Seeking a Electronic Portfolio Solution: A Case Study

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Introduction

Colleges of Education have a long history of accreditation reviews and standards for content areas as well as professional standards for teachers. Funding issues and competition in the college market are driving Colleges of Education to gather data in large quantities that showcase their graduates for future employment opportunities. Funding issues now tied to performance-based measurements in Colleges of Education are challenging colleges to produce a wide variety of assessment pieces to sustain funding. Electronic Portfolios serve as a means of authentic assessment to demonstrate a teacher's proficiency in the knowledge, skills, and dispositions of the field of education and for gathering aggregated data in a format that can be analyzed for the variety of accreditation and state reporting now required.

As states have recognized the need for technologically fluent teachers and teacher education programs move toward greater integration of technology, electronic portfolios are a means of not only demonstrating content and pedagogical knowledge but technology expertise as well. Unfortunately, faculty in Colleges of Education still lack some of the basic skills and knowledge needed to work with technology in their classrooms and to model the effective use of technology. In this respect, the electronic portfolio, provides a means of requiring faculty to become more technologically proficient as well.

The Study

This phenomenological case study examines from the perspectives of College of Education preservice teachers, faculty, graduate students, and administration and their experiences in using electronic portfolio software as part of the evaluation of student work and for the collection of data to meet the college's requirements for the National Council for the Accreditation of Teacher Education (NCATE). NCATE is …

> the profession's mechanism to help establish high quality teacher preparation. Through the process of professional accreditation of schools, colleges and departments of education, NCATE works to make a difference in the quality of teaching and teacher preparation today, tomorrow, and for the next century. NCATE's performance-based system of accreditation fosters competent classroom teachers and other educators who work to improve the education of all P-12 students. NCATE believes every student deserves a caring, competent, and highly qualified teacher. (http://www.ncate.org/, ¶ 1)

In the state in which the study was conducted, NCATE is presently the only accreditation agency recognized and all Colleges of Education in the state are now required to be NCATE accredited. Therefore, this research provided a timely examination of electronic portfolios when the governing body of higher education required that all Colleges of Education become accredited. While many of the Colleges of Education were already accredited, the new assessment system required by NCATE was more data driven than it had been in the past and those colleges under examination for re-accreditation or new accreditation had not been collecting the data as now required.

This research is comparative in that the researcher compared how preservice teachers, faculty, graduate students and administrators understand the use of electronic portfolio software and the connection to undergraduate experience in the College of Education. Additionally, it was expected that the experiences of these participants would help identify the successful software which would be implemented as part of the college data collection activities in preparation for the upcoming NCATE visit.

The research was conducted at a Midwestern University, College of Education which presently holds NCATE accreditation and will come under review in October of 2007. The average number of students enrolled in the College of Education is 2000. Recently, an NCATE Administrator was hired to help in the process of moving the

College of Education to a stronger "data collection focus" than has been experienced in the past. This administrator position is responsible for the collection of the appropriate NCATE data and helping faculty to prepare needed data and materials for the NCATE SPA reports (National Council for the Accreditation of Teacher Education – Specialty Program Associations). The SPA reports are aligned with the content areas in education. A listing of the NCATE SPAs and their standards may be found at http://www.ncate.org/standard/programstds.htm .

Three brands of commercial electronic portfolio software were selected for the research. The software were selected on the following criteria (the criteria are not listed in order of importance):

1) their availability in collecting data for NCATE,
2) the ease of use,
3) costs to the student and institution,
4) storage capacity and types of files which could be stored,
5) visibility in the marketplace (that is would the software company still be there in the future),
6) training options for the faculty,
7) training options for the students, and
8) recommendations from other institutions in other states using electronic portfolio software.

The researcher is a faculty in Instructional Technology in the Educational Studies Department which is a separate department from the Teacher Education Department. The researcher has extensive experience in the development of electronic portfolios as a "growth examination" of student progress in the K-12 environment, undergraduate and graduate environment. An open invitation was sent by the researcher to the faculty in the Teacher Education Department to participate in the research. The faculty volunteered to participate and to have their students work voluntarily in the electronic portfolio environment during the Spring Quarter (March to June) of 2004. The faculty were both novice technology users but very familiar with the NCATE requirements for their programs. Participants in the case study included two faculty teaching EDEC 421, an undergraduate course in early childhood reading, and one faculty member who teaches EDCT 661 a capstone course in the graduate technology program. All courses were a part of a SPA that is reviewed by NCATE. Section 1 of the EDEC 421 had 18 preservice teacher participants and used Brand1 of the electronic portfolio software. Section 2 of EDEC 421 had 21 preservice teacher participants and used Brand2 of the electronic portfolio software. Section 3 of EDCT 661 had 15 inservice teacher participants and used Brand3 of the electronic portfolio software. Two graduate students in Computer Education and Technology program and one administrator also participated in the research. Some of the software was purchased while others were provided by the company free of charge. Where needed the costs of the electronic portfolio software, training and graduate assistants for the pilot was underwritten by the *Preparing Technology Proficient Teachers Gran*t (PT3 – U. S. Department of Education). The undergraduates and graduates participating in the research did not incur any costs to participate.

