

# Demonstrating and Assessing Student Learning with E-Portfolios

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#### Abstract

E-portfolios allow students to demonstrate competencies and reflect upon experiences, documenting academic preparation and career readiness. Creating e-portfolios enables students to enhance their learning by giving them a better understanding of their skills, as well as where and how they need to improve to meet academic and career goals. Additionally, the digital artifacts that students accumulate can be used to assess learning at the course, program, department, and institutional level. This report reviews how selected higher education institutions have implemented assessment e-portfolio systems that demonstrate and assess learning.

# Introduction

An assessment e-portfolio is a "purposeful collection of student work designed to showcase a student's progress toward, and achievement of, course-specific [or other] learning objectives."<sup>1</sup> Assessment e-portfolios house a variety of digital artifacts that represent a student's learning. These artifacts can include students' self-reflection on their learning processes and experiences as well as instructors', mentors', and peers' comments on what students have submitted.

Instructors who use assessment e-portfolios often create matrices with grading rubrics that measure the degree to which students have met specific learning outcomes or competencies. These e-portfolios, along with grades, can be aggregated to evaluate the overall effectiveness of a curriculum.

Many implementations of assessment e-portfolios are available. Following are brief assessment e-portfolio case studies from Rose-Hulman Institute of Technology, Alverno College, St. Olaf College, California Lutheran University, Portland State University, Johns Hopkins University, the Connecticut Distance Learning Consortium, and Indiana University–Purdue University Indianapolis.

#### **Rose-Hulman Institute of Technology**

Rose-Hulman Institute of Technology (RHIT) is one of the earliest adopters of an assessment e-portfolio system, having launched its RoseE Portfolio in 1996. RHIT is a private, nonsectarian institution focused on engineering, science, and mathematics. It has approximately 1,900 students and is located in Terre Haute, Indiana.

#### Purpose

The RoseE Portfolio system was created to assess student learning outcomes and evaluate how courses, programs, and departments are meeting institutional goals. The system was designed not as a student showcase but rather as a mechanism to improve the way faculty teach and students learn at RHIT.

#### How It Works

All incoming freshmen are introduced to the RoseE Portfolio system in a college and life skills course. The system was built around a defined set of institutionally agreed upon student outcomes and performance criteria. There are two categories of student outcomes:

- learning objectives that are related to general education requirements, and
- technical learning objectives that deal with mathematical, scientific, and engineering practices.

Students log in to the system and submit evidence of their coursework accomplishments. These student submissions are related to specific performance criteria. For example, a writing course might have performance criteria stating that the student must provide content that is factually correct, supported with evidence, explained with sufficient detail, and properly documented.

Each performance criterion has a rubric. All performance criteria have rubrics that define the degree to which work is acceptable. Prior to submitting their evidence to the system, students are told to review the rubric before clicking on the submit button. For example, a document without proper attributions and citations would be unacceptable; a document that provides proper references to sources/authorities would be acceptable.



The student submissions are rated by faculty. Two faculty members form a rating team; they cannot come from the same discipline. For example, a history professor and a chemical engineering professor might rate a communication-related learning outcome. These are blind ratings in which the raters do not know whose work they are evaluating.

#### **Current Status and Future Plans**

The system has not been adopted by all faculty at RHIT. The vice president of institutional research, planning, and assessment at RHIT categorized faculty adoption as a "slow process."

Although the RoseE Portfolio system has accumulated a good deal of data, the analysis of this data has not been fully developed at the program or institutional level. It is anticipated, however, that RHIT will use much of the data that has been and will be collected in its Accrediting Board for Engineering and Technology (ABET) reaccredidation process scheduled for fall 2007.

In the meantime, the RoseE Portfolio system has encouraged faculty and staff to "look at student learning more developmentally." Some faculty, for instance, have redesigned their course syllabito include specific modules based on institutionally approved performance criteria.<sup>2</sup>

#### **Alverno College**

Another early adopter of an assessment e-portfolio system was Alverno College, an independent, liberal arts Catholic college for women located in Milwaukee, Wisconsin, with approximately 2,200 students. Its Diagnostic Digital Portfolio (DDP) (<u>http://ddp.alverno.edu/</u>) was officially implemented in October 1999.

#### Purpose

The DDP was created to help students analyze patterns in their learning based on Alverno College's unique ability-based education system. Like RHIT, it was not created for students' career-advancement; DDP is primarily used to enhance student learning. It is also used to analyze program effectiveness.

#### How It Works

All Alverno students are given a DDP account. A big part of each student's DDP focuses on eight general education abilities, which Alverno College has identified as central to its liberal arts education:

- communication,
- analysis,
- problem solving,
- value in decision making,
- social interaction,
- developing a global perspective,
- effective citizenship, and
- aesthetic engagement.

