International Journal of Education and Culture, 2(2), 136-146

http://www.untestedideas.com/journals.php?journal=IJEC
ISSN: 2168-9407 (Print)
ISSN: 2168-9415 (Online)

ORIGINAL RESEARCH ARTICLE

The Digital Professional Ph.D. Portfolio: A Case Study of the Niagara University Experience

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At the onset of their doctoral studies, Niagara University students in a Leadership and Policy Ph.D. program created digital portfolios utilizing their choice of technological medium, which showcase their personal and professional accomplishments. Students continuously update their portfolios throughout the Ph.D. program; the cohort group of this study (Fall 2011) is demographically diverse and consists of digital natives, immigrants, and visitors. The purposes of this digital portfolio assignment are to facilitate doctoral student awareness and appreciation of the interests and values of cohort members, and to provide a process and framework to record significant student and/or cohort experiences, references, and documents.

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INTRODUCTION

The purposes of creating a professional digital portfolio include facilitating doctoral student awareness and appreciation of the interests and values of each cohort member. Additionally, this project is intended to provide a pragmatic framework to record significant individual student and/or cohort experiences, references, reports, and documents. This constructivist assignment emphasizes the significance of doctoral students as active learners who link their new knowledge with prior knowledge and apply their expanded understandings to authentic situations (Foote, Vermette & Battaglia, 2001). This orientation contends that student understanding of any concept depends entirely on the individual's mental construction of that concept for themselves based on their experiences (Danielson, 1996, p.23). This approach is predicated on an increased awareness of the role of individual differences in learning and includes recognizing a variety of differences such as a student's gender, race, socioeconomic status, and learning ability (Sternberg & Williams, 2002, p. 444).The digital portfolio assignment for doctoral students is consistent with the curriculum planning and instructional improvement concepts articulated by Krug (1957) over fifty years ago and referenced in subsequent educational development projects since that time (Polka, 2010). Krug's (1957) research maintains that a project should be comprehensive, concrete, cooperative and continuous.

REVIEW OF LITERATURE

Portfolios can be used in a variety of ways. To define what one is, Niguidula (2005) states, "digital portfolios are multimedia collections of student work stored and reviewed in digital format" (p. 44). According to Polka (2002), portfolios are valuing activities that can serve as icebreakers for new groups of students and can engender the development of productive cooperative learning teams (Polka, 2002, p. 15). Portfolios act as living résumés, where the student compiles and updates papers and projects completed throughout his or her doctoral program. Digital portfolios allow students the opportunity to document their learning electronically. "From matriculation through graduation, the goals for expected student learning are wide-ranging and ambitious" (Miller & Morgaine, 2009, p. 8). Creating and updating a digital portfolio can help a student at any level of the education spectrum handle these rigors and to better manage their academic careers.

A Variety of Uses

The ways in which students use their digital portfolios are wide-ranging and diverse. How students plan to use their portfolios determines what content is to be included (Niguidula, 2005).Digital portfolios have been used in many different ways; they are a means of showcasing students' accomplishments and can also be used as an assessment tool to prove that students have met all requirements for graduation (Niguidula, 2005). Some

researchers have identified that students used their portfolios for reflective practice (Clark & Eynon, 2009; Miller & Morgaine, 2009). "Students generally use e-portfolios to collect their work, reflect upon strengths and weaknesses, and strive to improve" (Miller &Morgaine, 2009, p. 8). Other researchers state that digital portfolios are used as means of highlighting students' work (Chatham-Carpenter, Seawel, & Raschig, 2009-2010; Willis & Wilkie, 2009). "Although similar to hard-copy portfolios, digital portfolios offer enhanced benefits to this digital generation of students by giving them creative options for transferring experiences into interactive, meaningful displays of performance" (Willis & Wilkie, 2009, p. 74), and digital portfolios aid course instructors by offering them an alternative to traditional assessment practices (Chatham-Carpenter et al., 2009-2010; Willis & Wilkie, 2009).

The utilization of an electronic portfolio within a doctoral program can effectively combine these various uses. Students can use their portfolios to reflect back on concepts learned in previous courses and at the same time use them as vehicle to present current work, as well as to plan for their individual dissertation. Doctoral candidates, therefore, have the potential to present the breadth of their knowledge when communicating via a digital portfolio.(Maxwell & Kupczyk-Romanczuk, 2009). Furthermore, as the Ph.D. program studied here is designed for the working student, creating and updating a digital portfolio allows the student to include his or her professional accomplishments as well.