Each software company of the three brands used in the research was invited to come to campus and demonstrate the use of the software and to provide training. Each software company was told that the College of Education was piloting each software package in test courses for consideration for purchase. When asked, the names of the software companies were revealed to the inquiring company. All three companies knew the other two competitor brands of electronic software in the pilot. It is important to note that one of the software brands examined was a "home-grown" brand by a graduate of a university in the state. This added an interesting dimension to the research over time.

Brand1 and Brand2 determined that a campus visit would be the best approach for training the faculty in the use of their electronic portfolio software. These two brands also invited students to come to the training and one brand even returned to campus to train students on a Saturday. Brand3 elected to use a web-based training involving the use of NetMeeting to work with the faculty member, researcher and graduate assistants using Brand3. All faculty and administrators in the College of Education not participating in the research study were also invited to come and learn how to use the software or to evaluate the software. Three Teacher Education faculty members not directly involved with the study came to the training and evaluated the training and software on the day of training only. Two faculty members in Instructional Technology and one faculty in Educational Administration also came to the training to examine the software and provide feedback to the researcher.

The faculty, some of the students, all graduate assistants and the researcher all attended the on-site training sessions. Only the researcher, faculty member of the graduate course (EDCT 661) and graduate assistants attended the Brand3 training sessions involving the use of NetMeeting. The graduate assistants were required to attend all training sessions since they would be responsible for supporting the faculty and students during the pilot. Faculty and students were given the graduate assistants' email addresses, phone numbers and a toll free phone number to the software company in which they were a pilot participant to obtain help as needed. Participants could contact the

researcher if other sources were unable to find a solution to a particular problem with the software and its use. Students received a monetary stipend of $40.00 at the end of the quarter if they completed all sections of the electronic portfolio as prescribed by their faculty instructor.

Data for review was collected from the following sources: participant observation, documentation from the electronic software companies, interviews with participating faculty; interviews with participating students; graduate assistant interviews; examination of data collected through the Standards rubrics in each course; and an examination of student artifacts. These materials were reviewed not only by the researcher, but the graduate assistants and faculty involved in the research. All interview questions were developed before the actual interviews but questions resulting from the responses from those being interviewed were also considered in the data. By using participant observation, the researcher became a part of the class and the students were used to seeing the researcher in the room as they worked with the graduate students, or faculty in the portfolio software. During the grading of the electronic portfolios by the faculty participant, the researcher sat with the faculty member and conducted a "think aloud" strategy for how the faculty viewed the electronic portfolio during grading. The recordings from this process were transcribed and used for examining the faculty members understanding of how the materials are presented in an electronic medium and if the materials were comparable to the paper materials typically presented for the course. Both the researcher and faculty reviewed and ranked the portfolios separately and then as a team to see if there were unique differences in the perceptions of the electronic portfolio when graded as a team versus grading as an individual. The use of many different data sources provided a means to validate and cross-check findings over the course of the research.

Results and Conclusions:

Each brand of software was found to have unique strengths and weaknesses which made the selection of a "perfect electronic portfolio software" difficult. As conversations about the pilot occurred in meetings, interviews, and hallway discussions, it became clear that faculty and administration had very different concerns and goals for using electronic portfolio software. The most significant issues presented by the faculty were the "accreditation portfolio" versus the "growth portfolio" and the need for both types within this College of Education and the considerable workload that the implementation and sustaining an electronic portfolio presents. A list of the findings from each group follows. A complete listing of the comparison of the three brands by the faculty, students, graduate assistants and researcher of the software used in the study is also presented.

Faculty issues:
- Faculty were aware of rubric design but had difficulty building rubrics for measuring standards. In part this is because they are so involved in their courses in a singular fashion that they lose sight of the larger picture of standards assessment. Many faculty supported the use of rubrics for individual course products but not for the more "high stakes" assessment of programs. This was an interesting finding considering that many of the same faculty were involved in the development of NCATE SPA standards and many of these have connections to rubrics for determining if the standard has been met.
- Faculty are both excited and reluctant to work in this environment.
  - It involves a large amount of "up front effort" in building courses, determining artifacts, designing rubrics. Faculty are very reluctant to do this task without significant release time or payment. They are even more reluctant to come to a common agreement on these artifacts and assignments in the same course which may have many sections taught by a variety of faculty. Faculty viewed this as an infringement on their intellectual freedom in the classroom.
  - Grading online is more time consuming than paper grading and then to add the rubric concept made the task overwhelming to some. The location of this college also caused problems in that high-speed Internet access is not readily available four miles outside the campus border. This required that faculty come to their offices to grade the products when they were used to working at their home offices. Internet access is a major issue since the placement of these products in the electronic portfolio online assumes that the faculty can grade "anywhere and anytime". This was not possible for one of the participant faculty in that they lived 10 miles from the university and outside the delivery of high-speed Internet range. The use of dial-up for grading these products was too laborious to make this an effective grading strategy.
  - Faculty have very diverse assignments for the same course and the same standard and did not like to share this information with the administration. A lack of trust of the administration's perspective on the use of electronic portfolios and the materials in the portfolio was a problem that was not easily resolved.

