Student Response to an ePortfolio Initiative: A Grounded Theory Analysis

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Abstract

With the proliferation of eportfolios and their various uses in higher education, it is important for educators and other relevant stakeholders to understand the contribution of the student perspective to the planning and implementation of eportfolio initiatives. This research describes an eportfolio initiative at a large public university in the southeastern US. Data on student perspectives were analyzed using a grounded theory approach. Three interrelated themes emerged from the qualitative analysis of these data: purpose, support, and personal impact. The success of the eportfolio initiative is discussed in terms of these three themes, using the ePortfolio Implementation Support Model (ePISM). Results suggest that data on student perspectives are valuable not only in terms of evaluating the success of the initiative in reaching learner-centered goals, but also to inform the design and ongoing improvement of appropriate support.

Keywords: eportfolios, student perspectives, grounded theory.

Portfolios to ePortfolios in Education

The emphasis on accountability in the field of education brought on by the No Child Left Behind Act of 2001 (U.S. Department of Education, 2002) has increased the need for authentic forms of assessment. As educators have begun to measure learning based on performance on real-world tasks, it has become clear that a method of documentation is necessary to support this process. From the fields of art and journalism educators have borrowed the concept of portfolio assessment to meet this need. Fuelled by the pedagogical pendulum swing toward constructivism, whereby students are given the tools for learning (Jacobsen & Spiro, 1995) and are guided toward self-discovery (Meeus, Questier, & Derks, 2006; Strudler & Wetzel, 2005), the portfolio method has seen widespread adoption in education. Salzman, Denner, and Harris (2002) report that 89% of colleges or departments of education are using portfolios as one form of assessing student outcomes.

Educational portfolios, constructed over a period of time, are a purposeful collection of work that can be used to document accomplishments, growth in knowledge, competencies, and skills, or provide a snapshot of learning at a given point in time (Barrett, 2001; Lorenzo & Ittelson, 2005). Wheeler (2003) suggests that the defining characteristic of a portfolio is its purpose. Similarly, Barrett (2007) notes that “the term portfolio should always have a modifier or adjective that describes its purpose.” The intended purpose of the portfolio forms the basis for the inclusion of content. The versatility of portfolios has made them popular devices for a variety of purposes in education. Two basic purposes emerge from the literature: assessment and representation. For purposes of this research, we will consider only the assessment portfolio.

Portfolios can support both assessment for learning and assessment of learning. An assessment for learning portfolio is used to document progress in learning over a period of time. This type of portfolio supports the reflective practice that is essential to continuous improvement. The content of such a student-centered learning device is generally negotiated between the student and instructors. In many teacher preparation programs across the US, preservice student teachers develop these types of portfolios for reflection and to demonstrate their efforts, accomplishments, and progress in acquiring relevant knowledge and skills in a variety of teaching areas. In higher education portfolios are also used for accreditation reporting (assessment of learning). An eportfolio that is used for assessment of learning generally links examples of student work directly to program standards. Assessment of learning portfolios are often part of an assessment management system at the university or college level, used for accreditation reporting or other assessment and research purposes. The content of these types of portfolios is generally not controlled by the learner, so they cannot be strictly thought of as student-centered learning devices in the same sense as a portfolio with negotiated or student controlled content. Portfolios used for assessment of learning are generally the data collection component of assessment management systems.

The explosive growth of the Internet has ushered in the Information Age and added new terms to the educational discourse on learning. With the rise in the accessibility and use of networked computing, there has been an increase in the migration of learning and teaching tasks to computers (Siemens, 2005). This trend has fueled the
creating and disseminating of portfolios using computers, and increased the viability of the portfolio as a communication tool, with the capability of reaching a much wider audience than was previously possible. Electronic portfolios (a.k.a., eportfolios) have begun to replace the cumbersome paper/binder portfolios and are eliminating concerns over transportability and storage of massive amounts of data. An eportfolio is a purposeful collection of electronic documents and multimedia objects that is formatted as a website. Students can generate their work in various multimedia formats, such as video, audio, graphics, and text, and use hyperlinks for organization and navigation (Barrett, 2005; Curtis, Yanes, & McWright, 2003). Curtis, Yanes, and McWright suggest that eportfolios make the student work “accessible, reviewable, and replayable,” and address student ownership and storage issues.

