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# Assessing the Future: E-Portfolio Trends, Uses, and Options in Higher Education

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## Overview

*Shenan, a Johns Hopkins double degree candidate, markets herself with four distinct résumés. In less than one hour on an early December evening, she creates four customized web presentations with the Johns Hopkins imprimatur. She alternately showcases her performing and academic work in pursuit of her music degree at the Peabody Conservatory, and her scholarly and community service as a political science major. For over three years, she has documented her achievements on research projects, publications, performances, course assignments, and reviews. These e-portfolio artifacts stored in digital form can now be assembled and rearranged as she chooses. She sends distinct URLs to graduate admissions offices and potential employers, alternately placing greater emphasis on her academic work, artistic performances, or community service.*

*Over her academic career, Shenan's work assembling an e-portfolio prodded critical reflection on the details and the trajectory of her training. In meetings with her advisor and others, her e-portfolio served as an always-accessible archive, allowing recall of specific work from specific classes since freshman year. With Shenan's permission, her advisor referenced and displayed Shenan's e-portfolio in different discussions with colleagues. An innovative field-research project that she completed in her sophomore year prompted discussion among the political science faculty about a new research requirement now under consideration. Shenan's work overall played a contributing role as the university put itself forth in a recent accreditation review. Her portfolio will follow her after graduation, helping her to represent her work as a young professional while linking her—both virtually and literally—to her alma mater.*

The dramatized account above represents a comprehensive application of an e-portfolio by one student and one institution. This ECAR research bulletin overviews the use of e-portfolios in higher education. The analysis of the potential benefits in postsecondary settings also includes consideration of the obstacles to institutional adoption and challenges to successful implementation. The bulletin further describes selected best practices and alternatives to adoption. The treatment is informed by studies of six pilot programs at The Johns Hopkins University and interviews with eight faculty and staff at other universities using or piloting e-portfolios.

## Highlights of E-Portfolio Trends, Uses, and Options

In the broadest terms, an e-portfolio is “a digitized collection of artifacts including demonstrations, resources, and accomplishments that represent an individual, group, or institution.”<sup>1</sup> Institutionally supported e-portfolios tend to be web-based, but individual students can independently create e-portfolios on CDs and DVDs. Although the simple act of documenting personal or group work fills an important archival need, the full impact of e-portfolios is realized when the author(s) and others reflect on the content. The range of objectives held by those using e-portfolios in institutions across the country testifies to their versatility. In different settings they have become, among other things, a

mechanism for curricular development; a cornerstone to academic advising; and a tool for career preparation, the job search, and professional credentialing.

## Relevant Trends in Higher Education

Several trends in higher education shape the context in which an e-portfolio implementation may be advantageous. First, e-portfolios can help address the call to facilitate and document authentic learning experiences. “Authentic learning typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice.”<sup>2</sup> E-portfolios can archive student work and support colleges and universities in several ways:

- Making competencies and outcomes central to curriculum
- Teaching portable skills
- Blending information literacy, technology fluency, and domain knowledge
- Treating students as big-picture thinkers and critically engaged doers<sup>3</sup>

Second, e-portfolios can help respond to the new era of accountability that, according to the Spellings Commission, will place additional pressures on higher education. “Accreditation is in serious need of reform, and that self-regulatory system with its inherent conflicts of interest is destined to have a poor future as the public becomes more aware of policy issues like transfer of credits and transparency of performance.”<sup>4</sup> Such views have initiated a vigorous discussion about how higher education can best assess itself while providing clear measures of student learning. E-portfolios provide one solution for capturing information requested by accreditation agencies or internal assessment committees.

Third, e-portfolios can help universities and colleges connect to today’s undergraduates who feel comfortable communicating through multiple media by publishing their experiences on sites such as Facebook, YouTube, and Flickr. Cultural theorist Henry Jenkins describes how students feel empowered to shape and control media in what he labeled convergence culture: “Convergence represents a paradigm shift—a move from medium-specific content toward content that flows across multiple media channels, toward the increased interdependence of communication styles, toward multiple ways of accessing media content, and toward ever more complex relations between top-down corporate media and bottom-up participatory culture.”<sup>5</sup> Students are open to broadcasting their life experiences to the world and mashing up media to communicate their ideas. E-portfolios provide students a means to document and share their work in ways congruent with their experiences while also facilitating meaningful self-reflection within an academic context.

