Comparison of Electronic Portfolio Development at Three Universities

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Abstract: This article focuses on case studies detailing the recent implementation of electronic portfolios in three different colleges of education. Common themes examined in each case include purposes of the e-portfolios, the importance of faculty buy-in, implementation issues, and the need for ongoing training and support. Two of the three colleges chose customized Web-based portfolio systems developed by third-party vendors, and the third chose to develop a blended system combining the use of generic tools and an in-house database. These cases describe the tensions and problems associated with using e-portfolios for multiple purposes, such as student reflection and institutional accreditation. Also described are the complications that arise in sustaining and standardizing the use of e-portfolios following initial implementation.

Portfolios are used in teacher education programs to provide evidence of pre-service teachers’ professional growth and development. As programs are better able to integrate technology into the teacher preparation curriculum, many educational institutions are implementing electronic versions of portfolios (e-portfolios) on a widespread basis. Uses and types of electronic portfolios continue to grow and evolve, building on the visionary work of Helen Barrett (Barrett, 1999). Many of these efforts have moved beyond the pilot phase, with some high stakes (institutional accreditation among them) riding on the outcome of the implementation. This article describes the process of implementing e-portfolios in colleges of education at three different universities across the United States. In each case, the college is a recent adopter of e-portfolios, within the first three years of implementation (at the time of this writing).

Gibson and Barrett (2003) defined two basic approaches that can be taken to meet portfolio-related goals. One approach involves a customized system (CS) that uses a Web-accessed database for the storage and retrieval of
student artifacts and faculty evaluation data. In CS systems, a company or an educational institution provides a framework or structure for students to display their artifacts and link the content to student learning, reflections, program goals, and evaluations. The CS vendor provides server space for storage and data retrieval, and automates the process, requiring minimal user skill in uploading and linking information. The second approach involves students using generic tools (GT) such as word processing, multimedia authoring tools, portable document format (PDF) and weblogs to compile artifacts. GT systems use whatever digital storage is available, such as CD’s, disk drives, and on-line space provided by the institution. Gibson and Barrett (2003) advanced a series of rubrics for determining advantages and trade-offs of each. Whichever approach is used, research that goes beyond the context of one class or one semester in implementing e-portfolio systems is limited. The examples available in the literature yield similar themes: a discussion of the multiple purposes of electronic portfolios, implementation issues within the college or department, and training issues (Gatlin & Jacob, 2002; Herner, Karayan, & McKean, 2003; Batson, 2002). These themes are reviewed here, and then revisited within the context of the experiences of each case.

**Purposes of Electronic Portfolios**

Electronic portfolios were a natural fit with the standards-based reform in teacher education. As standards were defined and refined, using an electronic means to show growth became more appealing. As technology improved and became ubiquitous, students found it easier to archive projects, assignments, and evidence of work in classroom, to reflect on these artifacts, and to repurpose them for specific audiences and specific purposes. E-portfolios used in this manner serve three purposes: as learning systems for professional development, for formative and summative assessment, and as employment portfolios (Hartnell-Young & Morriss, 1999).

With the advent of requirements from The National Council for Accreditation of Teacher Education (NCATE) and state accrediting boards for systematic assessment of teacher candidates, institutions were quick to see the advantages that e-portfolio systems held for tracking student attainment of standards, adding a fourth purpose: accountability for accreditation (Barrett & Knezek, 2003). If the data are managed appropriately, assessment evidence can potentially be extracted from these student archival databases. The challenge comes when the same e-portfolio system is used for both student-centered purposes as well for satisfying institutional needs such as program evaluation and accreditation. While electronic assessment systems are not the same as electronic portfolios, the terms have unfortunately become interchangeable, confounding the research in this area. Barrett (2005) advocates that teacher education programs develop an approach where the electronic tool chosen supports these dual purposes and does not unduly influence the processes of archival collection, reflection, and feedback.

**Implementation Issues**

Successful implementation of e-portfolios involves a shared vision among faculty, students, and administration. This shared vision includes faculty agreement on a conceptual framework, strong administrative support, and a continuous process of articulating the vision and framework to students (Herner, Karayan, & McKean, 2003). According to Barrett (2004; Barrett & Knezek, 2003), implementation issues are embedded in an articulation of one’s conceptual framework. In order to answer the question, “Why are we doing this?” agreement on underlying philosophies regarding how students learn and demonstrate their progress is critical. These philosophies must influence the development or selection of a system that supports student expression of learning while providing for program evaluation needs, rather than allowing the choice of the system to unduly influence student expression and program data collection. Implementation of a portfolio/assessment system without articulation of these purposes can result in faculty resentment (Barrett and Wilkerson, 2004).