Inclusion of Artifacts and Vehicle for Presentation

After determining the use for the portfolio, the next decision to be made is how to best create this electronic project. According to Niguidula (2005), determining the purpose for the portfolio will dictate what types of artifacts students should in their projects. The inclusion of particular artifacts will establish the digital medium for creation of the portfolio. "The defining characteristic of a portfolio is that it is owner-centric" (Garrett, 2011, p. 189). Garrett (2011) finds that portfolio systems which supported the ease of use to "collect, select, reflect, and assess" were the most effective for generating an electronic portfolio (p. 189). A list of different digital portfolio software options is included in Appendix A.

Quantitative & Qualitative Research Projects

To evaluate the effectiveness of their portfolio projects, some authors conduct research projects. Knight, Hakel, and Gromko (2008) use a quantitative research project to study the effectiveness of digital portfolios. The results of their research suggest that digital portfolios help to improve the student learning experience because educators can use the tool to reflect upon students' work and offer meaningful, authentic feedback (Knight et al., 2008). This data based project looks at how digital portfolios assessed students' learning and aided in their progress throughout their academic coursework. Miller and Morgaine (2009) complete a qualitative project that collected feedback from faculty and students to demonstrate the benefits of electronic portfolios. They provide the following findings.

> The practices associated with e-portfolio- e.g., designing 'authentic' assignments, using engaging and active pedagogy, periodic self-, peer- and teacher-formative assessments, and requiring students to reflect on their learning- help to move both professors and students into a teacher/learner relationship where 'guiding' really works (Miller & Morgaine, 2009, p. 12).

Through their interview-based research, Miller and Morgaine (2009) find that both students and teachers benefited from digital portfolios and saw the opportunity for these projects to help achieve learning outcomes.

Key Concepts

The central ideas connecting research about digital portfolios are the notions that electronic portfolios are comprehensive, easy to update, and versatile means to maintaining students' personal and academic accomplishments (Chatham-Carpenter et al., 2009-2010; Clark & Eynon, 2009; Garrett, 2011; Knight et al., 2008; Maxwell & Kupczyk-Romanczuk, 2009; Miller & Morgaine, 2009; Niguidula, 2005; Willis & Wilkie, 2009). "Maturing in their ease of use, professional look, and portability in a digital culture, e-portfolios are now increasingly used to demonstrate proficiency in professional competencies like, art, nursing, education, and library sciences at both the undergraduate and graduate levels" (Clark & Eynon, 2009, p. 20). The use of a digital portfolio enhances a graduate student's academic career by allowing him or her the opportunity to reflect back upon key concepts while simultaneously moving forward in achieving his or her learning goals.

METHODOLOGY

Research Questions

1. Do participants find the digital portfolio project to be a worthwhile experience?
2. What learning outcomes are associated with completing the projects?

Scope

The purpose of this 2011 qualitative case study is to assess doctoral students' experiences as related to completing and presenting a digital portfolio. A copy of the assignment is included in Appendix B. Students are encouraged to include any personal and professional details they determine as appropriate. They are also able to choose their presentation software. This is to be the first draft of their Ph.D. portfolios, and further revisions will continue through future semesters as their digital professional Ph.D. portfolio is a continuously evolving document. Two of the researchers associated with this study are also members of the cohort. A focus group is utilized to avoid bias in analysis and to further amplify the significance of the findings.

Participants

The participants in this study include 15 students enrolled in the first semester of a doctoral program in Leadership and Policy. This is a new degree program and the only doctoral degree currently available at the university. It is interdisciplinary and includes students with various backgrounds and experiences with technology. The format is unique in that students are working professionals while enrolled in full-time study. Additionally, all Ph.D. coursework is completed in a cohort fashion. Therefore, the students remain in collaboration throughout their first five semesters of doctoral coursework. The choosing of the 15 participants is a result of their active experience in the ongoing digital portfolio component of the doctoral program. This unique set of circumstances allows for a chance to study student experiences with the portfolio at the premier of the program. It also allows for forward thinking in terms of future experiences.

Participation in the study is both voluntary and anonymous. The study was submitted to, and approved by the IRB prior to start. Nine female and six male students are included in the study. The participants' ages range from mid-twenties to mid-fifties. As the Ph.D. program is interdisciplinary, the study addressed points of view from spectrum of professional and personal backgrounds. Additionally, the students' nations of residence include Canada and the United States.

Instrument

An open-ended reflective survey is used as the sole instrument in this study. A copy can be found in Appendix C. This method allows for authentic feedback from participants in their own words. The instrument consists of 10 questions. The questions include topics such as views of technology, "high-tech" and "low tech" knowledge, impact on future research ideas, and feelings about the cohort.

