# Using ePortfolios to Measure Student Learning in a Graduate Preparation Program in Higher Education

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Ten second-year master's students in a higher education program participated in this study, which was designed to assess their experience with an electronic portfolio that had been introduced recently as a primary component of their comprehensive exam. This qualitative study used a focus group and long-interview methods for data collection. Participants responded to an interview protocol of several open-ended questions that allowed them to discuss their experiences and challenges with this capstone experience. Through a variety of coding techniques, five themes emerged: (a) students have difficulty adapting to change; (b) reflection and decision-making takes time; (c) students need regular reassurance; (d) students learn a great deal about themselves; and (e) the ePortfolio is a very powerful experience. Findings suggest several implications for practice, including preparing new professionals, being a new professional, and supervising new professionals.

Regional accreditors, along with other external constituents, have called for institutions of higher education to offer concrete evidence that demonstrates students are graduating with the requisite knowledge, skills, and dispositions to succeed in their chosen fields of study (Dietrich & Olsen, 2010). In fact, individuals are often asked to provide a record of their accomplishments, show progress in mastering a field, or document educational outcomes (Challis, 2005). While faculty members in all disciplines have created learning outcomes for their individual classes for quite some time, measuring the overall outcomes of academic programs has remained a difficult task.

ePortfolios, a digital container capable of storing visual and auditory content, including text, images, video, and sound (Abrami & Barrett, 2005), have emerged as valuable online tool that learners, faculty members, and institutions can use to collect, store, update, and share information. ePortfolios allow students to reflect on their learning, communicate with instructors, document credentials, and provide potential employers with examples of their work (EDUCAUSE, 2005, para. 1). They can also promote professional knowledge development, professional growth, and reflective thinking and practice, all of which are important components of professional development. We hoped that the integration of an ePortfolio would strengthen the metacognitive thinking (e.g., making sense, self-assessment, reflection) of our students and facilitate higher order thinking (e.g., knowledge, understanding. application, analysis synthesis, evaluation; Wozniak, n.d.). We wanted to create a mechanism to help promote and build self-determined learning behaviors so that learning would become an integral part of life over a lifetime.

ePortfolios were introduced in 2010 as a new component of a comprehensive program evaluation and assessment program developed for a master's program at a research-intensive university in the southeast. The

ePortfolio served several important purposesdevelopmental purposes to encourage student growth and learning, presentation purposes to help facilitate a comprehensive exam, and assessment purposes to assist with program review. The ePortfolio was integrated into a comprehensive evaluation and assessment program consisting of a six-step process that is used for continuous program improvement. While a complete discussion of the model for outcomes assessment and program evaluation goes beyond the focus of this study, the measures and instruments used to evaluate program quality included pre-graduation measures, graduation measures, and post-graduation measures (Janosik, Frank, & Hirt, 2011). Figure 1 illustrates the flow chart for the model and highlights the ePortfolio as one of three pre-graduation measures.

The goal of including the ePortfolio as the major component of our assessment program was two-fold. First, we wanted to enhance the ability of the faculty to determine whether students about to complete the program had acquired the desired knowledge, skills, and dispositions that were identified as program outcomes. Second, we wanted to create a more robust evaluation process so that students would be encouraged to reflect more deeply on their graduate experience, what they had learned, and what they could do as a result of their participation in the program.

To ensure that they would be able to develop their ePortfolios in a structured way, students received written copies of the program's objectives and learning outcomes at the very start of their academic program. Students attended periodic orientation sessions on these outcomes and the ePortfolio process. Class time was specifically devoted to discussing and developing materials for the ePortfolio. Students were constantly encouraged to develop an orientation toward *folio thinking* (Barrett, 2003), a process that includes collecting, selecting, reflecting, and connecting artifacts that represent what they have learned, the skills they