These eight abilities, along with four levels of key performances, form a matrix in the DDP. Students submit demonstrations of their coursework and self-assessments to the key performance-based matrix. For example, communication is described as being able to connect "with everything involved in communication: people, ideas, texts, media, and technology," and the four levels are:

- Level 1: Identify own strengths and weaknesses as a communicator.
- Level 2: Demonstrate the interactive nature of communication in a variety of situations that involve combinations of speaking, writing, listening, reading, quantitative literacy, and computer literacy.
- **Level 3:** Effectively and purposefully create meaning using a variety of communication modes (speaking, writing, listening, reading, quantitative literacy, media literacy, and computer literacy).
- Level 4: Communicate creatively in ways that demonstrate integration using disciplinary frameworks.

As students do their coursework, they self-assess each assignment/assessment, using public criteria that are also used by the instructor to give feedback. Students reflect on a wide variety of key performances throughout their coursework. Combined with the feedback they obtain from faculty, patterns of learning are revealed.<sup>3</sup>

These submissions and patterns become a history of a student's work. A "mid-program portfolio selfassessment" is conducted after three or four semesters when the student moves into advanced work in a major. At this stage, a student will identify her strengths and weaknesses and write a letter to her major advisor or department head, introducing herself accordingly. She also creates a learning plan in which she addresses a minimum of three specific goals and her strategies for achieving them over the next year.

As students move into advanced work in their majors, academic departments provide more disciplinespecific key performances which they use for reflection and ability demonstration. For example, the education department has created a preservice teachers matrix which requires students to submit a variety of artifacts from three practicum-based performances, including videos of their live student teaching experiences.

At Alverno College a student's progress toward graduation is measured first by her demonstrations and self-assessments of the eight abilities which document general education requirements. Many of these general education requirements overlap and are integrated into a student's coursework as she moves into her major. The DDP helps students understand the structure of Alverno's unique curriculum from beginning to end. It makes the structure of their education more visible and accessible, along with key performance evaluations from the faculty.<sup>4</sup> Alverno College students do not receive grades. They are awarded degrees based on their satisfactory completion of courses and the demonstration of abilities and learning outcomes in their discipline, much of which has been documented through their DDPs.

#### **Current Status and Future Plans**

Alverno College's Office of Research and Evaluation is in the process of evaluating DDP data to show how the system supports teaching and learning. Alverno is also testing an option which allows students to self-select portions of their e-portfolios and then download and customize the information for career e-portfolios.<sup>5</sup>



#### St. Olaf College

St. Olaf College is a small, independent liberal arts college affiliated with the Evangelical Lutheran Church in America that has about 3,000 students. Located in Northfield, Minnesota, it has a small and unique e-portfolio implementation, called Web Portfolios, launched in 2002.

#### Purpose

The driving purpose behind these portfolios is to enhance learning and help students develop strong critical-thinking skills.<sup>6</sup>

#### How It Works

Web Portfolios are found in individual majors that require them (for an example, see <<u>http://www.stolaf.edu/depts/cis/web\_portfolios.htm</u>>). Students use a common tools approach for creating their Web Portfolios (for example, HTML editors such as Microsoft FrontPage or Macromedia Dreamweaver), which are not as structured as the e-portfolio systems at Alverno and RHIT.

St. Olaf students are strongly encouraged to build e-portfolios to document the four habits of mind that St. Olaf's program is built around:

- Integrative thinking: The ability and habit to recognize relationships among ideas and experiences that are not routinely thought of as related.
- **Reflective thinking:** The ability and habit of looking back at previous learning and setting those experiences in a new context created by subsequent learning.
- **Thinking in community:** The ability and habit of seeking connections between your learning and the learning of others who have shared interests.
- **Thinking in context:** The ability and habit of seeking connections between what you learned in college and relating those connections to subjects, debate, and discussion in the wider world.