Procedures

Participants received paper copies of the survey. The researchers verbally outlined the directions. The investigators asked the students to voluntarily provide responses to some or all of the questions in one or two sentences each. The researchers reminded them to refrain from including any identifying information. A manila envelope was placed in the room as a "drop-box" for the completed surveys. A copy of the questionnaire was given to all participants, and they were instructed to place an incomplete survey in the folder if they did not wish to participate. Although the instrument was intended to take approximately 20 minutes to complete, a period of approximately four hours was allocated for completion. During that time, researchers were available in case any questions arose. One student was absent, and had an opportunity to complete the survey at a later date. The researchers did not review the data until all of the surveys were collected.

The researchers marked each survey with a number in order to later group the responses. They then transcribed each response into an electronic spreadsheet for review. The replies were classified by question number. Two researchers reviewed each response and categorized the response as negative, neutral or positive.

After review the researchers formed a focus group of three volunteers from the original 15 participants. The focus group consisted of self-identified members from each of the following technological familiarity and usage categories as aligned with Prensky, 2001; digital natives, digital immigrants, and digital visitors. The researchers provided the focus group with a digital copy of the study results. Focus group members reviewed the results and indicated whether or not they agreed or disagreed with the researchers' assessments. Feedback from the focus group indicated agreement congruence with approximately 91% of the responses.

STUDY FINDINGS

Data

All 15 surveys were returned anonymously, and no demographic data was collected. Of the 150 total possible responses, 145 were completed. There were a total of 106 responses, or approximately 73% that the researchers considered positive. The neutral responses totaled 31 or approximately 21%.There were a total of eight negative responses. Overall, the researchers deemed roughly 6% of the total responses as negative.

Responses

This ethnographic qualitative study was analyzed with a partial auto-ethnographic perspective. The researchers identified some general themes associated with the responses. Questions in the first half of the survey generally assessed the students' feelings toward the portfolio assignment and the Ph.D. program. By and large, participants indicated a better understanding of peers as well as self as a result of creating their digital portfolios and viewing the digital portfolios of their colleagues. Additionally, some students indicated that they were exposed to some new technology.

The first question asked participants "how did this experience influence your perspectives about the Ph.D. program?" The following statements are some representative responses. One participant stated "It made me realize that this Ph.D. process would be much more than simply writing papers, attending lectures and composing my dissertation." Another participant replied, "It made me see the potential for how my E-portfolio will be developed throughout my Ph.D. studies (it is ongoing-continuous)." Questions two, four, and five invited participants to share what they learned from other members, how this project will contribute to the program's learning community, and how developing a digital portfolio helps one grow as a member of the cohort. Some responses included: "The different backgrounds brought up ideas I never would have thought about. There was a lot

to learn from others." Additionally, "With every misstep other individuals were willing to critique, guide, and help." "In reviewing my own portfolio, I was able to identify gaps in achievement and life. This has helped me create greater focus!" Moreover, in answering question three, some students indicated that they were exposed to some new technology. "It made me aware of other types of technology and also new use for technology I know." "I learned a lot about different programs you can use to present. I found myself learning how to convert files to different formats so I could use them."

Questions six through ten were associated with the students' feelings toward their individual portfolios. Overall, participants indicated ways they could improve their portfolios as well as ideas for applications of the portfolio in the future. Questions seven, eight, and nine asked participants to reflect upon their own portfolios and identify what uses they might put it to outside of class, what are its strengths, and what are some improvements they might make. Examples of some responses: "It was clear, simple, and had interesting information about me- that reflected who I am, not just what I've done." "I would like to add more video and music- make it less static and more interactive/dynamic." Question six asked respondents "how does learning more about members of this cohort influence your future research plans or ideas?" Many responses reflected gratitude or appreciation for the opportunity to learn from their cohort members. "I may find people in this cohort with knowledge who can help me later on. Whether their experience helps me with my dissertation, in the field of work or other future endeavors I take on."

The final survey question, number ten, asked participants "What do you feel may be some advantages to keeping your digital portfolio updated?" Many respondents saw the value in treating their digital portfolios as living documentaries that could be updated over time. Some responses were: "It is a great way to remember the milestones or achievements; it also allows one to update very quickly." "It will have information, papers, and references I may need for my dissertation."

CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of the study, the assignment appears strong in three major areas; the growth of a learning community, technology use and ease of updates, relevance to dissertation research planning. The researchers conclude that there are numerous applications for digital portfolios in doctoral programs. This is especially true in cohort-based programs as the early institution of the portfolio allows for immediate community-building. Future studies may include follow-up research of the same cohort during the second year of study, as well as a comparative analysis of digital portfolio product use in other doctoral program concentrations. A longitudinal study which follows digital portfolio use by students throughout the program would also be beneficial. Additionally, the distinctions between these results and non-cohort based doctoral programs could be analyzed.

