School Science and Mathematics, 104*(8), 392–407. doi:10.1111/j.1949-8594.tb18005.x

Johnson, R. S., Mims-Cox, J. S., & Doyle-Nichols, A. (2006). *Developing portfolios in education: A guide to reflection, inquiry, and assessment*. Thousand Oaks, CA: Sage.

Kopcha, T. J. (2010). A systems-based approach to technology integration using mentoring and communities of practice. *Educational Technology Research and Development, 58*(2), 175-190. doi:10.1007/s11423-008-9095-4

Manathunga, C., & Goozée, J. (2007). Challenging the dual assumption of the 'always/already' autonomous student and effective supervisor. *Teaching in Higher Education, 12*(3), 309-322. doi:10.1080/13562510701278658

Martin, W., Strother, S., Beglau, M., Bates, L., Reitzes, T., & Culp, K. M. (2010). Connecting instructional technology professional development to teacher and student outcomes. *Journal of Research on Technology in Education, 43*(1), 53-74. Retrieved from http://cct.edc.org/sites/cct.edc.org/files/publications/JRTE%2043-1%20Martin%2055-76.pdf

Mason, R., & Rennie, F. (2008). *E-learning and social networking handbook: Resources for higher education*. New York: Routledge.

McInnerney, J. M., & Roberts, T. S. (2004). Online learning: Social interaction and the creation of a sense of community. *Educational Technology & Society, 7*(3), 73-81. Retrieved from http://www.ifets.info/journals/7_3/8.pdf

Milman, N., & Adamy, P. (2009). In P. Adamy & N.B. Milman (Eds.), *Evaluating electronic portfolios in teacher education* (p. vii–xiii). Charlotte, NC: Information Age.

Palloff, R., & Pratt, K. (2009). *Assessing the online learner: Resources and strategies for faculty*. San Francisco, CA: Jossey-Bass.

Paglis, L. L., Green, S. G., & Bauer, T. N. (2006). Does adviser mentoring add value? A longitudinal study of mentoring and doctoral student outcomes. *Research in Higher Education, 47*(4), 451-476. doi:10.1007/s11162-005-9003-2

Parker, R. (2009). A learning community approach to doctoral education in the social sciences. *Teaching in Higher Education, 14*(1), 43-54. doi:10.1080/13562510802602533

Parsad, B., & Lewis, L. (2008). *Distance education at degree-granting postsecondary institutions: 2006-07: First look* (NCES 2009-004). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved from http://nces.ed.gov/pubs2009/2009044.pdf

Piaget, P. (1954). *The construction of reality in the child*. New York: Basic Books.

Power, M., & Vaughan, N. (2010). Redesigning online learning for international graduate seminar delivery. *Journal of Distance Education, 24*(2), 19-38. Retrieved from http://www.jofde.ca/index.php/jde/article/view/649/1103

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Seagram, B. W., Gould, J., & Pyke, S. W. (1998). An investigation of gender and other variables on time to complete of doctoral degrees. *Research in Higher Education, 39*(3), 319-335.doi:10.1023/A:1018781118312

Spillane, J. P., Healey, K., & Parise, L. M. (2009). School leaders' opportunities to learn: A descriptive analysis from a distributed perspective. *Educational Review, 61*(4), 407-432. doi:10.1080/00131910903403998

Stefani, L., Mason, R., & Pegler, C. (2007). *The educational potential of e-Portfolios: Supporting personal development and reflective learning*. New York: Routledge.

Tabatabaei, M., Schrottner, B., & Reichgelt, H. (2006). Target populations for online education. *International Journal on E-Learning*, *5*(3), 401-414. Retrieved from http://www.editlib.org/d/6126

Trevitt, C., & Stocks, C. (2012). Signifying authenticity in academic practice: A framework for better understanding and harnessing portfolio assessment. *Assessment & Evaluation in Higher Education, 37*(2), 245-257. doi:10.1080/02602938.2010.527916

Wang, S., & Turner, S. (2008). How students learned in creating electronic portfolios. In L. Tomei (Ed.)., *Adapting information and communication technologies for effective education* (pp. 245-256). Hershey, PA: Information Science Reference.

Wetzel, K., & Strudler, N. (2005). The diffusion of electronic portfolios in teacher education: Next steps and recommendations from accomplished users. *Journal of Research on Technology in Education*, *38*, 231-243. Retrieved from http://tl.unlv.edu/~strudler/jrteWetzelStrudler05.pdf

Wikeley, F., & Muschamp, Y. (2004). Pedagogical implications of working with doctoral students at a distance. *Distance Education, 25*(1), 125-142. doi:10.1080/0158791042000212495

Wray, S. (2007). Teaching portfolios, community, and pre-service teachers' professional development. *Teaching and Teacher Education, 23*, 1139-1152. doi:10.1016/j.tate.2006.10.004

Zeichner, K., & Wray, S. (2001). The teaching portfolio in US teacher education programs: What we know and what we need to know. *Teaching and Teacher Education, 17*, 613-621. doi:10.1016/S0742-051X(01)00017-8

Zepeda, S. J. (2002). Linking portfolio development to clinical supervision: A case study. *Journal of Curriculum and Supervision, 18*(1), 83-102. Retrieved from http://www.hortonhighschool.ca/staff/webb/Appraisalindex/Articles/linking%20portfolio%20development%20to%20clincial%20supervision.pdf

Zubizarreta, J. (2009). *The learning portfolio: Reflective practice for improving student learning* (2nd ed.). San Francisco, CA: Jossey-Bass.

Verduin, J. R., and Clark, T. A. (1991). *Distance education: The foundations of effective practice*. San Francisco. Jossey-Bass.