## Primary Uses of E-Portfolios

The following categories distinguish the varied purposes that e-portfolios fulfill at postsecondary institutions. The categories are not mutually exclusive; in fact, most e-portfolios simultaneously serve several purposes.

- *Academic Advising.* E-portfolios allow a student and an academic advisor to track student progress through defined degree requirements. The e-portfolio illuminates a structured workflow toward academic and professional goals, making it easy to review past activities and document academic achievement and goals. It encourages ongoing self-reflection, serving as a virtual advisor between face-to-face meetings. Iowa State University uses e-portfolios for many purposes including students' annual review in the Curriculum and Instruction Technology (CIT) program. Students upload documentation of their progress through the program and share it with an advisor.<sup>6</sup>
- *Institutional Accreditation and Departmental Review.* E-portfolios provide an efficient and transparent means to archive and access student work. This facilitates internal and external departmental review, as well as broader institutional assessment for accreditation and other purposes. Rose-Hulman Institute of Technology incorporated e-portfolios into a redesign of its Accreditation Board for Engineering and Technology (ABET) reporting process. The institutional assessment office works with departments to develop performance criteria and grading rubrics. The e-portfolio captures student work, documenting compliance with performance criteria, and faculty review teams evaluate these artifacts as part of accreditation review committees.<sup>7</sup>
- *Curricular Development at the Program Level.* E-portfolios integrated into a curriculum are generally built around a configuration of curricular requirements that transcend individual courses (for instance, design projects and senior theses) and promote authentic assessment activities. The task of integration renews critical attention on these requirements and the way they are articulated. E-portfolios serving this purpose also lead students to deeper reflection on programmatic goals and objectives that are promulgated to wider audiences. The Johns Hopkins Carey Business School established learning outcomes for MBA Fellows to achieve as a degree requirement. Fellows track progress toward these learning outcomes and individually set professional goals using the Johns Hopkins Digital Portfolio. The Digital Portfolio enables individuals to quickly and easily add content, manage resources, and establish clear connections between customizable learning outcomes and portfolio work samples.<sup>8</sup>
- *Career Planning and Development.* E-portfolios allow students to present a comprehensive overview of academic and extracurricular activities along with self-reflection and supporting evidence (artifacts) to a potential employer. Similarly, they enable individuals to sustain evidence of their further credentials and ongoing achievement.
- *Alumni Development (or Lifelong Learning).* E-portfolios can evolve and continue to support an individual's professional growth after graduation. E-portfolios provide an opportunity for the university to stay connected with a generation of Facebook users—a cohort comfortable posting their biographies online—after they graduate.

To implement e-portfolios on campus, an institution must select an application best fitted to its needs and intentions. Because schools may select from diverse software products, many factors must be considered to make the best choice. A project team should first consider the development approach and functional goals of the e-portfolio. Educators use helpful typologies to articulate different goals of e-portfolio projects. Lorezo and Ittleson describe distinctions between student, teaching, and institutional e-portfolios.<sup>9</sup> Student e-portfolios, the most common type, involve collecting artifacts from personal and academic experiences and making them available through custom presentations. Instructors use teaching e-portfolios to document their instructional expertise and experiences. Graduate students use teaching portfolios to showcase their work when applying for faculty positions.

Having an e-portfolio was definitely a huge asset when I went on the job market. Several institutions that interviewed me mentioned that my website was what initially drew their attention to my job application.... My new department at Duke is very tech-savvy, and I know I have my e-portfolio to thank for getting my foot in the door there!<sup>10</sup>

Institutional e-portfolios enable administrators to collect, archive, and reflect upon institutional output for the purpose of self-assessment. Implementing institutional e-portfolios is a recent trend. Indiana University-Purdue University Indianapolis and Portland State University are examples of early adopters.<sup>11</sup>

Matt Villano presents another typology: developmental, reflective, and representational e-portfolios.