A rubric created by St. Olaf's Center for Integrative Studies is used to determine what makes a Web Portfolio acceptable, including an explanation of potential shortfalls, or excellent. The rubric categories include the four habits of mind plus three additional features:

- The e-portfolio should have a clear focus, based on the student's major.
- The e-portfolio should have a visual style.
- The e-portfolio should have a useful means of navigation.<sup>7</sup>

For example, an excellent e-portfolio exhibits the above characteristics and

- illustrates the governing themes, interests, and questions of the student's major;
- is a thematically unified and purposeful presentation of sustained, interrelated interests;
- includes work of many types and functions as a presentation of central interests; and
- expresses a clear intention regarding unity of content, organization, and aesthetics.<sup>8,9</sup>

#### **Current Status and Future Plans**

St. Olaf College promotes the creation of student Web Portfolios, continues to accumulate them (see samples at <<u>http://www.stolaf.edu/depts/cis/webcommunity.htm</u>>), and seeks to understand how Web

Portfolios help students develop critical-thinking skills. A more formal study is currently under development to demonstrate how the use of Web Portfolios facilitates critical-thinking skills as a result of a student's educational experience at the college.<sup>10</sup>

#### **California Lutheran University**

California Lutheran University (CLU) is a 3,000 student institution, affiliated with the Evangelical Lutheran Church in America, located in Thousand Oaks, California. Since 2003, CLU's Curriculum and Instruction program in the School of Education has used a Webfolio (<u>http://ww2.clunet.edu/soe/webfolio/index.php</u>), replacing the paper-based portfolios begun in 1997. In 2004, the remaining five programs in the School of Education—teacher preparation, special education, counseling and guidance, educational leadership, and an education doctorate—also started using the Webfolio system.<sup>11</sup>

#### Purpose

The content of student Webfolios is linked to state education standards and program goals. The intended use of the aggregated content generated by these Webfolios has been described as follows:

Student work addressing competencies and assignments will be assessed by faculty, supervisors, and cooperating teachers. At the end of each semester, student assessments—linked to program goals and standards—will be downloaded from the Webfolio system and analyzed to ascertain the effectiveness of the instruction and the program. The data will also be used to determine how well students are meeting state standards and the goals of the programs. These data will be synthesized and used to report information about students and each program.<sup>12</sup>

Faculty assign state and/or institutional standards and goals to each student assignment. For example, state math, science, or reading standards are carefully linked to various student assignments generated by CLU School of Education courses.

Webfolios are assessed within the context of five levels of maturation, which CLU educators use as "metaphorical stepping stones." For instance, a "Maturation Level 5" Webfolio is comprised of "authentic evidence as authoritative evidence" that can be used for assessment, evaluation, and reporting. Maturation Levels 1 through 4 are described as scrapbook, curriculum vitae, curriculum collaboration, and mentoring leading to mastery, respectively.<sup>13,14</sup>

At the end of a semester, metadata that is linked to these state and/or institutional standards and goals can be extracted from the Webfolio system and imported into data-mining software for further analysis. For example, data can be aggregated over years for reaccreditation self-studies or it can be synthesized for reporting on departmental needs and achievements.

#### How It Works

The Webfolio system gives students a blank Web page and an HTML editor that they use to build separate folders for digital artifacts of their choosing, ranging from coursework to other educational experiences. The student has complete control of what goes into the public Webfolio. Each has its own unique URL that students can share with others, such as prospective employers, if they so desire.<sup>15</sup> (See Appendix 1: California Lutheran University.)



The backend infrastructure for assessing a Maturation Level 5 collection of Webfolios requires CLU faculty to choose from two rubrics for summative assessments that can be applied to the student's demonstration of a competency. For example, a 3-point rubric rates student work as being "not met," "partially met," or "met." A 5-point rubric rates student work as "not met," "minimally met," "met," "met above average," and "met with excellence." Faculty can also use their own rubrics for formative assessments of student work prior to applying any summative assessment.

#### **Current Status and Future Plans**

The Webfolio system integrates assessment, evaluation, and reporting into one Web-based portal. According to the developers of CLU's Webfolio, the system realizes the promise of a richer educational experience because it integrates both formative and summative assessment practices and provides students with multiple opportunities to master content and process. At CLU, the Webfolio system is used only in the School of Education, where all students and faculty are using the system. About 50 percent of student Webfolios are considered highly detailed and significant representations of their skills and competencies.<sup>16</sup>

#### **Portland State University**

Portland State University (PSU) is an urban university in Portland, Oregon, with more than 21,000 students. PSU has a four-year general education program called University Studies (<u>http://www.pdx.edu/unst</u>) that is required of all students. Part of this program includes a yearlong interdisciplinary sequence of courses called Freshman Inquiry (FRINQ) (<u>http://www.pdx.edu/unst/frinq.html</u>). Students in FRINQ have been required to create portfolios since 1994, when they were paper-based. Today, 95 percent of all students enrolled in FRINQ are creating e-portfolios.

#### **Purpose**

FRINQ e-portfolios are being created to enhance student learning. The secondary purpose is assessment of the University Studies program.

