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Peer Review

The Benefits of E-portfolios for Students and Faculty in Their Own Words

By: Ross Miller and Wende Morgaine

A well-executed e-portfolio program is an incredible tool for higher education. They provide institutions with authentic assessments of student learning and promote the deeper learning that we want for our students. I don't understand why more institutions aren't using them.
Candyce Reynolds, associate professor, Post-Secondary, Adult, and Continuing Education, School of Education, Portland State University

From matriculation through graduation, the goals for expected student learning are wide-ranging and ambitious. After reviewing mission statements from multiple institutions, examining various accreditation guidelines, and interviewing business and community leaders, AAC&U has found consensus among these resources that college learning should include broad knowledge, powerful intellectual and practical skills, personal and social responsibility, and the ability to integrate years of learning into a connected, functional whole. The search for ways to foster and document such complex learning for all students has led some campuses to develop e-portfolios as teaching, learning, and assessment tools. Those institutions are now discovering how to use e-portfolios to inform the process of improvement from the individual student level up to the institutional level.

Students generally use e-portfolios to collect their work, reflect upon strengths and weaknesses, and strive to improve. Equally beneficial are the data that *faculty, departments, and institutions* derive when they assess the work in portfolios, reflect upon it in curricular contexts, and use the data and reflections to plan for improvement. E-portfolios provide a rich resource for both students and faculty to learn about achievement of important outcomes over time, make connections among disparate parts of the curriculum, gain insights leading to improvement, and develop identities as learners or as facilitators of learning.

The increasing use of e-portfolios on campuses naturally raises questions about their impact and effectiveness. Through the Valid Assessment of Learning in Undergraduate Education (VALUE) project, we have collected reflections on e-portfolio use from both faculty and students that detail their reactions. These reflections come from campuses experienced with e-portfolios and selected for participation in the VALUE project. We believe that they represent some of the common benefits of well-run e-portfolio programs.

Good e-portfolio practice always includes the processes included within the broad concept of metacognition— having students reflect on their work and think about their progress in learning. Bransford, Brown, and Cocking (2000; 18, 21) call metacognition "an internal conversation" in which students monitor their own understanding and state that teachers should explicitly emphasize metacognition because it "can enhance student achievement and develop in students the ability to learn independently." E-portfolios provide rich opportunities for metacognition through periodic (and often required) reflections which may help students develop an array of outcomes and skills. Reflection on work saved in e-portfolios can

- build learners' personal and academic identities as they complete complex projects and reflect on their capabilities and progress,

- facilitate the integration of learning as students connect learning across courses and time,

- be focused on developing self-assessment abilities in which students judge the quality of work using the same criteria experts use,

- help students plan their own academic pathways as they come to understand what they know and are able to do and what they still need to learn.

The reflections of students and faculty below mention these and other outcomes. Reading about the experiences that students and faculty have with e-portfolios, one begins to understand why so many campuses are exploring e-portfolio programs.

Student Voices

The e-portfolio experience gave me a chance to find out about the skills I should be learning in college and there are ways that I can keep track of how I am doing. I was not taught how to think in terms of outcomes of skills so it was kind of challenging at first. When I was trying to figure out what types of knowledge, skills, or abilities I had learned from volunteer or internship experiences, it was very helpful to go to the Pathways Outcomes in my e-portfolio and think about how they applied to the experiences I was writing about for my public portfolio.
Third-year student,
University of Michigan

Structured reflections helped this student analyze her learning experiences to reveal and understand outcomes that might otherwise have been missed. While course syllabi and college catalogs may declare what learning is supposed to take place, the structured reflection required for an e-portfolio can push students to "own" learning outcomes when they describe their progress and cite specific evidence of learning within their collections of work.

I have had many amazing experiences at

Michigan, but I didn't really know what they meant or how they all fit together…. Now, I see patterns and themes in the work I have been doing, how things fit together. The work I've been doing actually makes sense… there has been some direction to it all along. I also realize that my work is a reflection of me and that my identity and background [an African-American woman growing up in Detroit] have always played a part in my learning…I see how I have already made a difference in my communities.
Third-year student,
University of Michigan

This student writes about integration of learning—"how things fit together"—resulting from e-portfolio and reflection. She also refers to her growing self-knowledge and confidence in her ability to work effectively in different settings.