**Student Needs in ePortfolio Use**

The shift to eportfolio development holds both blessing and curse. On the one hand, a digitized collection of artifacts enables a more efficient organization and review of past performance and facilitates the reflective process. On the other hand, as a stylized website, the eportfolio represents what Dillon and Zhu (1997) have termed the ‘newest genre,’ and necessitates the development of an entirely new set of skills related to web authoring. When an eportfolio functions as a student-centered learning device, as in the assessment for learning scenario described earlier, the benefits gained are contingent upon students’ meaningful use of the tool. Siemens (2005) notes that, although higher education can introduce the concept, a successful eportfolio initiative must be driven by the learners’ understanding of eportfolios as a tool for teaching and learning. Prospective teachers’ understanding of the usefulness of technologies as learning tools needs to extend beyond the development of skills for using specific software applications, and into the realm of pedagogical rationale for technology use (NETS-T, 2002). It is therefore implicit upon higher education to provide effective support for both the new software skills and the development of an understanding of the pedagogical rationale for its use.

Considerations involved in supporting an eportfolio initiative in higher education are complex. Leon and Pearl Paulson (1994) describe the conflicting paradigms that coexist in eportfolio initiatives and the importance of separating the assessment management purpose (i.e., positivist portfolio) from the learner-centered purpose (i.e., constructivist portfolio) (Barrett, 2004). The positivist approach assesses student learning outcomes based on external standards, and assumes that meaning is “constant across users and contexts.” The constructivist approach, on the other hand, “puts a premium on the selection of items that reflect learning from the student's perspective” (Paulson & Paulson, 1994). Upon initial examination of an initiative, one or the other of these components may be less obvious, but both dimensions of eportfolio use must be supported at an appropriate level if the initiative is to succeed.

Success with regard to the assessment management (positivist) purpose is evidenced by successfully accomplishing a goal dictated by external standards (i.e., accreditation of the institution; assigning a grade to student work). However, success with regard to the student-centered (constructivist) purpose is more difficult to gauge. The level of success will depend upon how well the level of support matches the level of need. It is therefore necessary to identify the level of student need in any given implementation. In this regard, data on student perspectives are valuable not only in terms of evaluating, ex post facto, the success of the initiative in reaching learner-centered goals (i.e., summative assessment goals), but also to inform the design and ongoing improvement of appropriate support (i.e., formative assessment goals).

**Student Perspectives: Purpose, Support, and Personal Impact**

Support for the positivist purpose (i.e., to manage a comprehensive assessment of learning) at an institutional level is directly related to the skill of the assessment team and the professional level of support provided by the team members. However, support for the constructivist purpose must address the needs of the student engaged in assessment for learning. Initially the student gauges the personal impact if the initiative fails to meet the constructivist goals. The level of support needed will depend upon what the student perceives as their stake in that purpose (personal impact) (Ritzhaupt, Singh, Seyferth, & Dedrick, in press). For example, if the student perceives that his or her stake in the purpose is high (i.e., a grade is dependent upon use of the eportfolio technology), then the need for support in developing the necessary software skills and understanding the rationale for its appropriate use will be high. If the student has very little to lose in the event that the initiative fails to meet its goal, then the needs do not exist and support is not necessary. For example, if the use of the eportfolio technology as a student-centered learning device is optional, the student risks nothing by not learning how to use it for that purpose.
Describing Success: ePortfolio Implementation Support Model

The success of an eportfolio initiative can be described in terms of the tension between the diffusion of the technology (Strudler and Wetzel, 2005) and resistance to its use (O’Hara, Watson, & Kavan, 1999). Kurt Lewin’s Force Field Analysis (JPC, 2002) proposes that organizational forces are constantly seeking a state of equilibrium between support for change and resistance to change. Support for the adoption of innovation (i.e., diffusion) is in part based on personal impact to the stakeholders (Rogers, 2003).

Figure 1 represents the structure of this relationship and conceptualizes this structure with descriptors for the four quadrants: High Diffusion/Low Resistance, High Diffusion/High Resistance, Low Diffusion/High Resistance, and Low Diffusion/Low Resistance. Analysis of an eportfolio initiative should examine separately the assessment management (positivist) and student-centered (constructivist) purposes (Paulson & Paulson, 1994) and map the characteristic components (i.e., level of support/level of resistance) of the implementation onto the support model. In terms of the support model, a successful implementation will be characterized by High Diffusion and Low Resistance. This framework can be used to assess the various characteristics of an eportfolio initiative, and can be used to explain the outcomes of those initiatives.

The next section describes the study that generated the student perspectives data and the themes that emerged from the grounded theory analysis of an open ended student perspectives survey item (Ritzhaupt, Singh, Seyferth, & Dedrick, in press). That discussion is followed by application of the ePortfolio Implementation Support Model (ePISM) as a framework to explain the outcomes of two eportfolio initiatives. The initiatives described reflect two different approaches to eportfolio integration. Both the initiatives discussed were studied in the development of the EPSPI.

Method

ePortfolio Initiative

The eportfolio integration initiative described here was conducted in the College of Education (COE) at a major research university in the southeastern US. Two years prior to a reaccreditation visit from NCATE and the state Department of Education, the COE’s research and evaluation team identified a need to improve the reaccreditation reporting process. The necessity of retaining required performance-based assessment measures, while at the same time enabling the manipulation and aggregation of data, pointed to the use of an electronic portfolio and assessment system.