#### How It Works

FRINQ e-portfolios showcase students' best work from their freshman year and provide an opportunity for students to reflect on their learning and accomplishments. These e-portfolios can be used as the basis of random samples to determine how FRINQ may best serve student learning.

An e-portfolio is constructed with a common HTML editor—typically FrontPage, Dreamweaver, or Netscape Composer—that visually represents a student's learning with links to a 750–1,000 word reflective essay and material related to the four University Studies goals:

- critical thinking;
- appreciation of the diversity of human experience;
- ethics and social responsibility; and
- communication, including writing, quantitative literacy, oral communication, and graphics/computer skills.

In the reflective essay, students identify their strengths and weaknesses as self-directed learners and reflect on their intellectual development associated with FRINQ learning experiences. In addition to the reflective essay, students address their understanding of the four University Studies goals by reframing the goals in their own words, presenting two work samples related to each goal, and providing brief explanations of their progress toward meeting each goal, as well as why they chose their specific samples.<sup>17,18</sup> The portfolios are assessed by faculty and graduate students using rubrics for each of the four goals.<sup>19</sup>

#### **Current Status and Future Plans**

The results of the portfolio assessments are examined by faculty and staff and synthesized in assessment reports that reveal how effectively the University Studies program is increasing student learning.<sup>20</sup> For example, a 2002–2003 assessment report regarding FRINQ portfolio review analysis key findings revealed that:

- Student learning in FRINQ is programmatically inconsistent—irrespective of theme or course particularly in relation to writing, critical thinking, and ethics and social responsibility.
- The goals in need of the greatest improvement in this area are diversity and the quantitative literacy component of communication.
- Faculty development will focus on the programmatic strength of reflective writing toward making meaningful connections in the areas of diversity and quantitative literacy.<sup>21</sup>

The assessment report also included action steps such as intensifying faculty development and training on diversity and quantitative literacy as well as establishing a committee to develop benchmarks that can reveal successful education for any given year. As noted in the report, new faculty development "will focus on the programmatic strength of reflective writing towards making meaningful connections in the areas in diversity and quantitative literacy."

Finally, PSU is expanding the use of e-portfolios in the University Studies program by piloting them in its Sophomore Inquiry and capstone courses. Such an approach, if fully implemented, would allow faculty and administrators to track student development beyond the freshman year according to the same goal-based rubrics, and thus gauge the success of the University Studies curriculum; it could also enrich learning by encouraging students to reflect on their growth across their undergraduate years.<sup>22</sup>

#### **Johns Hopkins University**

Johns Hopkins University (JHU) is a private institution located in Baltimore, Maryland, with approximately 18,600 students. The JHU Center for Technology in Education (CTE) in collaboration with the JHU Master of Arts in Teaching Program (MAT) developed a standards-based e-portfolio system called the Digital Portfolio (<u>http://cte.jhu.edu/dp/support/</u>). It builds on a paper portfolio process that has been refined since the mid-1990s. The Digital Portfolio was launched in 2001, piloted by 25 MAT students during one semester, and rolled out to more than 800 preservice and inservice teachers during 2002.<sup>23</sup>



#### Purpose

All students in the MAT program are required to create and defend their Digital Portfolio as an exit requirement. This culminating activity requires students to assemble a set of digital artifacts and reflections that demonstrate competencies related to the Interstate New Teacher Assessment and Support Consortium (INTASC) principles. Additionally, students align digital artifacts and reflections to other relevant standards (for example, technology standards) as well as content areas such as math, science, or English.<sup>24</sup>

#### How It Works

The Digital Portfolio replaces a rigorous master's thesis process. A review team consisting of a school-based educator (from where the master's candidate taught or interned) and a JHU educator/thesis supervisor provides advice and feedback to the student. Students participate in a variety of field placements in school settings. Upon successful completion of their coursework, a teaching internship, praxis exams, and defense of their e-portfolios, MAT students are eligible for Maryland state certification.

MAT faculty make an integrated effort across their courses to ensure that students are collecting the appropriate digital artifacts and reflecting on the INTASC principles. Students are expected to ask for feedback on their artifacts, strengthening their reflective processes and improving the artifacts that demonstrate their competencies.

The Digital Portfolio infrastructure also includes a set of reviewer tools for note taking as well as for recording preliminary scores on a 4-point rubric that helps faculty manage the entire process.<sup>25–27</sup> (See Appendix 1: Johns Hopkins University.)

Other key features of the Digital Portfolio include

- a journal tool for recording and storing reflections about professional experiences;
- a message center, which is a communications hub where members of the JHU e-portfolio community can send and receive messages; and
- a customization feature that allows MAT program faculty and students to organize local, state, national, and content area standards of their choice.

