

ePortfolios: Constructing Meaning Across Time, Space and Curriculum

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## ePortfolios: Constructing Meaning Across Time, Space and Curriculum

### Abstract

This chapter explores research on ePortfolios from the perspective of defining, evaluating, and demonstrating value to enduring learning. It makes a case for the public/private container and the value to the learner of digital artifact creation, self-reflection and presentation. It explores the use and challenges of ePortfolios in instruction and makes a case for the ePortfolio as an effective tool for knowledge creation. Finally, the authors examine the question of assessment in implementation of an enterprise ePortfolio: the value of learner assessment, peer and public assessment, and the need for institutional assessment of the ePortfolio.

## INTRODUCTION: A SCENARIO

Reggie rushes onto campus thirty-five minutes before class and heads for the University Commons, seeking a double mocha and a quiet seat in the shade. She's worked much of the night on the first draft of her Communications 200 ePortfolio section, and despite the initial proposal review and go-ahead by Professor Harrison, she has some doubts regarding how her performance team members will critique it. Sure, it meets the learning goals she had proposed, but does her project really work for an external audience? Do the pages have good navigation? Are the timings on the Flash module she (crazily) decided to use paced right? What about the pictures she loaded into the "Nonverbal Behavior" analysis? Should she have checked them on multiple browsers?

It may be last minute jitters, too little sleep, or simple insecurity but Reggie decides to make one more pass on her project reflection narrative. She'd also better make sure that the permissions are set for her team to review. Reggie wouldn't want her mother wandering into her public "Giving Speeches" module and asking a lot of questions about her learning process material. Mom already asks too many who what when where and why questions.

Reggie pops open her laptop, gulps hot mocha, and signs into the campus wireless network. First she brings up her public page as an anonymous Web viewer, and navigates to the COMM200 site. Looks good in Firefox. She then logs in, checks the COMM200 folder permissions, verifies her team member rights, and opens her reflection narrative.

She tries to ignore the semester of work, thought and knowledge creation she's put into understanding effective speaking and imagines it from the perspective of her team of fellow learners. She reads over her explanation of why she made some of the choices she did. Would her team members have made similar? Josh, whose final project was to create a resource site of

jokes and stories for speeches, will probably be the worst critic of her Flash piece. It wouldn't be the first time he jumped on style, ignoring the content. She decides to add a reminder that this was her first foray into Flash, and the simple design she chose was to help the viewer better understand the ten ways to ensure audience understanding of meaning – not to wow Josh with fancy, 'flashy' moving objects.

Checking her watch, Reggie sighs, saves, enters the course area and checks Professor Harrison's latest announcements, glances at the number of unread messages for all her courses, and with thirteen minutes to deadline, posts her personal MyPort address in the COMM 200 assignments area, and sets her laptop to sleep. Would that she could do the same (sleep), but she has two more face-to-face classes, dinner with Jeremy (wouldn't Mom love to know) and three site reviews of her COMM team members to begin. Maybe another mocha wouldn't hurt? No time. Off to class.

## THE EPORTFOLIO

### *What is it?*

A quietly growing response to a variety of demands being made of higher education is the use of the ePortfolio to assess student learning, document learner progress and provide the graduate with a functional tool for selecting and presenting their achievements and records. Across the academy, pockets of innovation are occurring that ask the learner to create a "personal digital record containing information such as personal profile and collection of achievements" (Wikipedia, n.d), as well as information, artifacts, links, tools, and records that can selectively be provided to the owner of the ePortfolio and to the faculty, peers, friends, prospective employers or public to whom the owner has chosen to grant permission.

A portfolio can be as simple as a collection of a student's best work or as complex as an alternative assessment procedure. It can be a learning strategy or an elaborate assessment. Graves (1994) says a portfolio "is a place where a student's selected work is kept, ... [any] container designed or created by the student to hold his or her artifacts" (p. 171). What goes into the portfolio depends on the purposes of student and teacher (Graves, 1994). Barrett (1998) explains that a portfolio is "a purposeful collection of student's work that illustrates efforts, progress and achievement" (p.7). It is a means of communicating growth made by a student, and is much more than a form of assessment (Barrett, 1998; Dudley, 2001). It is also more than a collection of artifacts haphazardly connected together in a multimedia program or document. The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of student self-reflection. Moritz and Christie (2005) draw on other researchers to define ePortfolios as:

- tools to motivate, encourage, and instruct students in the classroom: students become reflective learners as portfolio use is expected to foster self-analysis, goal setting, and a sense of self-motivation by the learner (Barrett, 2000; Galley, 2000; Graves, 1992).
- mechanisms to monitor and improve teacher's instruction in the classroom (Benson & Smith, 1998; Galley, 2000; Graves, 1992).