Figure 1 A Model for Outcomes Assessment and Program Evaluation for Graduate Preparation Programs in Higher Education

have acquired, or the dispositions they have developed while in the program. On the faculty side, professors integrated the learning outcomes into their course syllabi and course assignments. They also gave students constant feedback on how assignments and experiences might be used to illustrate the knowledge, skills, or dispositions learned while in the program. After the first year of implementation, faculty members involved in the comprehensive exams were very pleased and overwhelmingly positive about the results. They reported informally that students had no difficulty in translating course assignments, graduate assistant

dispositions developed. The purpose of this research, then, was to address the second goal and determine whether the ePortfolio added value to the overall program evaluation and assessment plan from the students' perspective. The following research question guided this study: How did participants describe their experience with a newly created ePortfolio process as the major component of their comprehensive exam?

placements, and field studies into examples of

knowledge learned, skills acquired, and professional

## Method

A qualitative approach was used in data collection and analysis to explore the efficacy of newly introduced ePortfolio, which had been designed to measure knowledge, skills, and dispositions for graduating master's students in a higher education program. Openended questioning and grounded theory analysis were appropriate choices, since our goal was to explore the variety of experiences among a similar group of participants (Creswell, 1998). Such an approach enabled us to present the essence (Merriam, 2002) of the phenomena through the eyes of the participants. We wanted to include contextual information as well as stories of the participants from their individual points of view (Marshall & Rossman, 2006).

# **Participants**

After obtaining Institutional Review Board approval for data collection, we selected participants using a purposeful sampling method (Patton, 2002). Twelve students participating in the ePortfolio process for the program were sent an email message inviting them to participate in a focus group exploring their experience. While all 12 students initially agreed to participate in the research process, only 10 were able to complete the interview process.

All of the participants were enrolled in nine hours of coursework and held full-time (20 hours per week) assistantships at the time the study was conducted. Their program consisted of 48 credit hours of course work, which included a minimum of two field experiences, and was located at a large public researchintensive university in the southeast. All 10 students had applied for graduation and were in good academic standing. Interviews were conducted after their exams and all course work had been completed. Six of the respondents were women and four were men. When we examined race, we found that six respondents were Caucasian, two respondents were African American, one respondent was Asian American, and one respondent was biracial.

# **Data Collection**

Data on our participants' experience with ePortfolios were collected via a focus group and one long interview. A focus group consists of individuals with similar backgrounds participating in an interview process that encourages discussion and allows individuals to share their personal experiences in the social context of others (Patton, 2002). This focus group was used to capture the individual and group experiences of those participating in the ePortfolio process and distinguish patterns of response within the group. The facilitator of the focus group made frequent use of prompts to ensure that everyone participated and that everyone had a chance to speak before moving on to another question. The facilitator occasionally asked for clarification and would express appreciation for a focus group member's participation as a way to encourage more discussion but did not contribute any new information to the conversation. The focus group consisted of nine students who had completed the ePortfolio requirement at the time of their interview. Not all participants were able to participate in the focus group, however. One researcher conducted the focus group and a standardized, open-ended interview with one participant who was unable to attend the focus group. Although she knew the participants well, she was not responsible for grading any coursework or determining the outcome of the comprehensive exam. The participant not able to attend the group session completed an individual interview and responded to the same set of questions asked in the focus group.

To attend to the purpose of the research project, we developed several prompts to elicit information. Examples of these prompts included:

- How might the instructions and orientation about the ePortfolio process be improved?
- What was the easiest part of the ePortfolio process?
- What was the most difficult part of the process?
- What did you learn about yourself as a result of this process?
- How have you used the ePortfolio beyond the requirements for the exam?

While the interview captured only an individual's experience, common themes were found between the focus group and the individual interview.

#### **Data Analysis**

The focus group and individual interviews were recorded and transcribed. Pseudonyms were given to each student to protect the individual's identity. Content analysis was conducted by each of the researchers in an attempt to make sense of the qualitative data obtained through the focus group and individual interview. First, open coding was used. Then, axial and selective coding was used to develop emergent themes from the data (Patton, 2002; Strauss & Corbin, 1998). Finally, we used a constant comparative strategy to integrate these emerging themes into core themes.

To help establish trustworthiness by ensuring the accuracy of the data (Creswell, 1998), participants' responses were transcribed verbatim. As a measure of analytic trustworthiness, we worked independently to analyze the data and identify emergent themes. Then we compared emerging themes for congruence and dissonance (Renn & Hodges, 2007) and agreed on a set of five core themes.