#### **Current Status and Future Plans**

As of August 2005, about 2,000 students have created and defended their e-portfolios as an exit requirement for graduation from the JHU MAT program.

According to the director of CTE, the department that created and manages the Digital Portfolio system, "First and foremost," Digital Portfolios "enhance our ability to look at our own program."<sup>28</sup> Plus the data generated by these e-portfolios is being evaluated to support JHU's next National Council for Accreditation of Teacher Education (NCATE) reaccreditation review in 2008.

CTE recently took its Digital Portfolio system into the commercial marketplace through a partnership with Pearson Education, Inc./Merrill Prentice Hall (<u>http://www.prenhall.com/jhuportfolio/</u>). Launched during the spring of 2005, this partnership allows the JHU Office of Technology Transfer to license the Digital Portfolio system, which is housed and maintained on servers at JHU, to interested schools, colleges, universities, and educational organizations. The license includes a special guide book that contains a fee-based access code students use to access the Digital Portfolio system online.

#### The Connecticut Distance Learning Consortium

The Connecticut Distance Learning Consortium (CTDLC) created and maintains the only e-portfolio system in the country offered to members of a statewide consortium. CTDLC is a seven-year-old state-funded program that supports 46 Connecticut institutions in their distance learning efforts, including an e-portfolio service—ePortfolio.org (<u>http://www.eportfolio.org/</u>).

ePortfolio.org was launched as a pilot in fall of 2003; as of May 2005, 17 institutions were using the system. It is centrally hosted and supported by CTDLC. Participating institutions automatically become members of an advisory board that helps to further develop the system.

#### **Purpose**

The CTDLC system is a multifaceted platform in which students can

- create and customize portfolios for academic, career, or personal uses;
- maintain their plan of study; and
- share their work, goals, and achievements with advisors, career counselors, and employers.

Faculty, departments, and institutions can create portfolio assignments linked to scoring rubrics. Assessment committees can randomly select portfolios, score them with rubrics, and generate assessment reports.<sup>29</sup>

#### How It Works

The faculty and staff involved with this initiative have created detailed instruction manuals that show institutions how to use the application in first-year orientation and writing programs,<sup>30</sup> as well as for career counseling<sup>31</sup> and engaging learning.<sup>32</sup> These manuals describe how to

- use the tool technologically;
- introduce e-portfolios to students;
- collect and organize content, and;
- adapt e-portfolios to a wide variety of course and career-related teaching, learning, and knowledge-sharing environments.

#### **Current Status and Future Plans**

The institutions that have adopted the CTDLC system are in the early phases of developing a culture that encourages its use. In May 2005, each institution using ePortfolio.org had its unique implementation, with most focused on introducing the tool to incoming freshmen. Project participants meet regularly to discuss the wide variety of issues related to e-portfolio adoption, including implementation issues; training of faculty and students; and how to create a culture that will sustain an effective teaching, learning, and career-enhancing e-portfolio environment.<sup>33</sup> ePortfolio.org is a new system, with reporting, data-collection, and analysis components still under development.



#### Indiana University-Purdue University Indianapolis

Indiana University–Purdue University Indianapolis (IUPUI) is an urban public research-extensive institution in Indianapolis, Indiana, with approximately 30,000 students. IUPUI's student e-portfolio initiative, which has a large learning assessment component, is called ePort (http://www.opd.iupui.edu/coil/eport.htm).<sup>34</sup>

Although ePort is a young e-portfolio implementation, its development began with IUPUI's participation in the Urbran Universities Portfolio Project in 1998 (<u>http://www.imr.iupui.edu/portfolio/</u>), which is a sophisticated system with a strong assessment e-portfolio component. The ePort pilot began in fall 2004 with 200 freshmen enrolled in IUPUI's Thematic Learning Communities (TLC) Program, in which students take three or four linked courses as a cohort. The pilot is continuing in 2005 with an additional 700 freshmen.<sup>35</sup>

#### **Purpose**

IUPUI is dedicated to improving undergraduate learning through the implementation of its Principles of Undergraduate Learning (PUL), which have been integrated throughout the university's general education courses:

- core communication and quantitative skills;
- critical-thinking;
- intellectual depth, breadth, and adaptiveness;
- integration and application of knowledge;
- understanding society and culture; and
- values and ethics.<sup>36</sup>

The pilot phase of ePort is based on these institutional PULs and "is intended not only to document and assess both improvement and achievement in these discipline-transcendent skills and ways of knowing, but also to serve as a catalyst for deeper, more insightful, and more connected learning."<sup>37</sup>

#### How It Works

The ePort system has a PUL-driven matrix that accepts students' authentic evidence and reflections on course assignments. Students must meet specific "criteria and expectations" with digital artifacts and reflections that are uploaded into the cells of the matrix. This involves three color-coded levels of evidence:

- Introductory: What students should know and be able to do by the end of 26 credit hours.
- Intermediate: What students should know and be able to do by the end of 56 credit hours.
- Advanced: What all IUPUI graduating seniors should know and be able to do in relation to the PUL as applied to their academic program (determined at the department and programmatic level).