The effective ePortfolio is a purposeful collection of student work that exhibits a learner's efforts, progress, and achievements in one or more areas. Students participating in a study reported by Danielson & Abrutyn (1997) engaged in a five-stage process of portfolio creation to achieve this purpose. Each stage is outlined below:

- The conception stage of the process involved planning the portfolio. At this point decisions were made to determine the central focus and general direction of the learning path the teacher would take. Growth goals were developed around available standards.
- The collection stage of the process involved the collection of all potential artifacts relating to their growth goal. This component took the greatest amount of time, as the collection of artifacts required the entire length of the course to gather, and potentially involved collecting all coursework for consideration for inclusion in the digital portfolio.
- The selection stage involved the selection of representative artifacts for inclusion in the digital portfolio. Work in this stage required waiting for the “collection” to become large enough to support a winnowing process for selecting high quality artifacts.
- The reflection stage involved reflecting on one’s progress toward a growth goal and how each of the “selected” artifacts affected student learning. These reflections were to be included in the digital portfolio along with the artifact.
- The connection stage involved connecting the “selected” artifacts and reflections using PowerPoint™ as the medium for displaying digital teaching portfolios. This stage also involved connecting the artifacts back to the growth goal.

### *Who’s doing it?*

Across the academy, pockets of innovation are occurring that ask the learner to document their learning experience and understanding that pull together their education, and make available artifacts of their achievement, skills, interests, and understandings. The success of this movement will depend on the usability of the software, implementation in the curriculum, and widespread understanding and acceptance of the medium (Jafari, n.d).

Certainly the concept of “portfolio” is easy to grasp for educational use. It has long been used in the arts and architecture to track the body of student work. It has not been used extensively in other disciplines, often due to the lack of self-direction or reflection in traditional education models. Learners had no interest or incentive to save their test scores or assigned papers.

A culture of personally-owned Web pages, course management system discussions, and personal knowledge digitally captured has created a new understanding on the part of instructors and learners of the value of digital artifacts of the learner experience and the value of using an ePortfolio system to track and contain artifacts of student learning. (Jafari, n.d).

Although shifting, the strongest movement in ePortfolio implementation within higher education has been within the colleges of teacher education, where emphasis is being placed on the need for students to express their understanding at a higher level within Bloom’s taxonomy (Bloom, 1956), and to create outcomes that demonstrate the creation, integration and critique (Bloom’s synthesis and evaluation) of what they have learned.

One tool that offers opportunities for connection, collaboration, reflection and evaluation is the digital teaching portfolio. For many years, educators have successfully used teaching portfolios as a professional development tool to examine their professional practice and reflect on their growth over time (Doolittle 1994). With new technologies available, portfolios can utilize digital formats that allow for greater portability and sharing (Gibson & Barrett 2002). The portfolio development process provides an avenue for teachers to reflect on their practice and to align it to theory, research and best practices while being supported by their colleagues (Doolittle 1994; Heath 2002; Holbein & Jackson 1999). Through the creation of and reflection on portfolios for professional development, teachers grow in their skill and practice (Barrett 2000; Gatlin & Jacob 2002; Heath 2002; Holbein & Jackson 1999). These authors also indicate that

teachers involved in creating reflective digital portfolios develop technology-related skills that have a transfer to the classroom (Gatlin & Jacob 2002; Heath 2002; Holbein & Jackson 1999). Through the collaborative and reflective experiences in the digital portfolio process, teachers become facilitators, helping students discover what they must know and be able to do to meet state and national standards (King 2002).