## Limitations

The major limitations of the study stem from the nature of the sample. Participants were drawn from one master's program. Clearly, the findings gleaned from this sample cannot represent the experiences of all master's level student affairs professionals with an ePortfolio process designed to measure the knowledge, skills, and dispositions gained in their graduate program. Additional limitations lie in data collection. Some researchers question the credibility of selfreported data (Furnham & Henderson, 1982; Howard, 1994). While there is always the chance that respondents might say things to represent themselves in a favorable light, we had no reason to believe that our participants did so. In addition, we did not perform member checks, nor was there a direct follow-up with participants to clarify or deepen their responses. Still, we believe that the findings can contribute to a deeper understanding of the utility of using an ePortfolio as the cornerstone of a comprehensive exam in a graduate preparation program.

#### Findings

Five core themes emerged from the data related to the research questions: (a) students have difficulty adapting to change, (b) reflection and decision-making take time, (c) students need regular reassurance, (d) students learn a great deal about themselves, and (e) the ePortfolio is a very powerful experience. After analyzing the transcripts, each researcher generated, independently, a list of potential themes. The themes outlined in this paper are a result of consultation and agreement between the two researchers.

#### **Students Have Difficulty Adapting to Change**

The ePortfolio was introduced in early October, after the start of the cohort's first year in the program. As the first cohort completing an ePortfolio, students were reluctant to accept the change in curriculum. Initially students were unclear about the value of the exercise. One student stated,

I know when I was originally thinking about it, I was just thinking of it as kind of a glorified power point [*sic*] . . . and then I got into it and realized [there] was much more reflection [involved] than I thought.

Delia (all student names are pseudonyms) also stated that "the big picture, like what we were supposed to be actually doing, was difficult to understand." Other students indicated a preference for the options to complete theses or independent studies, which had been used as part of the comprehensive exams in past years. Interestingly, Wickersham and Chambers (2006) also found this resistance to change and preference for other activities in their study of graduate students in a secondary education program but their assessment came after only one semester of implementation.

Students also had difficulty adapting to the platform (i.e., Sakai) used for creating the ePortfolios (Sakai is called "Scholar" at the institution where the study took place). The interface was slow. Although it operated in a fashion much like Microsoft Word and used common HyperText Markup Language (HTML) commands, Sakai was reported as being less than userfriendly. Several students asked and were given permission to use other platforms. David stated that:

If the [faculty] requires students to use Sakai, I don't know how [we] will do it . . . I feel like I need training in HTML, which is so beyond our scope . . . how would we, as education students, . . . know how to do that?

Ellen also expressed some concern by stating, "I feel like [in] Sakai [when] you make one little mistake . . . it erased the entire page I had been working on for days." Other students expressed similar frustrations. John offered a solution by suggesting,

I wouldn't want to, as a future incoming student, be limited . . . to Sakai or . . . Google. I think [the

platform choice] could be open to whatever because there's [*sic*] more opportunities or different venues to create an ePortfolio. I think assigning one or mandating one or requiring one would . . . limit the possibilities of where the ePortfolio could go in the future.

Students agreed generally that expanding the platforms available could encourage creativity and allow students to create an ePortfolio that used their strengths.

## **Reflection and Decision-Making Take Time**

Throughout the students' two-year program, faculty members would remind students of the learning objectives for the program and how they could be incorporated into their ePortfolios. To help with the development of the final product, students were encouraged to upload files and make notes on a frequent basis. They were also required to enroll in a three-credit independent study as a way to focus their attention on this task. Overall, students felt that figuring out how the ePortfolio could best reflect their work and growth during their tenure in graduate school took time and significant effort. Deciding what content best described their graduate school experiences was difficult. Ann stated:

I think the hardest thing for me was trying to decide what you were going to put in the ePortfolio because there's a lot of information you cover within two years; your cognates, academic curriculum, practicum experiences . . . deciding what's more important than others . . . was a challenge.

Putting the ePortfolio together took much more time than students anticipated. Many participants stated they underestimated the amount of time it would take to put together an effective ePortfolio. Jenny stated, after being asked what surprised her most about the ePortfolio process, responded:

The time it took. . . I know we had all semester for this independent study but I really thought I could put this together in a couple of weeks. I found out quickly that was not the case. I was spending eight hours a day trying to put it together. I think it took a very long time to incorporate all of the information.