Digital portfolios can be used as a means for students to track their educational accomplishments and as a vehicle to showcase their best academic and professional work. The results of this research project are specifically aligned with the concepts identified by

Miller and Morgaine (2009). That is, these portfolios may be used for reflective practice and as a motivation for continued academic growth. The researchers presented this project at a recent conference and the feedback collected supported the belief that this is a valuable project. Furthermore, many attendees expressed an interest in implementing digital portfolio projects in various programs at their colleges and universities.

The next phase of this research includes surveying future Ph.D. cohort groups after they complete their professional digital portfolios. Additionally, based on this doctoral program experience, and the findings of this case study, digital portfolios may become a course requirement for other advanced graduate classes in other programs at Niagara University. Therefore, future research would include surveying the students in those classes as well. If other universities adopt similar projects, the researchers would be interested in surveying students at other institutions of higher learning using this case study survey to see what are their views regarding digital portfolios. Finally, follow-up studies will be conducted with the first cohort later on in their academic careers.

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APPENDIX A

Links to webpages offering vehicles with which to create a digital portfolio:

Center for Media Literacy-www.medialit.org
Cloud Institute for Sustainability Education-www.cloudinstitute.org
Creative Learning Exchange-www.clexchange.org
DesignShare-www.designshare.com
Education World: Using Technology | Electronic Portfolios in the K-12 Classroomwww.educationworld.com
Education Week's Digital Directions: E-Portfolios Evolve Thanks to Web 2.0 Tools) www.edweek.org/dd
First Light Video Publishing-www.firstlightvideo.com
Glogster – *Poster Yourself | Text, Images, Music and Videowww.glogster.com*
Introduction to TrackStar*: Social Bookmarking for Teachers-Slidesh...*www.slideshare.net/tigerjenn11/track-star-presentation-slideshare
Media Awareness Network-www.media-awareness.ca/
Media Education Foundation-www.mediaed.org
November Learning-www.novemberlearning.com
Theatre Books-www.threatrebooks.com/
Take note of everything. | Evernote Corporation www.evernote.com
www.livebinders.com

Some software programs participants used to create their digital professional portfolios are:

Apple Keynote
www.apple.com/iwork/keynote

Evernote
www.evernote.com

LiveBinders
www.livebinders.com

Microsoft PowerPoint
www.microsoft.com/Office365

Prezi
www.prezi.com

SlideRocket
www.sliderocket.com

APPENDIX B

NIAGARA UNIVERSITY **COLLEGE OF EDUCATION**

"Personal Ph.D. Portfolio: A Reflective Documentary with Prospective Focus"

Dear Student,

Dr. Walter S. Polka, Associate Professor of Educational Leadership, and doctoral students Julia Latorre and Rachael Rossi, are requesting your participation in the attached survey questionnaire. The survey is designed to collect your feedback on the digital professional portfolio project.

Completion of the instrument will be considered permission to use the information you provide in an anonymous manner to compare responses. Please be assured that your confidentiality will be protected. You will not be identified in any publication resulting from this study and we ask that you do not put your name on the survey. You are not required to respond to every question. However, completion of the entire survey should take about *20 minutes* of your time.

Please place your completed survey in the drop box in the classroom. If you do not wish to participate, simply return the blank survey to the box.

Thank you for participating in this study. Your time and thoughts are greatly appreciated.
College of Education
Niagara University
Academic Complex, Room 325C
Niagara University, NY 14109

Respectfully yours,
Walter S. Polka, Ed.D., Julia Latorre, and Rachael Rossi

E-Portfolio Reflection Survey

1. How did this experience influence your perspectives about the Ph.D. program?
2. What more did you learn about yourself and others? (Please refrain from using identifying information, such as names.)
3. How did this project affect your views of technology?
4. Do you feel that this Ph.D. cohort has grown as a learning community as a result of this experience? Please explain.
5. How does sharing your digital portfolio help you grow as a member of the cohort?
6. How does learning more about members of this cohort influence your future research plans or ideas?
7. In your estimation, what are some ways that you may use your digital portfolio outside of the doctoral program?
8. What do you feel were some of the strengths of your portfolio?
9. What are some improvements or adjustments you would like to make to your portfolio as a result of sharing yours and experiencing others'?
10. What do you feel may be some advantages to keeping your digital portfolio updated?