A search began in early 2003-04 school year to identify an appropriate and affordable assessment management tool with an eportfolio component. The research and evaluation team narrowed the search to three web-based applications, and presented findings to a committee appointed by the COE Dean. The committee was made up of faculty representing each teacher preparation program in the COE. Of the applications examined, the Chalk & Wire ePortfolio © system provided the most powerful reporting package and appeared to have the most flexible and responsive support system for students.

Since the system was to be used as an assessment management tool, it was imperative to incorporate national, state and local performance standards for each program. Research and evaluation team members worked very closely with faculty and department chairs to identify critical assignments in the curriculum that would demonstrate evidence of each standard, and to develop detailed rubrics with multiple performance indicators.

A small cohort of Elementary Education students and faculty volunteered to beta test the system in spring semester of 2004-05. By the following fall semester 2005-06, there were six programs using Chalk & Wire ePortfolio ©. Faculty members were provided with an ePortfolio © account in which they could access the submitted student work and attach it to the corresponding rubric to assign grades and feedback electronically. Students were required to purchase a one year subscription for a cost of less than fifty dollars. Subsequent renewal subscriptions cost approximately half of the initial fee and were available after graduation. By the end of spring semester 2006, there were over 1,100 student subscribers, over 300 rubrics, and twelve sets of program standards.
A help desk support system was established in spring of 2004-05, staffed by three undergraduate students. Communication was limited to email, until the end of the spring semester when a small lab facility with six computers and a telephone became available. Help desk staff set up a series of orientation trainings, scheduled in the college’s open use labs, and facilitated periodic training sessions for both students and faculty. In the fall semester of 2005-06, the help desk went online with a resource website, providing online training registration capabilities, and access to printable resource materials and tutorials.

**Procedures**

In the 2005-06 spring semester, a team of researchers adopted and tailored an instrument known as the Electronic Portfolio Student Perspective Instrument (EPSPI) (Ritzhaupt, Singh, Seyferth & Dedrick, in press) to evaluate the progress of the eportfolio initiative. The instrument was accessible in a web-based format and was accompanied with an open-ended survey item soliciting additional information “Please provide any additional comments, concerns, or suggestions”. The researchers posted a hyperlink to the instrument in the announcements section of Chalk & Wire ePortfolio © and sent an email with a hyperlink to the instrument to all students using the system.

The survey was available for a three-week period, and during this time, two emails were sent to students. Respondents were informed that the purpose of the research was to: (1) monitor the progress of the eportfolio initiative, and (2) aid in the development and validation of an instrument designed to measure student attitudes and intended uses of eportfolios, namely EPSPI. Additionally, participants were informed that the survey was anonymous and that the information would not be divulged in any way.

**Participants**

Two hundred four of eleven hundred students completed the instrument anonymously. Of the respondents, approximately 95% were female. Approximately 50% of the respondents reported senior classification, 25% junior classification, and the remaining 25% reported graduate level status. Of the ethnicity of the respondents, 78% reported Caucasian, 11% Hispanic, 5% African American, and the remaining 2% reported either Asian or Other. The participants reported using the eportfolio system for an average of 9.77 months (SD=5.51). The eportfolio system had been in use for 18-months when the instrument was released. Ninety-one of the students responded to the open-ended item.

**Qualitative Analysis**

The open-ended survey item included with the quantitative survey provided fruitful information, complementing the quantitative survey. To systematically analyze the responses, three types of coding procedures were used in the grounded theory method (Strauss & Corbin, 1990): open coding in which the themes, or categories, and subcategories were identified and grouped, followed by axial coding in which the categories were restructured to show different relationships, and finally selective coding in which an emergent theory regarding the data is discussed. Open coding of the responses by two readers revealed four major themes: (a) system characteristics (b) support system (c) purpose (d) personal impact. Inter-rater reliability was calculated at .87. Identification of properties, or subcategories, provided detailed description of each theme. It was decided that the system characteristics theme (i.e., ease-of-use; support for application skills) was a subcategory of support. Thus, for purposes of this paper the four themes were collapsed into three: (1) purpose, (2) support and (3) personal impact. Based on the need to distinguish purpose (i.e., positivist or constructivist) in the analysis of an initiative, as discussed earlier, purpose was chosen as the central theme and an axial coding method was used to reorganize the other categories and restructure their relationships. Following is a discussion of the relationship between these three themes.

**Results and Discussion**

In the first theme, Purpose, participants expressed confusion and dismay at the purpose of the eportfolio system and process. Most participants clearly rejected the use of the eportfolio for seeking employment with statements like “I will never use it for future employers” and “I do not believe this is what potential employers want to see.” The subcategory ‘learning’ included mostly negative comments: “… not a good reflection of my work” or “many of the tasks that we are required to submit to Chalk & Wire are not examples of my best work”.