- o Faculty use very sound educational practice and often change a course during the quarter to meet the diverse needs of the students. Depending on the brand of software and how the software aggregates the data, changing courses, artifacts and rubrics can lead to data loss and confusion with the students.
- o Faculty have to be careful not to take on student responsibilities because this is a new process. Faculty tend to want to "over help" students rather than allowing students to struggle with the process of developing a electronic portfolio – more so than when the student develops a paper-based portfolio.

Student issues:

- Some students just can't seem to remember their login or will still be unable to locate the login when asked to write it down and put it in a safe place in their wallet. Faculty began to keep a list of those students who just can't keep up with logins, which moved the responsibility of the student and their assignments to the faculty member. While the researcher did not comment during the research time period on this, during debriefing at the end of the research, the responsibilities of the student were discussed at length.
- Students did not understand the relationship of the rubric to final performance rating at first. They were very used to percentage based grades not terminology such as "does not meet", "meets" or "exceeds". This problem was solved and began to work to the advantage of the faculty member in less conferencing about grades. The participating faculty agreed that this was really a change in how they typically represented the grading of student work and they too had to learn a new language.

Administrative issues:

- Administrators must realize that faculty will not take on this added endeavor to their workload without some help in course and in rubric development. Faculty often have difficulty seeing the "big picture" in standards assessment and have trouble connecting their artifacts to the standards in the rubric format which is required in the software to aggregate the data. Administrators need to very aware that without support, this process can lead to greater distrust of administration especially if there are already trust issues within the college.
- Faculty will resist unless the leadership has a clearly articulated and well supported need for the use of electronic portfolios to be added to the faculty and student load.
- Faculty did not support the administration in the expectation that students would purchase the software with respect to the expense in the face of rising costs of higher education. However, after the research was completed and discussions on the final selection of a software product one faculty stated, "this provides a means for students to showcase their work in their major as well as the technology learned. I feel this was an outstanding learning exercise for all of us and I will support the continuation of the use of the portfolio software."
- Administrators need to be wary of software vendors. In this setting, the administrators were at times a hindrance to the research. The software vendors took every opportunity to meet with administrators and give the best impression of their software during the research process. At times, the administrators would say to faculty they felt "this brand is best" without even participating in the research. Faculty became angry that the administration was making a decision without examining the literature and research going on in their own college and this further fueled distrust.

The chart below represents some of the major findings about each brand of software. As indicated, the software brands are very similar.

Area of Concern	Brand1	Brand2	Brand3
Student Interactions	Easy/Intuitive	Easy/Intuitive	Not so Easy/Less Intuitive
	Emails were answered promptly	Emails were answered promptly	Emails were answered promptly but there is more reliance on the faculty member to set everything up

			correctly at the beginning
	Complained that it added to workload	Complained that it added to workload	Complained that it added to workload
	Were very proud of their work	Were very proud of their work	Not so happy with presentation of the materials
	Students can receive comments from faculty on evaluation and view faculty evaluation	Students can receive comments from faculty on evaluation and view faculty evaluation	Students can receive comments from faculty on evaluation and view faculty evaluation
Faculty Interactions	Rubric - very easy to build but not to change	Rubric - very easy to build but somewhat easy to change	Rubric - is easy to build but less intuitive than the others
	Report Function – Easy once you understand the language but is dependent upon the DFR (which is difficult to change)	Report Function – Easy to understand once you understand the assessment language of the software	Report Function – very difficult and dependent upon original setup of portfolio categories
	Grading/Reviewing is easy to do but time consuming on the computer due to the opening of documents. Thought must be made as to final format of documents so that faculty have the software on home machines and office machines since much grading is done at home.	Grading/Reviewing is easy to do but time consuming on the computer due to the opening of documents. Thought must be made as to final format of documents so that faculty have the software on home machines and office machines since much grading is done at home.	Grading/Reviewing is easy to do but time consuming on the computer due to the opening of documents. Thought must be made as to final format of documents so that faculty have the software on home machines and office machines since much grading is done at home.
	No Exhibit Center for sharing of all portfolios by College when doing a college-wide assessment. This makes it more difficult to view individual portfolios since they must be shared for long periods of time.	Exhibit Center was an added plus to this software	Exhibit Center to be added by Fall 2004
	Has ability to send evaluation to student for progress reporting and to re-grade if needed	Has ability to send evaluation to student for progress reporting and to re-grade if needed	Has ability to send evaluation to student for progress reporting and to re-grade if needed
	Faculty felt overwhelmed with DFR and were not	Faculty felt overwhelmed with developing the materials due	Faculty felt overwhelmed with