I didn't know what an e-portfolio was when I first heard about it in class….My professor suggested to me that I develop the "about me" section of my e-portfolio because there, I would have the opportunity to write more about myself and so I did. In that first e-portfolio I wrote about Palmira (Valle), the city where I was born in Colombia, and I wrote about Medellin, where I used to spend my vacations of school….and I wrote about the cultural assimilation process I was going through.

The second time I was asked to develop my e-portfolio, I had a lot more to share. I was in third semester at LaGuardia and I had already taken most of the classes connected to my major, so I decided include my academic work and goals that would make my family proud of me….my priority was to focus on my personal growth in my schoolwork and what I was learning at LaGuardia. After putting up my projects in my e-portfolio, I then started to think more about my future and my career.

Now, with more knowledge of computer programs for developing Web pages, I decided to use my e-portfolio as an opportunity to show and demonstrate all the skills that I have learned throughout my journey at LaGuardia Community College….All together, my third e-portfolio demonstrates me as a professional who is looking toward her future and who has many goals to reach.

Not only have I gained technical skills, but I've learned how to express myself as a serious student and a hard worker. The different sections of my e-portfolio made me realize the important things about how I see myself starting at LaGuardia, how I see myself now and in my future. My experience with e-portfolio at LaGuardia has made me see more of whom I want to be and how I *can accomplish my goals.*
Student,

LaGuardia College

E-portfolios can be used for different purposes that may shift as students move through their programs. This community college student consciously (with professor guidance) began with self-exploration and expression (the "about me" section of her e-portfolio), moving on to communicating her learning and academic goals to her family. Finally, she emphasized professional aspects of learning by posting her most valued work from her major to represent her significant achievements and learning over time. This essay shows impressive development and self-awareness as the student takes control of her personal, academic, and professional planning and accomplishments.

I feel that the process has enhanced my understanding of the overall higher education experience….I have always felt confused and irritated by the lack of connection between my general education requirements and my core department requirements. I think that the e-portfolio is a great way to link the two types of classes that you take during your time at Portland State. I am a very visual person and the template of the e-portfolio was easy to follow and it truly helped to achieve the goal of linking my personal work to my personal goal. I also believe that this process was very empowering for me. It is easy to get discouraged with work that you complete during classes because you complete a paper, receive a grade, and then that paper is simply stored in a folder on your computer. This process helped me to look back on the work that I had completed in prior classes and place more value on the work that I had created. I was able to value the work because each assignment that I complete I have taken one step closer to completing a personal or professional goal of my own. It was encouraging to see that I was not attending classes just to receive a piece of paper that declares I graduated from college, I was attending college for my own personal and professional growth.
Student,
Portland State University

The student who wrote this statement has realized a number of benefits from the e-portfolio experience. The integrative function is highlighted in the comments about connecting general education requirements with learning in the major. The structure and even the appearance of the portfolio template helped to organize the student's thinking and enhance his academic planning—"linking personal work to my personal goal." There is the realization that by creating a collection of completed assignments and looking back through the collection for coherence and meaning, one better understands progress toward goals and learns to appreciate the work. Finally, there is the very powerful realization that going to college is about more than the degree—the learning is important and, upon reflection,

makes sense.

> I didn't realize the importance of the work I was doing… all the communication skills I was learning while doing research.… When I had a chance to reflect on it and was asked to describe the experience to others in my e-portfolio, I realized that I had learned a lot more than I thought. I was so focused on getting into business school, that if I had not had the space to stop and reflect on my experiences, I would have never known how I much I actually gained from everything I did my first year.
> *Second-year student,*
> *University of Michigan*

Reflection can be an awakening for students and serves to distill the meaning from experiences. Referring to a music performance of variable quality, a teacher of one of the authors once said "there's gold in that gravel." Reflection is like panning for gold, finding the valuable nuggets from among the gravel of day-to-day campus experience. Even for students with a focus on goals, as seemed to be the case for this student, pausing to reflect proved to be critical to making valuable learning conscious and more likely to be used in the future.