In the second theme, Support, the majority of respondents felt that training and the help desk style support system did not meet their needs in various ways. These responses ranged from a general lack of awareness about the available support to inability of the system to anticipate and address diverse ways of learning. A major aspect of this theme involved faculty buy-in and support for student use of the system. More than 25% of the respondents
mentioned that faculty members did not offer help with using Chalk and Wire and did not appear to understand the program themselves. Another dimension of this theme indicated that the faculty did not value the system and many instructors required hard copies of assignments in addition to electronic postings.

The third theme, Personal Impact, included responses about the investment in time and money, comments indicating predominantly negative attitudes toward use of technology, feelings of lack of choice and control, and other various emotional factors like “adds unneeded stress”. In summary, the qualitative analysis revealed an overall negative response to the eportfolio initiative.

*ePortfolio Implementation 1*: An eportfolio initiative was piloted with twenty-six students enrolled in an introductory computer science course in a college of engineering at a mid-sized university in the southeastern US. Use of a free-form authoring system for developing an eportfolio was incorporated into the curriculum of this course, in which students created their eportfolios to reflect meeting the learning objectives in the coursework. Use of the eportfolio system was centered between the assessment management and constructivist purpose. For example, the eportfolio included a predefined structure containing elements that may be found on a resume, such as the student’s name and picture. Additionally, for each of the assignments, students were required to post a description, reflection, and a list of learning objectives. Though the assignments had minimal expectations, the students had a high degree of flexibility in how/what they submitted to complete the assignments.

Figure 2 represents the relationship between the degree of diffusion of the technology and the degree of resistance by the students. Because use of the technology was an integral part of the coursework, each student used the technology: High Diffusion. Every student used the technology as it was intended to be used (i.e., in creating an assessment portfolio): Low Resistance. The strength of the support structure can be discussed in terms of the two component parts: support for the development of (1) software application skills and (2) pedagogical rationale for technology use. In this implementation, there was strong support for the development of application skills, because the students developed the eportfolio in class with the assistance of the instructor. Likewise the instructor’s incorporation of eportfolio into the instructional activities provided strong support for pedagogical rationale for the use of eportfolio technology in assessment. Data from the EPSPI survey administered in this class indicate that overall the student reaction to the use of the eportfolio for the purpose of assessment management was positive; the implementation was successful (Ritzhaupt & Singh, 2006).

*ePortfolio Implementation 2*: The eportfolio initiative used for the qualitative analysis can also be reassessed using the ePISM as a framework. Use of the eportfolio system for assessment was established by the administration as a graduation requirement; faculty members were also required to use the tool in reporting grades: High Diffusion. Accreditation goals were met and the initiative appeared to be a success. However, results from the EPSPI indicated that approximately 20% of the participants were dissatisfied with the implementation of the eportfolio initiative (Ritzhaupt, Singh, Seyferth, & Dedrick, in press). In contrast to the first implementation, in which over 90% of the students said that they would use eportfolios to guide their skills development, 72% of the participants this initiative said that they would not use the eportfolio to guide their skills development (Ritzhaupt & Singh, 2006; Ritzhaupt, Singh, Seyferth, & Dedrick, in press). One possible explanation for this discrepancy comes from an examination of purpose.

In this implementation, students were required to purchase a subscription to the eportfolio technology. Thus, the personal impact if the initiative did not meet the constructivist goal was relatively high (i.e. students perceived the purchase of the subscription as a waste of money). Student responses to the open ended item on the EPSPI indicate that the technology was not used as a student-centered learning device: Low Diffusion. Further, faculty resistance to the use of the technology other than for assessment reporting was very high: High Resistance; characteristically, the two support components (i.e., (1) software application skills and (2) pedagogical rationale for
technology use) were not in place. In terms of the constructivist purpose, the implementation appears to have been unsuccessful (See Figure 3).

Closing Remarks
This paper has analyzed student responses to an eportfolio initiative using grounded theory, and described three interrelated characteristics that emerged from a student perspective: (1) purpose, (2) support and (3) personal impact. Understanding of these characteristics and their interrelatedness is critical to the success of an eportfolio initiative. Additionally, this paper provides a parsimonious framework to assess the outcomes of eportfolio initiatives: the eportfolio Implementation Support Model (ePISM). The ePISM has two key dimensions (resistance and diffusion), which were used to explain two divergent instantiations of an eportfolio initiative. These results suggest that data on student perspectives are valuable not only in terms of evaluating the success of the initiative in reaching learner-centered goals, but also to facilitate the planning, implementation and ongoing improvement of eportfolio initiatives.

References