	happy with the inability to change DFR without asking student to reload materials	to the large investment of up-front time	developing the materials due to the large investment of up-front time
General Usability	Webpage entrance to site is very busy and students need more direction in this software to move into building the portfolio	Webpage looks most like a typical web page. Students do have to have some direction if they are going to work in a particular site	Opens to the webpage where information is entered by the student. Very direct.
	Can export as CDROM and links stay in place	Can export as CDROM links stay in place but not as clearly identifiable as to the index of site	Exports but is not recommended
	Shares with others through an email link	Shares with others through an email link with a password	Shares with others through an email link and password
	Most flexibility with design of a portfolio site from the visual perspective – can link to outside html (website)	Limited flexible on design but this is supposed to change in Fall 2004 – can link to outside html (website)	Not flexible on site – can link to outside html (website)
	Exports to excel	Exports to excel	Exports to excel

Recommendations

Electronic portfolios have the potential to transform teaching and learning so that it is more learner-centered and outcome oriented (Barrett, 1999). This study found that the disconnect between the goals of the faculty in transforming education and the goals of the administration in assessment made the implementation of electronic portfolios a difficulty hurdle to overcome. Faculty had little concern with the innovation and believed the personal ramifications of the change to electronic portfolios would impact their own belief structures. Faculty's ability to collaborate on rubric design, artifact selection or any effort which would bring sections of the same course to some sort of common collection of data were limited.

Portfolios must be collections of work designed for a specific goal. Students in Colleges of Education have made paper portfolios for years and now have the skills and tools to move to the digital environment. Electronic portfolios may be one more step in the learning process in which students take control of their learning and make learning a lifelong habit. Selection and implementation of an electronic portfolio requires administrative leadership that understands the concerns and adoption process of faculty. Faculty must learn to collaborate with peers and allow students and opportunity to take ownership and responsibility for learning.

The following recommendations were made to the faculty and administration at the end of this research case study. Colleges should only implement portfolios if …

- They have established standards and clearly articulated goals as to the reason/need for portfolio implementation.
- They have a firm commitment of **TIME** and **TRAINING** to developing a list of artifacts for each program that will be part of the portfolio and assessment rubrics.
- They commit to the development of appropriate rubrics for matching standards to artifacts (faculty will need lots of help with this.).
- They provide a support team of graduate assistants for technology assistance to "hold hands" in the process of bringing faculty on board.
- They require an introductory – 1 hour course – for freshmen/sophomores entering the college of education to "jump start the process" until a sufficient number of students and faculty have been through the process to have developed efficient strategies for implementation.
- They provide an Assessment Coordinator that has authority to make implementation and assessment of standards decisions for meeting the accreditation standards.
- A growth portfolio be developed that connects to the assessment portfolio so that student process can be showcased and that students understand that "products are never perfect" and that learning

is lifelong in which students revisit products and improve upon them as their knowledge and skills change over time.

Since the recommendations were presented to the administration and faculty, there has been several interesting changes at this university. The administration has changed and the new assessment coordinator has been more proactive in working with faculty in developing stronger assessment strategies to meet not only NCATE but to showcase the work of our students and faculty around the state. This has lead to a more positive climate in which several more programs are now using the software that was selected from the research information. Faculty have begun to reconcile the issues of a growth portfolio and assessment portfolio. In a sense, the faculty have been developing their own growth portfolio as they participated in the research, the discussions, rubric professional development activities and alignment to the NCATE assessment issues. This case study and participatory research by the faculty was well worth the effort.

References:

Barrett, H.C. (1999). Using technology to support alternative assessment and electronic portfolios [Online document]. Anchorage: University of Alaska/Anchorage. Available: http://transition.alaska.edu/www/portfolios.htm.

Guba, E.G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N.K. Denzin and Y.S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Thousand Oaks, CA. Sage.

Loucks-Horsley, S. (1995, November). *What the professional developer/designer does.* Paper presented at the Education Development Center's Conference for Professional Development Teams for the 25 Statewide Systemic Initiatives, Baltimore, MD

Merriam, B.S. (1998). *Qualitative research and case study applications in education*. San Fransisco, CA: Jossey-Bass, Inc.