*A developmental e-portfolio* comprises a record of assignments over time, a *reflective e-portfolio* includes personal reflection on the content as well. A *representational e-portfolio* shows achievements in relation to particular work or developmental goals and is, therefore, selective.<sup>12</sup>

The University of Michigan's Department of Internal Medicine uses reflective e-portfolios to help medical residents process medical challenges, deepen their knowledge of adverse events, and develop their capacities for reflective practice and lifelong learning.<sup>13</sup>

Master's students at the University of Michigan School of Public Health employ representational e-portfolios methods to document capstone professional experiences to demonstrate their knowledge, skills, and experiences to their department, program, and potential employers.<sup>14</sup>

Institutions considering e-portfolios can benefit from careful consideration of these typologies to identify their needs. As needs are clarified and possibilities are envisioned, planning for an enterprise-wide solution should consider the practical choices offered by either open-source, third-party, or homegrown software solutions. Each consists of its own benefits and challenges that should be considered when choosing an application or development approach.

# What It Means to Higher Education

What do students, faculty, administrators, and staff have to gain from e-portfolios? Table 1 provides examples of benefits.

**Table 1. Benefits of E-Portfolios for Different Constituent Groups**

Senior Leaders	<ul style="list-style-type: none"> <li>▪ Facilitate internal and external departmental review.</li> <li>▪ Support broader institutional assessment for accreditation and other purposes.</li> </ul>
Faculty	<ul style="list-style-type: none"> <li>▪ Assist faculty in writing letters of recommendations for students.</li> <li>▪ Facilitate student advising.</li> <li>▪ Support internal and external departmental review.</li> <li>▪ Archive student coursework.</li> </ul>
Students	<ul style="list-style-type: none"> <li>▪ Archive student coursework, research, internships, and extracurricular activities.</li> <li>▪ Promote student reflection on academic and professional goals.</li> <li>▪ Facilitate student advising and career counseling.</li> <li>▪ Present accomplishments to potential employers and admissions officers.</li> </ul>
Administrative/Support Departments	<p><i>Advising</i></p> <ul style="list-style-type: none"> <li>▪ Facilitate student advising.</li> <li>▪ Faculty/staff can reference this information when writing letters of recommendation.</li> <li>▪ Support pre-professional advising process by archiving students' academic and extracurricular data.</li> </ul> <p><i>Career Services</i></p> <ul style="list-style-type: none"> <li>▪ Facilitate student career counseling.</li> </ul> <p><i>Development/Alumni Relations</i></p> <ul style="list-style-type: none"> <li>▪ Maintain connections and build relationships with alumni.</li> </ul>

As part of its own e-portfolio exploration, The Johns Hopkins University conducted six pilots in which students participating in various extracurricular activities, course programs, and internships used e-portfolios to document their experiences. Thorough evaluation of each pilot included surveys, focus groups, and individual interviews, revealing the following student opinions:<sup>15</sup>

- *E-portfolios provide value.* Student users expected that the student community would broadly adopt an e-portfolio if made available to the entire university. Students expressed interest in using e-portfolios to support their professional growth as both students and alumni.
- *E-portfolios are easy to use.* Almost universally, students found each of the web-based e-portfolio applications piloted easy to use.<sup>16</sup>

- *E-portfolios capture more than the traditional academic experience.* Students communicated the value of documenting non-course and research activities such as internships and personal life experiences. Students also expressed interest in maintaining their e-portfolios beyond graduation.
- *E-portfolio use increases when integrated with other applications.* Students requested e-portfolio integration with other academic technologies (e.g., course management system, student information systems) to make it easier to document coursework and degree requirements.
- *E-portfolio use increases with external motivation.* Pilot participants admitted they did not make full use of the technology. Pilots in which participation was voluntary led to minimal use of e-portfolios even though students expressed excitement about using the e-portfolio at the beginning of the pilot. At the end of the voluntary pilots, participants communicated that other priorities prevented them from spending the time needed to upload content, reflect on their accomplishments, and create presentations for faculty or employers.