Baker and Christie (2005) found that teachers completing ePortfolios during a graduate class on using technology to enhance learning reported that creating digital teaching portfolios helps them become better teachers. There was evidence that the digital portfolio process engaged teachers in the process of reflection when they reported that:

- [The digital portfolio process] uncovers strengths and weaknesses for growth and development.
- Completing electronic portfolios helps a teacher reflect on learning.
- [Teachers] can model lifelong learning for their students and other teachers.
- [The digital portfolio process] allows for a wide range of learning styles to be addressed and shared.

### *Why is it significant?*

As higher education begins to prepare its students for the information age and knowledge economy, it wrestles with new ways of teaching and learning, with the definition of an educated person, and with the changes it must make to serve a society that wants universal access to a college education. Students, their parents, and employers are now demanding a different kind of education than colleges and universities have offered in the past. Accountability, assessment and

educated workers are now the outcomes asked of higher education. (American Association of Colleges & Universities, 2002).

The explosion of information available has also created a change in the definition of knowledge. It is no longer what the educated person knows that makes him or her smart; it is the just-in-time ability to find out what one needs to know when it is needed that redefines knowledge (Siemens, 2005).

Research in cognitive science, psychology and educational theory also currently provides us with a better understanding of enduring, meaningful learning (Bransford, Brown & Cocking, 2000). Passive learning can no longer provide the critical skills needed in the educated workforce of the information economy. Deep, meaningful learning takes place when a number of conditions, delivered through any mode and in place in any combination, are present. A summary of the research suggests that these conditions include 1. social, 2. contextual, 3. active experiences that 4. demand ownership by the learner and 5. encourages engagement and curiosity (Carmean & Haefner, 2002). Regardless of age, the next generation of higher education learners have to seek out knowledge in new, independent and instantaneous ways (Oblinger, 2003). The nature of learning becomes more self-directed and independent in the wake of the information explosion. Instructors lose control of information when “to google” becomes a verb (Word Spy, n.d) and learners begin choosing their own content and sources for learning and verifying knowledge.

The goal of faculty is to get students to collect, select the key pieces, reflect on their growth over time, project their future goals, and respect their work through sharing with a wider audience (Barrett, 2005). To give the portfolio purpose and structure. it should be organized

around standards or benchmarks and reflect the learner's growth toward those standards. It should include the learner's focused goals for future growth based on his or her evaluation of past performances and current strengths as detailed by the included artifacts. These goals and evaluation of growth toward these goals make up the most important aspect of the portfolio: reflection. The reflections become the identifying character or unique expression of the individual creating the portfolio (Heath, 2002). Through these reflections, the audience (self, professor, mentor, student, administrator, professional developer, and/or licensure board) is able to form a deeper understanding of the creator's growth as he or she analyzes, evaluates and synthesizes his or her own work (Kilbane & Milman, 2003). As Barrett (2005) reminds us, "reflection is not a mirror, it's a lens."

### CHALLENGES

Faculty members face both intellectual and practical challenges as they adjust their roles to this more collaborative assessment strategy. Intellectual challenges for faculty include the need to re-examine the nature and purpose of learning and assessment, understand that both are re-defined continually as society's demands for educated citizens change, and acknowledge that multiple assessment strategies are preferable for students, faculty, and society. Practical challenges include restructuring the learning process, learning how to move from knowledge dispenser to facilitator of personally relevant learning, viewing assessment as an integral part of learning, and learning to collaborate with students in the assessment process. In addition, they need to use many information sources and media types rather than a single printed text, honor multiple ways of knowing/learning, and evaluate learning authentically/critically.

Students face their own set of challenges. Rather than relying on faculty members to prescribe the learning and assess student progress using traditional assessment methods, they

must take more responsibility for their learning, including learning from numerous people and using a wide array of learning tools; and they must be more reflective about their own learning and learning paths, and collaborate fully in the assessment process.

## ASSESSMENT

### *The Value of Reflection*

There are two important components that need be a part of a classroom's environment for portfolios to be effective assessment tools: involving learners in the assessment and review of their work (Graves, 1992), and teacher's authentic planning based on assessments of learners' performance (Galley, 2000). Involving learners in assessment is important because the goal of evaluation is to have students be self-evaluative. Self-awareness of the learning process is developed through modeling, discussion and instruction on reflection and evaluation of students' work and process (Adodeeb & Courtney, 1999; Goodman, 1989). By looking through students' portfolios and the teacher's assessment folders, the teacher directs the instruction to the needs of each learner (Adodeeb & Courtney, 1999; Benson & Smith, 1998).