There is also an experiential category. While not a level, it enables students to draw on their experiences in honors classes, athletics, student governance, leadership, community service, internships, and other learning experiences outside the university that contribute to the PULs.

In the pilot phase, participating faculty review all the materials that have been uploaded into the PUL matrix and use the authentic evidence and reflections as the basis for assigning students their final

course grades. The reviews are comprised of comments on the strengths and weaknesses of the reflections as well as the appropriateness of the demonstrated evidence attached to the PULs. Included with these reviews is a rank of 1, 2, or 3 (1 = exceeded, 2 = met, 3 = did not meet expectations).<sup>38–41</sup> (See Appendix 1: Indiana University–Purdue University Indianapolis.)

The matrix becomes a repository of competency demonstrations, reflections, and reviews accumulated throughout a student's undergraduate academic career.

#### **Current Status and Future Plans**

Since launching the pilot, IUPUI's ePort has continued to evolve, becoming a more customizable and flexible tool for both faculty and students. For example, while the participants in the pilot continue to use the institutional PUL matrix, other departments, such as engineering, information technology, and education, are mapping out new matrices that are better aligned with professional standards within their disciplines.

Based on the pilot, refinements are already under way. The ePort developers renamed the "repository" of authentic evidence and reflections as the "resources" section. Students now upload all their work into the resources section of their ePort workspace to which only they have access. Then, via various templates and prompts, they attach their work to the PUL matrix. Students or faculty can create as many additional types of matrices they desire. Students might create a matrix for each course or a matrix for their major and minor. Each matrix has a file tab; students can go to their private resources area and decide what evidence to upload.

ePort has not yet collected assessment results to inform curricular changes. However, pre- and postsemester surveys comparing freshmen in the ePort pilot with nonparticipants showed that ePort students were more aware of the PULs and thought they would be more important to their IUPUI education. ePort students also indicated higher levels of engagement in learning than nonparticipants. ePort students reported that they wrote more papers and more draft papers, worked harder than they envisioned to meet their instructor's standards, and participated in cocurricular activities more frequently. Although the number of survey participants was small and from only one semester, the responses are promising.

New applications are surfacing as well. In IUPUI's School of Nursing, students are currently accepted into the program based primarily on their grade point averages (GPAs); however, a student's GPA is not always the best indicator of true ability or potential. So, the School of Nursing is considering using a student's ePort PUL matrix and evidence in areas such as communication, critical thinking, values, and ethics to help in the admission process.<sup>42</sup>

## Conclusion

Assessment e-portfolios are being adopted at a growing number of colleges and universities in the United States and abroad as both highly individualized self-assessments and as evidence of student accomplishment and self-reflection linked to standards and learning outcomes. Although the e-portfolio systems highlighted in this report represent only a small sample of assessment e-portfolio implementations,<sup>43</sup> a couple of themes are worth noting. First, it takes time to build a solid culture in which large numbers of faculty and administrators adopt assessment e-portfolios. Second, the nature of the e-portfolio requires consideration. Should an e-portfolio be a highly individualized self-assessment tool unconstrained by predetermined outcomes, or should it be standards-based with matrices and rubrics?<sup>44</sup> The institution implementing the assessment e-portfolio must decide based



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on its assessment needs and goals (for example, as driven by internal or external accountability requirements).

Perhaps e-portfolio design will allow users to avoid having to choose. The functions and features of the more structured assessment e-portfolios are becoming more customizable to the individualized tastes of students, faculty, and administrators, as shown with IUPUI's ePort initiative.<sup>45</sup>

To learn more about assessment e-portfolios, explore the links in this report. We hope you will send us information on how you are building assessment e-portfolios on your campus (eli@educause.edu).