Faculty implementation of electronic portfolio systems requires a re-visiting of standards alignment with teaching activities and assignments. This activity requires compromise with colleagues in course design, sequencing, and syllabus development, and agreement and coordination among the faculty regarding the teaching of the tool skills involved in electronic portfolio development —what courses, by whom, and at what point in the program (Gatlin & Jacob, 2002). Developing a system that meets both assessment requirements for accreditation and a student-centered approach for professional development requires communication and compromise within the college and the departments. These compromises may force faculty into a more positivist or prescribed approach to learning than they are comfortable in implementing, a tension that is to be expected (Barrett, 2004). Given that
most faculty members adopt innovations at individually varying rates, achieving faculty compliance takes time and development (Rogers, 1983).

Training Issues

Although faculty training is a major component when adopting an electronic portfolio system, most of the literature focuses on student training issues. Several researchers describe plans for initial faculty training and development (Herner, Karayan, & McKean, 2003; Wright, Stallworth, & Ray, 2002), but little has been written regarding the challenges of sustained effort on the part of the faculty once portfolios have been implemented.

What follows is a synthesis of the experiences of e-portfolio development in the teacher preparation programs at three universities. Two of the programs use a CS approach from commercial vendors (LiveText and TaskStream). The third program is a description of a hybrid approach, using a GT system for initial collection of artifacts and an “in-house” database for storage, along with the Personal Learning Plan (PLP), a CS e-portfolio provided by the National Institute for Community Innovations (NICI). A brief description is provided for each of the three campuses, followed by a summary of the methodology used and the findings.

Arizona State University at the West Campus

The first example comes from the College of Teacher Education and Leadership (CTEL) on the West campus of Arizona State University (ASU). The West campus enrolls approximately 7,500 students of the total of 58,000 across all of ASU’s campuses. The CTEL enrolls 1,300, including approximately 300 new pre-service teachers every semester in the areas of elementary education, secondary education, and special education. All pre-service teachers, regardless of major, start an e-portfolio in their required educational technology course, which is generally taken in their first semester of the program. This working portfolio is developed in TaskStream, (a CS approach from a commercial vendor) and is organized around the nine Arizona Professional Teaching Standards. Elementary education majors continue to construct the working, or Resource folio, throughout the four semesters of the program. Using these artifacts, they construct a professional portfolio during the student teaching capstone course. Majors from the other teacher preparation programs, special education and secondary education, also construct a professional portfolio during the student teaching semester, but the electronic format is not required.

Drake University

The second example is from Drake University in Des Moines, Iowa, a private Midwest institution of approximately 5,500 students. The Drake University School of Education (SOE) has an undergraduate and graduate population of approximately 325 students seeking initial certification, including approximately 80-100 new pre-service teachers every year in the areas of elementary education, secondary education, and early childhood.

As a result of an administrative initiative, an e-portfolio project using LiveText (a commercial product representing a CS approach) was piloted three years ago in two required courses, Curriculum and Pedagogy and Secondary Methods. For pre-service elementary and secondary education students, LiveText serves as a working formative portfolio organized around the 10 INTASC (Interstate New Teacher Assessment and Support Consortium) Standards. Through coordinated efforts of instructors who teach the methods courses, major assignments are designed to be artifacts in students’ working portfolios that represent INTASC standards. At the completion of the student teaching semester, elementary and secondary students submit summative portfolios containing artifacts and reflections representing all 10 INTASC standards. Students have the option at that point of creating a paper based or an e-portfolio using LiveText software.

University of Tennessee at Knoxville

The College of Education, Health, and Human Sciences at the University of Tennessee Knoxville graduates annually approximately 450 students from 27 different programs that are licensed by the state. During the academic
year 2005-2006, the college enrolled 1,419 undergraduate and 1,167 graduate students. The Knoxville campus is the flagship campus of the state university system, with an annual enrollment approaching 28,000.