Student growth through the creation and use of portfolios relies on students' involvement in the assessment process and authentic planning by the teacher. Growth can be expected through instruction and the practice of reflection. Student choice and shared control on what is included in the portfolio are important as well. Reflection and self-analysis processes that students go through heighten their ability to think critically, be self-reflective, and set goals for themselves (Moritz & Christie, 2005). Assessment and evaluation differ. Assessment is the collection of relevant information that is used to make decisions. Evaluation is the application of a decision-making system to assess data and make judgments about the adequacy of learning. Portfolio assessment:

- Transfers responsibility for learning to the student, who then establishes individual learning goals;
- Encourages a learner-centered environment that connects learning and assessment;
- Uses samples of student work and reflections collected over an entire semester/year/college career;
- Provides guidelines for selection of representative materials (not all work completed in a course);
- Requires student-reflection, peer feedback, and instructor feedback and guidance;
- References standards, benchmarks, or exemplars of excellence; and
- Provides clear and appropriate criteria that allow students and teachers to evaluate student learning.

Portfolio assessment benefits both students and teachers. Students involved in portfolio assessment are actively involved in self-directed learning, are continually assessing their own learning, and are valuing themselves as learners, thereby enhancing their success as learners. Teachers, by reflecting on their own practice, are more likely to become better teachers; in addition, teachers gain a better understanding of assessment, evaluation, and the learning – assessment connection. Communication between students and teachers improves, and the classroom environment becomes more learner-centered and less teacher-directed. Further research in best practices and effective assessment is needed in this relatively new implementation that combines software, services, selective access to materials, and a framework of tools that are still to be determined.

### *A Lifelong Tool for Evaluation*

As ePortfolio adoption continues to grow in higher education, lifelong ePortfolios are gaining attention in a variety of settings. One leading example is the innovative state of Indiana initiative, Indiana@Work, that offers lifelong personal ePortfolio accounts and services to individual “Hoosiers” (Indiana@Work, n.d). The need for educated citizens and workers to update and synthesize their knowledge, skills, interests and understandings will continue to be an issue for a society coping with the demands of the information age.

Many are beginning to see value in the ePortfolio’s ability to create and deliver information, For the owner and the viewer, it presents an intuitive and easy-to-access umbrella of services. The conceptual framework, levels of permission and integrated tools provide a narrower, but more functional interface than previous uses of online Web pages, databanks or resumes to “make career decisions, demonstrate that one has met program or certification requirements, present skills and accomplishments for employment, and review professional development for career advancement.” (Jafari, A & Greenberg, G. et al, n.d.)

### *Institutional Assessment*

Assessment does not end with an evaluation of the student’s learning. Hard questions will need to be asked of the institution before implementing an ePortfolio system. Similar to the rush to solution seen in the adoption of Course/Learning Management Systems (Carmean & Brown, 2005), the institution can ill afford the resources of time, money and disruption that can be brought about by not being able to make explicit value of a new enterprise service to students, faculty, administrators, or instructional and technology support services. Difficult assessment questions to be asked might include:

1. What are the teaching and learning implications associated with ePortfolios in higher education?
  - What are the pedagogical benefits and how to assess?
  - What content standards should be used for ePortfolios?
  
2. What are the implications associated with ePortfolios in higher education?
  - What policy implications must be considered and resolved?
  - Do institutions of higher education need new intellectual property policies for retained student work?
  - How does the institution build faculty and student buy-in?
  
3. What are the technical issues associated with ePortfolios in higher education?
  - Who should be responsible for choosing and maintaining the institutional system?
  - What are the support issues and implications for IT regarding enterprise software not previously on their radar?
  - What are the ongoing training and usage issues for faculty and students?
  - What are the costs and choices in short- and long-term maintenance?

As valuable as the evidence may be for the use of ePortfolios in authentic teaching, learning and assessment, the adoption of a new pedagogical tool in a meaningful way is a transformational change. Institutional commitment must be in place, understanding of the value must be clear, and the faculty rewards for undertaking difficult change must be rewarded.