## **Students Need Regular Reassurance**

During the course of the first year, one class meeting in the introductory course for the Master's program was devoted to creating the ePortfolio, another general information session was held, and two meetings were scheduled with staff members in Learning Technologies who were responsible for supporting the ePortfolio project at the institution. These staff members, under the guidance of the program faculty members, also developed a standard template for student use and a user's manual specifically for the students in the program. Despite these resources, students needed to check-in with faculty members while working on their ePortfolios. They needed regular reassurance that they were developing their ePortfolios in ways that met expectations. Several students remarked they met with faculty members individually or in small groups on a regular basis to make sure they were on the right track in creating their ePortfolio. Tom reported that

a few of us sat down [with the faculty] . . . and said we don't know what the physical end product will look like and, I realized that might be dichotomous thinking, but that was a lot of pressure since this was basically what we were going to use to decide whether we passed or not.

Michael further noted that "[t]he hardest part of this entire thing, I think, was the ambiguity in it."

Even though there were some meetings with faculty members to determine format and expectations, students reported wanting these meetings to occur more frequently throughout the semester, as well as earlier in their graduate career. Stacy stated:

... I think, at the same time, it would have been nice if it started from your first semester to say you need to start thinking about these things, you need to start cataloguing your experiences, you can track them, and then be intentional about getting experiences you don't have. I think that would have been nice to hear that first semester.

Brian stated further that "what might help the structure [the ePortfolio process] is having more frequent meetings, like once a month, and saying we expect you to have one of these tabs by now." In this case, the expectation of tabs refers to what content should be finished by a certain date. Students consistently stated that they needed more guidance regarding content expectations and tied that guidance to frequent meetings with faculty members.

# Students Learn a Great Deal about Themselves

Students acknowledged that the ePortfolio process pushed them to grow and recognize how much they had accomplished during their graduate careers. Many indicated that they had more content for the ePortfolio than they knew what to do with, and that surprised them. Students indicated that the experience that the ePortfolio provided and that evaluating that experience using the ePortfolio made it easier for them to talk about their growth as student affairs professionals, particularly in job interviews. John said, "I did find myself really reflecting in my [ePortfolio] . . . it was really helpful to me to articulate some of those things in job interviews."

Students also remarked that the ePortfolio process helped them to see the bigger picture and to understand holistically how they had learned through their graduate career. One student stated, "What I have learned in terms of my own growth was looking at big picture things and not always expecting things to be laid out for me." Jenny reported that the ePortfolio let her see "how much you have accomplished and if you had your goals written down initially . . . you can say 'I really did accomplish that or I didn't really expect to do this but I did and I am grateful now." Another student stated that the ePortfolio process taught her that, as a professional going into the field, she will have to craft her own experience: "for me, that's what I learned. It's a skill set. I am going to have to take responsibility for my own education and make my own experience."

# The ePortfolio Process as a Powerful Experience

Despite technological glitches and initial uncertainty with the experience, students reported that the ePortfolio experience was powerful and meaningful, particularly with the job search process. Students reported going through the ePortfolio process made them feel much more competent; one student remarked that "it made me a lot more confident that I can be a meaningful contributor to the field." Several students, saying the ePortfolio was a real "confidence booster," mentioned "increased confidence" as another outcome of the process. This confidence led students to feeling strong in their interview experiences because they were able to articulate what they had learned and what they could do, as evidenced by their ePortfolio. Michelle reported:

It helped me articulate my experience better in my interviews because you really have that time to reflect on it and connect it and frame it under those [categories of] professional preparation, professional involvement, etc. . . . You outline your values, where you plan to go in the future, etc., and all of those came up in interviews so it really helped me.

Brian, when asked how the ePortfolio process added value to his educational experience, responded:

The ePortfolio allowed us to reflect on all of our experiences and we get to talk about what it is we have learned, how we've grown, and that's just a great experience. I think, at this point, as we are becoming a master, so to speak, in our field, that's a good opportunity to have.