Although paper-based portfolios had been used for many years, the move toward an electronic version was piloted in 2003 by Project ImpACT (a federal PT3 grant) and a number of technology users from various programs. Using the GT approach, a standards-based portfolio was developed in-house using PowerPoint as the platform. This system, the Virtual Anthology System (VAS), allowed students to store and reflect on assignments, relate them to standards, and to develop customized portfolios to showcase their best work to faculty as well as potential employers. Server space was allotted with secure, leveled access for students and faculty. The portfolio could be stored on the server and then copied to a flash drive or burned to a CD to share with program advisors or potential employers. The piloted VAS did an adequate job meeting student and faculty needs. However, it soon became clear that the GT system had limitations when it came to institutional documentation of accreditation requirements. In the end, the committee decided to create a blended system using the Personal Learning Plan (PLP, a CS learning approach offered by the National Institute for Community Innovations, a non-profit organization) to meet student portfolio needs and to build an overarching database “in house” to meet program and unit assessment needs. During the fall of 2004, the department began orienting students and training faculty in the use of the PLP, allowing the collection of data to begin while an overarching database was developed that could aggregate and disaggregate program and department-level assessment data.

Methodology

Individuals who were involved with the implementation at each university produced a narrative case description of their use of e-portfolios. These respondents were key faculty or staff who served on the selection committees and who were and are currently involved in student and faculty training in the implementation process. They were directed to write the narrative from the three literature themes of purpose, implementation, and training, with one additional theme, lessons learned. Each respondent gave input to the summary, verifying the accuracy and providing further examples, if needed. Common issues related to purpose, implementation, training, and lessons learned are reported below.

Purposes of the Portfolios

In each of three university programs, e-portfolios serve dual purposes: student value and institutional accountability. Students begin the development of a working e-portfolio by archiving assignments, instructor feedback, and reflections during early methods courses. They add to it regularly during subsequent courses, eventually re-purposing their artifacts into professional and presentation portfolios. Most CS systems offer tools that students find useful, such as customizable lesson plan builders, rubric builders, and databases with K-12 subject area standards and teaching standards (Wilhelm, 2005). This “student value” purpose was verified through student surveys conducted during implementation phases; these surveys indicated widespread satisfaction with the e-portfolio system in terms of benefit for cost and effort. The second purpose of e-portfolios was to have a convenient method of archiving and retrieving evidence of student achievement of standards, thus documenting institutional accountability. This second purpose was a major impetus for selecting and for purchasing an e-portfolio system.

Implementation Issues, Training, and Lessons Learned

Choosing a particular eportfolio system is an important decision. Each eportfolio system has distinct methods for collecting, coding, archiving, and retrieving data. Changing midstream, once a particular system is in place, is not a desirable option. Therefore, it is important that the system be an appropriate fit with factors unique to the particular university situation. Cost factors for students, pricing structures, flexibility of template design, and technical support influenced the choice of a particular CS vendor or the hybrid GT/CS in these three cases. For example, at the University of Tennessee, the College of Education, Health, and Human Services had already established e-portfolio practices in several education programs using GT systems, local server space, and in-house technical support. Furthermore, students paid a substantial technology fee each semester, a portion of which was allocated to the college. The choice of vendor (the PLP offered by NICI) was influenced by its flexibility, the
availability of their own in-house support and data collection system, and a pricing structure that could be covered by an existing technology fee. LiveText had a similar pricing structure, but had program features and technical support that made it an appropriate choice for Drake’s School of Education. The College of Teacher Education and Leadership at ASU found TaskStream’s individual student pricing structure, technical support system, and program features compatible with its goals and resources. Each of these teacher education programs experienced a similar process for making these decisions. A committee composed of technology and methods faculty researched e portfolio options, and invited vendors to present features, services, and pricing structure system. At each of the universities, strong administrative support and backing accompanied the decision to implement e-portfolios.

Maintaining the e-portfolio program requires continuing efforts in terms of training, communication, and leadership. As with most projects of any scope, the implementation process has encountered some bumps and barriers. Using CS software presents additional communication problems for students who seek technical support. For example, with companies such as LiveText and Task Stream, the contract is actually between the students and the company, so the university is not privy to student passwords. This can be distressing to students who are used to a university-based “help desk” system that can reset forgotten passwords with a phone call. However, this arrangement is ultimately in the students’ best interest because the company servers do not have the same firewall restrictions that university servers do and are available “24/7” from any location. In addition, support services often include video and CD-mastered instructions.