## Challenges to Adoption

A range of challenges can inhibit the introduction and implementation of e-portfolios on campus. Adoption of new technology is thwarted by contradictory attitudes: Johns Hopkins students reluctant to adopt e-portfolios were generally quick to acknowledge their benefits. Diffusion of new technology takes time and typically follows a non-constant adoption rate. Everett Rogers documented this S-curve pattern in his seminal work *Diffusion of Innovations*.<sup>17</sup> New technologies diffuse slowly at first until they reach critical mass. The rate of adoption then grows more quickly, slowing again as the adoptive population approaches a saturation point. Many universities will find themselves at the beginning of the e-portfolio adoption curve.

The slow adoption of e-portfolios occurs for different reasons. First, *users may be searching for a meaningful or a well-defined problem* for which e-portfolios are the solution. Faculty and administrators who have completed the thankless task of accreditation reporting may not see the value of innovation for the next review cycle; understandably, this is not work that generates much enthusiasm, not to mention inspiration for experimentation. Students, having little appreciation of the faculty effort that goes into advising and writing letters of recommendation, understandably have little awareness of how e-portfolios could help the faculty (and, ultimately, the student). Also, students may not perceive employers as interested in viewing an e-portfolio. In a survey of employers, Ward and Moser found 56% of respondents planned to use e-portfolios for review in the future, but current use is very low.<sup>18</sup>

Another obstacle can be that *perceived costs of adoption* (e.g., resources, time, role change) outweigh the gains. Table 1 illustrates how different constituent groups can benefit from e-portfolios, but no one group may sense that the challenges e-portfolios address are substantial enough to merit adoption. Therefore, in most cases successful implementation of e-portfolios requires commitment from multiple constituencies across the university or college. Obviously, no single group can do it alone. But it is also the

case that isolated groups may not realize the collective and multiplicative benefits that come from an enterprise-wide adoption. Generating community buy-in requires conversations and commitments across constituent groups. Table 2 lists examples of the roles different groups can play.

**Table 2. Community Contributions for Successful Adoption**

Senior Leaders	<ul style="list-style-type: none"> <li>▪ Provide strategic direction on how e-portfolios can support the mission of the university; on how e-portfolios can be used as sources of data for divisional planning and accreditation activities; and on allocation of resources for adoption.</li> <li>▪ Identify functional liaisons within divisions who will work on strategic planning and ongoing activities.</li> </ul>
Faculty	<ul style="list-style-type: none"> <li>▪ Provide strategic direction on how e-portfolios can support the mission of the university and on how e-portfolios can be used as sources of data for divisional planning and accreditation activities.</li> <li>▪ Provide feedback on application functionality and user interface.</li> <li>▪ Assist in choosing an application.</li> </ul>
Students	<ul style="list-style-type: none"> <li>▪ Provide feedback on application functionality and user interface.</li> <li>▪ Assist in choosing an application.</li> </ul>
Administrative/Support Departments	<p><i>Advising</i></p> <ul style="list-style-type: none"> <li>▪ Provide input into how e-portfolios' workflow/operation can support the advising process (e.g., how it will best capture students' academic, research, and extracurricular activities).</li> <li>▪ Assist in choosing an application.</li> </ul> <p><i>Career Services</i></p> <ul style="list-style-type: none"> <li>▪ Provide input into how e-portfolios can support students' professional development.</li> <li>▪ Communicate recruiting trends in industry that affect e-portfolio application.</li> <li>▪ Assist in choosing an application.</li> </ul> <p><i>Teaching/Learning Support Centers</i></p> <ul style="list-style-type: none"> <li>▪ Facilitate conversation about and evaluation of e-portfolio application.</li> <li>▪ Assist with planning user support infrastructure.</li> <li>▪ Recommend appropriate technical infrastructure.</li> </ul> <p><i>Library</i></p> <ul style="list-style-type: none"> <li>▪ Recommend long-term archiving strategy for student artifacts.</li> </ul> <p><i>Development/Alumni Relations</i></p> <ul style="list-style-type: none"> <li>▪ Provide input into alumni uses cases.</li> </ul>
Enterprise IT	<ul style="list-style-type: none"> <li>▪ Develop budget for hardware, software, and technical support.</li> <li>▪ Recommend appropriate technical infrastructure.</li> <li>▪ Advise how e-portfolios could communicate with other enterprise systems (e.g., student information systems, course management systems).</li> </ul>