### Endnotes

- 1. Park University, Faculty Development Portfolios, <<u>http://captain.park.edu/facultydevelopment/portfolios.htm</u>>.
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- 3. For a synthesis of how the system works with screen shots, see <<u>http://ddp.alverno.edu/whatis.html</u>>.
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- 5. Ibid.
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- 7. D. Booth, personal communication, March 2005.
- 8. D. Booth, "Taking the Web in Web Portfolios Seriously," presentation to a roundtable at the Association of American Colleges and Universities (AAC&U) Annual Meeting, January 2002.
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- D. Love. G. McKean, and P. Gathercoal, "Portfolios to Webfolios and Beyond: Levels of Maturation," *EDUCAUSE Quarterly*, vol. 27, no. 2 (2004), <<u>http://www.educause.edu/pub/eq/eqm04/eqm0423.asp</u>>.
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- For an in-depth description of how the CLU Webfolio system operates, see P. Gathercoal, P. Love, and G. McKean, "ProfPort Webfolio System: Implementation, Curriculum, and Assessment," presentation at the 2003 EDUCAUSE Annual Conference, Ahaheim, California, November 4–7, 2003, <<u>http://www.educause.edu/ir/library/pdf/EDU0329.pdf</u>>.
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- 16. Ibid.
- 17. Freshman Inquiry Faculty Handbook for the 2004–2005 Academic Year, Portland State University, <<u>http://www.pdx.edu/media/u/n/unst\_fringfac\_guides0405.pdf</u>>.
- For samples of PSU University Studies student e-portfolios, as well as guidelines and instructions for students to construct their e-portfolios, see <<u>http://www.cyborglab.pdx.edu/portfolioproject/</u>>.
- 19. Rubrics for each of PSU's four goals can be downloaded in Word or PDF at <<u>http://www.pdx.edu/unst/goals.html</u>>.
- 20. University Studies Assessment Reports can be downloaded in PDF at <<u>http://www.pdx.edu/unst/assessreports.html</u>>.

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22. Ibid.

- The Johns Hopkins Center for Technology in Education, "The Electronic Portfolio: An Easy-to-Use, Template-Driven, Online Tool for Creating, Storing, and Accessing Portfolios Anywhere, Anytime,"
  <a href="http://cte.jhu.edu/images/DP%20Tour.pdf">http://cte.jhu.edu/images/DP%20Tour.pdf</a>>.
- 24. A. E. Lowry, personal communication, May 2005.

25. Ibid.

- 26. For more detailed information, see the "Digital Portfolio Tutorial," < http://cte.jhu.edu/jhu\_dpsupport/outline.shtml>.
- 27. The Johns Hopkins Center for Technology in Education, op. cit.
- 28. J. Nunn, personal communication, May 2005.
- 29. Connecticut Distance Learning Consortium, "Overview of the ePortfolio Platform," < http://www.eportfolio.org/about.cfm>.
- B. Riedinger, "Using the ePortfolio for Advising, First-Year Programs, and Writing Assessment," Connecticut Distance Learning Consortium, <<u>http://www.eportfolio.org/reference.cfm</u>>.
- J. Wick, "Using ePortfolio: A Career Instruction Manual," Connecticut Distance Learning Consortium, <<u>http://www.eportfolio.org/reference.cfm</u>>.
- R. McCloud, "Using ePortfolios for Engaged Learning," Connecticut Distance Learning Consortium, <<u>http://www.eportfolio.org/reference.cfm</u>>.
- 33. Diane Goldsmith, personal communication, May 2005.
- 34. IUPUI is also partnering with the Open Source Portfolio Initiative (OSPI), <<u>http://www.osportfolio.org/</u>>. The result of this collaboration is a portfolio environment called Open Source Portfolio, for which IUPUI is one of the leading developers. IUPUI is also active in the Sakai Project (<u>http://www.sakaiproject.org/</u>), a multi-institutional community source software development initiative to design, build, and deploy a new collaboration and learning environment for higher education. OSP will be integrated into the Sakai environment.
- IUPUI Office of Professional Development, Center on Integrated Learning, "Themed Learning Communities," <<u>http://www.opd.iupui.edu/coil/tlc.htm</u>>.
- IUPUI Office of Professional Development, Center on Integrated Learning, "Principles of Undergraduate Learning," <<u>http://www.opd.iupui.edu/coil/documents/PrinciplesofUndergraduateLearningOfficialVersion.mht</u>>.
- S. Hamilton, "A Principle-Based Approach to Assessing General Education Through the Majors," <<u>http://www.eport.iu.edu/publications.htm</u>>.
- 38. Ibid.
- 39. J. Fern, personal communication, May 2005.
- 40. S. Hamilton, personal communication, August 2005.
- To see an online animated demonstration of how the PUL matrix works, go to
   <<u>http://ittraining.iu.edu/oncourse/demos.htm</u>> and scroll down to the area labeled "ePortfolio," located beneath the
   "Oncourse CL Tool" category.
- 42. S. Hamilton, personal communication, August 2005.