Faculty training is a key aspect to successful implementation of an eportfolio system. When a system is new, the planning for training on how the system works is relatively easy – most faculty members need the basics. However, after a year or so, it is more difficult to provide coherent training sessions, as faculty are at very different skill levels. Beginner-level training sessions are offered each year for new and interested faculty. But follow up and support requires individualized training or training in small groups by program in order to address specific needs. Someone on the faculty or in the department must take on this very resource-intensive role.

Successful implementation requires ongoing communication and coordination between and among the faculty. The respondents for these cases stated that faculty had to address the broader issues of determining which artifacts or assignments documented the standards, and developing common rubrics or assessment structures. Faculty had to decide on common goals across courses sections in a valid and reliable manner that did not infringe on academic freedom. Once program consensus was reached, however, it was seldom static. Each university reported re-visiting their resulting program matrices as changes occurred in certain courses or as faculty proposed new assignments.

Additional adjustments were needed at ASU when it became clear that one portfolio style could not satisfy all of the student and program needs. The original vision in the elementary education department centered on one portfolio that would address goals of students, instructors, administrators, and the institution. However, as the TaskStream e-portfolio was implemented, the need for multiple portfolio formats was recognized. The solution was to require the use of three different TaskStream e-portfolio formats throughout the four semesters of the education program. A Resource folio helps students organize and archive their work. A Presentation portfolio allows students to demonstrate the competencies they have met, and can serve as a showcase portfolio for job search purposes. A Directed Response Folio (DRF) is used to give evaluative feedback to students and to gather data for program evaluation purposes. Unlike the Resource or Presentation portfolios, reports can be generated directly from the DRF. While the same student artifacts may be used in all three portfolios, setting up the different structures and scoring rubrics required additional departmental coordination and training.

Successful implementation also involved communication with other stakeholder groups. Student surveys from each of these university programs indicated a perceived value in using e-portfolios for job seeking purposes, an idea consistently mentioned in the literature. However, a related study from ASU reported that among Phoenix metropolitan area principals and human resource directors, the use of an electronic showcase portfolio for a pre-employment interview is somewhat ahead of the curve (Painter & Wetzel, 2005). While some of these administrators see benefits to the process of creating online portfolios, anecdotal reports indicate that those who make the hiring decisions prefer concise, paper-based documents. Students may be well advised that e-portfolio formats can aid in organizing materials for an interview, but that this format does not yet offer sufficient advantage over paper formats. The speculation from the students and faculty that K-12 administrators either do not understand the technology or will not take the time to view the files warrants further investigation.

One salient feature of the cases presented here is that initial implementation was supported by a particular department or group of classes, often with the needs and desires of the other departments not fully taken into account. As a result, buy-in from the entire faculty or every department has been gradual or uneven. In each of these cases, even after three years of use, e-portfolios have not been fully implemented by any of the departments.
Conclusions and Recommendations

Initial implementation of a particular e-portfolios system merely begins the process. Each university reported implementation in a particular licensure area (e.g., elementary education) but that neither the entire faculty nor all departments within the college required an electronic format for their majors. All reported the need to develop systems for training new faculty, for on-going or intermediate support for returning faculty, and for changing data/artifact collection procedures based on program revision.

None of the programs offered descriptions or advice on aggregating or synthesizing the information that they are collecting in these massive databases. As each of these cases represents relatively new implementers of e-portfolios, information from programs that have matured in the process could inform procedures for faculty buy-in and data management.

From the experiences of these e-portfolio adopters, we offer the following recommendations:

• Choose a vendor that is an appropriate fit with the university infrastructure, faculty goals and the college pricing structure. Most vendors do an adequate job of archiving data.
• Be aware that one person (faculty, staff, or other) may need to be assigned a “go to” role for faculty training and ongoing development.
• As e-portfolios are implemented, carve out some time for faculty to re-visit program matrices and refine the data collection process.
• Do not expect the e-portfolio process to be embraced by all departments initially. Allow uneven initial implementation. Begin with departments that hold an interest in the process, gradually inviting others to join.
• Finally, beyond program accreditation, realize that implementing e-portfolios helps to develop a “culture of evidence” (Barrett & Wilkerson, 2004) for ongoing program improvement.

References