*Lacking a shared definition of e-portfolios and a coordinated implementation/support strategy* can be a third challenge institutions and even divisions within colleges face. The e-portfolio application must be adaptable if groups within an institution will use it in different ways (e.g., teaching portfolio versus resume portfolio). In addition, support staff (e.g., information technologists, instructional designers) need to be trained to handle different types of problems and requests. This challenge can also transcend the institution. Students may want to take their e-portfolios with them when they transfer schools. IMS e-portfolio standards exist to support the importing and exporting of data, but not all e-portfolio applications support the standards.

Finally, *insufficient integration with other information technology systems* may inhibit e-portfolio use. A community will find it easier to work with e-portfolios if the application integrates with other systems (e.g., course management systems, student information systems) and allows students and faculty to easily transfer content between applications.

## Alternatives to Adoption

The do-nothing decision always remains a viable choice. Universities can also consider alternatives such as using existing information technology infrastructure. Penn State allocates up to 5 GB of server space to students and makes common tools available for their use. Faculty have begun developing a content management system using WebLion (Plone) to collect, tag, and store samples of course assessments in a repository for accreditation purposes. Glenn Johnson, project manager for Penn State's e-portfolio initiative, shared that this two-pronged solution arose as a result of not finding a "silver bullet" system that supports student ownership of their personal learning and simultaneously provides administrators with a back end that allows for collecting assessment data (for accreditation cycles).<sup>19</sup>

Another option for colleges and universities is to encourage students to create e-portfolios using a combination of third-party, Web 2.0 technologies such as Picasa, YouTube, and blogging applications. A more local, but less accessible, alternative for students would be relying on memory sticks, DVDs, and CDs to archive artifacts and customize presentations.

In short, there are many options and many challenges when adopting e-portfolios. The challenges can be overcome, but doing so involves coordination across multiple constituent groups. Adoption will likely be slow at the start, but it will gain speed as more users internalize the benefits of e-portfolios.

## Key Questions to Ask

- How can e-portfolios support our institutional assessment and accreditation initiatives?
- What key stakeholders on our campus should be involved in planning and implementing e-portfolios to ensure success?

- What strategies can best ensure stakeholder interest and commitment?
- What enterprise information technology applications will an e-portfolio need to communicate/integrate with at our institution?
- How will course assignments affect and be affected by students' adoption of e-portfolios?
- How can e-portfolios encourage students to reflect on their learning across coursework, extracurricular activities, research, and employment?
- What will be the institution's policy on archiving students' e-portfolios?
- If we don't use e-portfolios, what should we do instead?
- What benefits would accrue to having a single e-portfolio model for the institution? To having multiple models?
- What do we need to do to make e-portfolios more accessible to employers? What do we need to do to help employers understand the value of e-portfolios?

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## Where to Learn More

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## Endnotes

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15. The Center for Educational Resources (CER) conducted all evaluation activities. The CER, a teaching and learning support unit, acted as a third-party evaluator for all evaluation activities to guarantee student anonymity. Focus groups consisted of one interviewer, one note taker, and 2–5 student participants per session. A standard list of questions loosely guided the semi-structured conversation. Students conducted surveys online or on paper, depending on the pilot. The survey format was based on the University of Michigan's Participant Perception Indicator Assessment Tool, with additional questions included specific to each pilot group. The CER conducted quantitative and qualitative analysis on all aggregate data. Faculty and staff evaluation data were collected but not included in this report because generalizations could not be made due to the small sample size.
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