# Discussion

Participants were unanimous in suggesting that the ePortfolio created an opportunity to reflect deeply on their graduate school experiences. The template used as a guide in this study served to focus student attention on the learning outcomes of the master's program and gave them a mechanism by which they could easily translate their experiences into evidence in the domains of knowledge, skills, and dispositions. Despite this structure, students still needed reassurance and support as they navigated this process. This is a common theme found in other ePortfolio assessments (Mason, Pegler, & Weller, 2004). In addition, requiring students to present their ePortfolio as a major component of their comprehensive exam provided participants with an opportunity to reflect on their learning and performance as a means for further development, to construct their personal expertise, and to explore their professional identity (Rickards et al., 2008). Given the findings of this study, those contemplating the use of an ePortfolio process as part of an assessment plan would be wise to consider the following implications for practice:

- 1. Before considering the adoption of an ePortfolio process, develop a comprehensive assessment plan (Dietrich & Olsen, 2010). The mission or objectives of the program should drive the curriculum and the learning outcomes. Desired outcomes must be clearly articulated and reinforced by classroom faculty members as well as those who advise students and supervise field experiences. Learning outcomes and examples of evidence must be identified. Students in this study wanted clear direction on what their portfolios should include and what they should look like at the end.
- 2. Consider carefully the platform that will be used for the ePortfolio. While several universities have developed their own templates, free or commercially available platforms are also available (e.g., Google, Carbonmade, Wix, Krop, Design Taxi). This is an important consideration. Depending upon the complexity of the template developed and the technological sophistication of the students using the platform, computer and server capacity and speed become important factors.

Video and audio files, pictures, and complex presentations will require large amounts of both. More than one platform may be required to respond adequately to student needs (Gavaldón, García, & Campos, n.d.).

- 3. Construct an ePortfolio template and supporting documentation for students and faculty members based on the desired outcomes of the program. Providing this type of structure will reduce the ambiguity of the assignment and lessen the anxiety students (and faculty members) experience with any new procedure or process. Develop good exemplars of what students should expect to produce (Ring & Ramirez, 2012). Detailed guidance will also increase the likelihood that the final product will meet expectations.
- 4. Identify the technical support and training needs of the faculty and students. Although today's college students may possess a high level of skill with all types of technology, there may be a wide range of ability in any particular cohort. Program faculty members may not always be early adopters of technology and some may need much more help than others. Integrating an ePortfolio experience into the curriculum must be user friendly for all who use it. Resources must be devoted to continual training and nurturing of those involved in this assessment process.

As a result of their study, Ring and Ramirez (2012) suggest that "just-in-time" training opportunities that include ePortfolio mentors for face-to-face or virtual assistance and facultydeveloped prompts embedded on the tagging page that pose probing questions designed to help students make appropriate choices of work have been found to be effective. Other efforts to deepen faculty understanding and buy-in through ePortfolio workshops, brown bag lunches, and informal visits with student advisors might also prove fruitful.

5. Assess the efficacy of the ePortfolio process on a regular basis. Processes and communication can always be improved. Those who coordinate ePortfolio processes should request feedback from everyone who uses this tool on a regular, if not annual basis (Ring, & Ramirez, 2012). Use the information collected as a way to improve the quality of the final product and the learning that occurs.

# Conclusion

ePortfolios provide powerful feedback to students in terms of their ability to develop and achieve learning

outcomes (Pelliccione & Dixon, 2008), but they also measure higher order thinking skills, such as the ability to communicate clearly, make judgments, and demonstrate certain competencies (Miller & Legg, 1993). This is exactly what we hoped to measure and upon which our students and faculty members would focus. In the experience of the faculty members and students engaged in this process for the first time, the use of the ePortfolio enhanced our examining process and exceeded our expectations. We found the use of the ePortfolio to add great value as the foundation for our comprehensive exam. Students enjoyed the opportunity to show what they had learned and how they had spent their time in the program. The experience was quite developmental and reaffirming for all involved. That said, some familiar challenges remain. Determining the authenticity of the evidence offered, establishing consistent judging and grading of the portfolio, and addressing difficulties with the user interface are issues with which students and faculty members will have to grapple. Based on our initial assessment, we believe the rewards are well worth the effort.

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