Faculty Voices

Student perceptions of learning could, of course, be questioned as self-serving or inaccurate—they are, after all, not direct evidence of learning. However, faculty working with students who are building e-portfolios and reflecting upon the work in them confirm the same kinds of learning that students claim.

> At the University of Michigan, first-year organic chemistry students receive honors credit for participating in weekly, two-hour, peer-led "studio" sessions. Third- and fourth-year students who excelled in the courses previously lead these sessions, and are under my direct supervision. These peer teachers are all extremely positive about the integrative e-portfolio process. At our weekly leaders meeting last night, they launched into a discussion (without being solicited) about the value they are getting from the structured reflection exercises... both in terms of their teaching and (I suspect what I am hearing) on their overall college experience. They seem to benefit from being asked to explicitly think about how their teaching/leadership experiences can be transferred into other aspects of their lives. I have been mentoring a comparable group of student leaders since 1994, and I am noticing that this group seems to possess a degree of maturity as teachers/leaders that is higher than any of the groups from years past. I usually have to prod them a bit throughout the term to (a) think through the various challenges they are encountering, and (b) step up to the leadership position each week as the facilitator for our weekly dinner meetings. This group seems to need very little guidance from

me. I think this is all rather impressive, given that we are yet only four to five weeks into the semester! I look forward to learning more about how they change as a result of the process.
Brian P. Coppola, Arthur F. Thurnau Professor of Chemistry, associate chair, Department of Chemistry, codirector of the IDEA Institute, University of Michigan

The independence and speed of learning of these students are noteworthy and it would be especially interesting to investigate whether subsequent groups of leaders benefit in similar ways from their portfolio experiences. This professor also notes that these students have enhanced their ability to transfer learning to new situations.

A different group of student leaders at University of Michigan were transformed in several ways through building e-portfolios and reflecting upon their work and experiences. This professor notes integrative, goal setting, and personal understanding outcomes for students.

Student leaders at the University of Michigan say in focus groups and individual interviews that what is most lacking in their education is making sense of the myriad activities, community work, research, and coursework with which they engage. This generation of college students describes themselves as "doers." These leaders know, however, that "doing" as a substitute for "thinking and integrating" has not served them well. A group of these leaders were among the first students at Michigan to pilot Michigan's integrative leadership e-portfolio in a semester-long course that taught them how to identify and integrate different types of knowledge (tacit and explicit) through a process of dialogue, reflection, connection and demonstration. They had no trouble listing activities on and on-off campus as well as courses that had been important to them. The challenge was in extracting meaning from their work and how they could best connect, indeed produce, their current goals, personal philosophy and a coherent understanding of the knowledge and skills they possessed. These students met the challenge largely through a process called generative interviewing (a method of knowledge retrieval that is part of the e-portfolio process) in which they were guided and learned to guide each other to extract meaning and connection. The students who have participated in these early pilot courses have described them as "transformative."
Patricia Gurin, Nancy Cantor Distinguished University Professor,
Arthur F. Thurnau Professor of Psychology and Women's Studies,
Professor Emerita, College of Literature, Science and the Arts,
University of Michigan

Faculty, of course, are responsible for designing and

assessing the assignments that may be included in students' e-portfolios. Considered from a learning-centered perspective, assignments define outcomes through what we ask students to do, foster outcomes during the process of being completed, provide opportunities for formative and/or summative assessment, and generate data on student learning that can be analyzed for ways to improve student learning. Given the time and effort spent by teachers and students alike on assignments, it makes sense to get as much out of each piece of student work as possible. From what students write about looking at their own work in e-portfolios, it is clear that they can continue to learn from assignments through guided reflections even after the assignments have been completed and graded. Faculty, programs, and institutions can also learn about student achievement through reflecting and assessing student assignments sampled from e-portfolios.

While not directly telling how her campus uses e-portfolios for program assessment, an associate dean conveys the wealth of information that lies within the e-portfolios built by students on her campus. She also makes clear that e-portfolios facilitate learning and reflection is key to the process.