## CONCLUSION

The ePortfolio is a promising framework for enduring learning, self-assessment and construction of value across a student's educational path. Learners learn by doing, and by constructing knowledge, meaning, ownership and value from the act of learning. Initial evidence demonstrates that ePortfolios provide an effective environment for storing artifacts, creating reflections, demonstrating knowledge and reflecting on self and other's learning.

Although evidence for the value of the ePortfolio is strong, careful consideration of the implications must be considered and uniquely dealt with by each institution looking to adopt an ePortfolio system in a systematic way. Assessment of learning, faculty adoption and institutional resources needed to implement are necessary for meaningful and lasting implementation of the ePortfolio across the institution.

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## Key Terms Defined (listed alphabetically)

Benchmark	A clear, specific description of knowledge or skills that students should acquire by a particular point in their schooling. Benchmarks are often defined locally, while standards are defined statewide or by professional organizations. Benchmarks are often more specific than content standards. Other terms for benchmark include indicator or learning expectation. See Standards.
Content Standards	Summary descriptions of what students should know and/or be able to do within a particular discipline or educational level. Content standards primarily serve to organize an academic subject through a manageable number of generally stated goals for student learning. See Benchmarks.
Digital artifact	Materials having significance or meaning to learners that have been digitized for inclusion in an ePortfolio. As learners collect artifacts, they reflect on their learning experiences and record these reflections to show how each artifact meets specific professional standards, goals or benchmarks.
Digital teaching portfolio	A goal-driven, professional-development tool used by in-service teachers to examine their professional practice and reflect on their growth over time. This portfolio development process provides an avenue for teachers to reflect on their practice and to align it to theory, research or best practices.
Educated person	A term that has changed extensively in the last decade. The 21st century definition no longer address what a person knows; rather, it focuses on the ability to find out what one needs to know in a timely way. By implication, a 21st century educated person is an independent lifelong learner, an informed decision-maker, a reflective learner, a resource-based learner, a problem solver, and often a collaborator.
Institutional Assessment	A broad category of measurement strategies done at universities to inform campus decision-making and planning in areas such as admissions, financial aid, curriculum, enrollment, staffing, student life, finance, facilities, athletics, and alumni relations. In this chapter, institutional assessment refers to examining how and why ePortfolios can be used to improve teaching and learning in higher education.

Knowledge creation	A term historically centered on the acquisition, accumulation, and utilization of existing knowledge, but used in this chapter to mean the dynamic knowledge generated by learners as well as the social processes within which this knowledge is created. Unlike most resources that are depleted when used, information and knowledge can be shared, and actually grow through application and collaboration.
Learner Assessment	A strategy for measuring and documenting student learning. In this chapter, learner assessment is a collaborative process involving student and instructor/mentor that examines student learning by selecting artifacts from a student's work over time to demonstrate that learning has occurred. Sometimes called alternative assessment or portfolio assessment, it is in direct contrast to what is commonly known as performance evaluation, traditional assessment, or summative assessment.
Learner-centered environment	An environment that accommodates a variety of learning styles, features knowledge creation, collaboration and discussion among and by learners, focuses on student needs, and places the responsibility for learning on the student – with the instructor assuming responsibility for facilitating students’ learning. Such pedagogy often leads to collaborative partnerships between university faculty and students.
Reflection/Self-reflection	Thoughtful consideration by the learner on one’s progress toward goals. Reflection is a process by which learners explore their work, assess their strengths and weaknesses, describe their learning processes, and consider implications for future learning. In addition, reflection, or discussion of how selected artifacts affect and indicate student learning, is what distinguishes an ePortfolio from a scrapbook or mere collection of artifacts. See Reflective Learners.
Reflective learners	A term often referred to as learning to learn. Reflective learners explore learning experiences to better understand how they learn, improve their further learning, develop critical thinking skills, increase their autonomy as learners, and observe and reflect on their learning over time. Based on Dewey's 1933 conceptualization of reflective learning as active, persistent, and careful consideration of beliefs and knowledge. See Reflection.

Self-directed learning	Best described by the old adage "Give me a fish and I will eat for a day. Teach me to fish and I eat for a lifetime." The reflection required in ePortfolio creation is facilitated when learners are self-directed and take responsibility in the learning-assessment process. See Reflection.
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