#### **Demonstrating and Assessing Student Learning with E-Portfolios**

- 43. More e-portfolio implementations are described in ELI's "An Overview of e-Portfolios," <<u>http://www.educause.edu/LibraryDetailPage/666?ID=ELI3001</u>>. We did not include in this report or the aforementioned report a number of significant assessment e-portfolio implementations worth noting, such as initiatives at Bowling Green State University (<u>http://epsilen.with.bgsu.edu/</u>), LaGuardia Community College (<u>http://www.eportfolio.lagcc.cuny.edu/</u>), Ohio State University (<u>http://www.design.osu.edu:16080/looseleaf</u>), Pennsylvania State University (<u>http://portfolio.psu.edu/</u>), and many others.
- 44. D. Cambridge, personal communication, August 2005.
- 45. S. Hamilton, personal communication, August 2005.

# **Appendix 1: Examples of Assessment E-Portfolios**

#### California Lutheran University

#### **Education Major's Artifact**

#### URL: http://ww2.clunet.edu/soe/webfolio/index.php

**Description:** At CLU, education majors build their e-portfolio evidence and reflections with common HTML editors, then upload the evidence and reflections into folders. Over time, these represent a student's academic career, including real teaching assignments. In this example, a teacher candidate posted evidence from her midsemester student teacher evaluation for a third-grade class.





#### **Johns Hopkins University**

#### **INTASC Standards-Based Student E-Portfolio**

URL: http://cte.jhu.edu/dp/support/ses9\_act1\_pag1.shtml

**Description:** In the upper right corner of this screen you can see the navigation structure students use to attach authentic evidence related to INTASC principles. This screen features one student's interpretation of the first INTASC principle, along with evidence of her work that supports her interpretation.



#### Indiana University–Purdue University Indianapolis

#### Principles of Undergraduate Learning Matrix

URL: <u>http://ittraining.iu.edu/oncourse/demos.htm</u>

**Description:** IUPUI's e-portfolio uses PUL and color-coded levels of evidence to create a matrix.

PUL Learning Matrix	Introductory	Intermediate	Advanced	Experiential
Core Skills: Written Communication				
Core Skills: Comprehend, Interpret, and Analyze Text				
Core Skills: Oral Communication				
Core Skills: Analytical Reasoning				
Core Skills: Information and Technological Literacy				
Critical Thinking				
Intellectual Depth, Breadth, and Adaptiveness				
Integration and Application of Knowledge				
Understanding Society and Culture				
Values and Ethics				
Legend Ready Completed Pending Locked				



# **Appendix 2: Interviewees**

The following individuals were interviewed for this report.

- **David Booth,** Associate Professor of Religion and Director of the Center for Integrative Studies, St. Olaf College
- Barbara Cambridge, Associate Dean of Faculties, Indiana University-Purdue University Indianapolis
- **Darren Cambridge,** Assistant Professor of Internet Studies and Information Literacy, George Mason University
- Jay Fern, Enterprise Systems and Services Liaison for Teaching and Learning Technologies at Indiana University
- Paul Gathercoal, Professor and Director, Curriculum and Instruction and Educational Technology, California Lutheran University
- Diane Goldsmith, Dean of Planning, Research, and Assessment, Connecticut Distance Learning Consortium
- Sharon Hamilton, Chancellor's Professor of English and Associate Dean of Faculties, Indiana University-Purdue University, Indianapolis
- Susan Kahn, Director of the Office of Institutional Effectiveness, Indiana University-Purdue University, Indianapolis
- Kathi Ketcheson, Director of Institutional Research and Planning, Portland State University
- Ann E. "Betsy" Lowery, M.S. Program Director, Online Learning and Distance Education, Johns Hopkins University Center for Technology in Education
- Jacqueline A. Nunn, Director of the Johns Hopkins University Center for Technology in Education
- **David C. Peloff,** Program Director for Emerging Technologies, Johns Hopkins University Center for Technology in Education
- Gloria M. Rogers, Vice President of Institutional Research, Planning and Assessment, Rose-Hulman Institute of Technology
- Kelly Talley, Assessment Center Director and Digital Portfolio Coordinator, Alverno College
- Kathleen Blake Yancey, Pierce Professor of Professional Communication, Clemson University

The EDUCAUSE Learning Initiative (ELI) is a community of higher education institutions and organizations committed to advancing learning through IT innovation. To achieve this mission, ELI focuses on learners, learning principles and practices, and learning technologies. We believe that using IT to improve learning requires a solid understanding of learners and how they learn. It also requires effective practices enabled by learning technologies. We encourage institutions to use this report to broaden awareness and improve effective teaching and learning practice.