> If what we want is to deepen learning and to facilitate transfer of knowledge, for the first time, e-portfolios provide a strategy that allows students to archive their work over time. The critical part is that they also use those artifacts for intentional and promoted reflection that supports connecting the learning across courses and disciplines and to their own lives and passions. In this way, e-portfolios become a scaffold of learning experiences from the curriculum and the cocurriculum that students use to demonstrate and articulate the increasing sophistication and complexity of their understanding and thinking throughout their educational career and beyond.
> *Judith Patton, associate dean,*
> *School of Fine and Performing Arts, Portland State University*

Left unsaid is that Portland State University (PSU) has a periodic assessment process in which groups of faculty read student work sampled from e-portfolios to see to what extent students are achieving university general education goals. This process is a kind of structured reflection for faculty on student achievement, course goals and assignments and serves to guide subsequent planning and teaching. Rotating through a couple of university goals each year, PSU has a process that takes advantage of the wealth of information waiting to be analyzed and interpreted within collections of student work. They wisely limit the amount of student work assessed at any one time so that the process is manageable. Faculty from other campuses also recognize the mutual benefits to students and faculty.

> A campus, with e-portfolios in place as flexible space for faculty and students to archive and synthesize their work, is well-positioned for

assessment. Reflection on e-portfolios of collected works is where the evidence of learning emerges. Students may not understand the significance of e-portfolios as they begin their college career, but they will begin to understand their own disparate learning by the time they are finishing their four-years of collection of academic works.
Judith Kirkpatrick, professor,
Kapi'olani Community College

At Kapi'olani a study of the e-portfolio process focused on whether courses were more student-centered and if the e-portfolios assisted in integrating students' academic, career, and personal work with a stage of growth in understanding Hawaiian values. The research team designated first-year composition and second-year Hawaiian language courses for the research study, and included a control class for first-year composition. The researchers administered two instruments, the Learning and Study Strategies Inventory (LASSI), and the Nā Waʻa E-portfolio Survey, and analyzed the students' reflective learning analyses to explore whether the approach is truly learning-centered. Initially, instructors began the project with the hopes of transforming their students into more independent learners. At about mid-semester, the instructors realized they were transforming the way they teach.

E-portfolios as a Guide for Teaching and Learning

As students enter college, most do not imagine being responsible for their own learning. They believe that, somehow, teachers make them learn or, in some cases, prevent them from learning. Many even see assignments, required courses, and exams as obstacles to get around on the way to their ticket to the future—the degree. While there has been talk for many years about professors moving from "sage on the stage" to "guide on the side," e-portfolios are developing as a teaching/learning context where this is likely to happen. The practices associated with e-portfolio—e.g., designing "authentic" assignments, using engaging and active pedagogy, periodic self-, peer- and teacher-formative assessments, and requiring students to reflect on their learning—help to move *both* professors and students into a teacher/learner relationship where "guiding" really works. Emphasis shifts from delivering content toward coaching and motivating students as they try to solve problems that are of genuine interest to disciplines, professions, or communities. While additional research will be completed on e-portfolios *per se*, there is already promise in the fact that good e-portfolio programs use a combination of practices already shown individually to be effective in helping students learn. (See, for example, research on such practices in Bransford, Brown, and Cocking [2000]).

E-portfolios are gaining support as a way for students, faculty, programs, and institutions to learn, assess, and improve through a mutual focus on the work that students complete over time—work that can both facilitate and document a range of ambitious learning outcomes.

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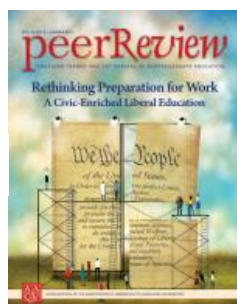
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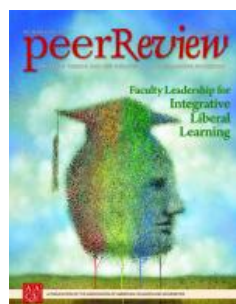In a world where college graduates spend the majority of their public lives engaged in work, this...
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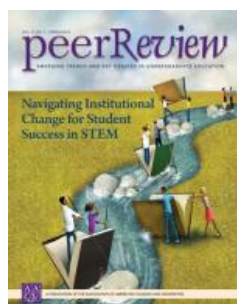
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