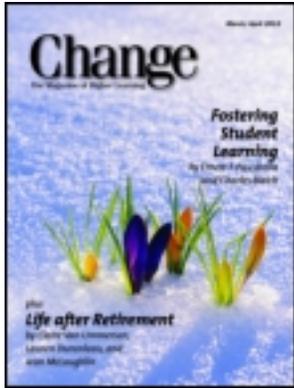


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### Defining the E-Portfolio: What It Is and Why It Matters

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# DEFINING THE E-PORTFOLIO

## WHAT IT IS AND WHY IT MATTERS

By Jill D. Jenson and Paul Treuer

### In Short

- Given increasing student mobility and the new culture of learning generated by the Web's information-rich, highly collaborative environment, students should learn to document and manage their own learning in ways that foster deep and continuous learning.
- The e-portfolio can provide the necessary framework for learners to do so, if they have a clear understanding of the portfolio's purpose and use.
- Graduates are better equipped for a lifetime of self-directed learning if educators teach them to regulate their learning behaviors; to document, critically reflect on, and integrate their learning; and to collaborate.

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Now that electronic portfolios (e-portfolios) are being used in over half of all colleges and universities in the US, those active in the field are being called on to develop scholarship on them (Association for American Colleges and Universities, 2013). To build robust academic inquiry, however, we must first answer the following fundamental question: What exactly is an e-portfolio?

The answer is elusive. Despite the ever-growing number of institutions using the e-portfolio, educators do not agree on a common definition of it because its nature and uses vary widely. Some see it as a gigantic electronic file cabinet. Some regard it as a tool for authentic assessment; for others, it is a digital, multimedia résumé. Certain teachers might define the e-portfolio as a course management tool or a learning platform, while still others view it primarily as a space for creating a virtual identity.

We have seen the tool used, often successfully, in each of these ways, so the varied “definitions” appear to fit. But does any one of them—or the group collectively—capture the intrinsic nature of the e-portfolio as used by students?

In trying to answer that question, we were reminded of a quotation from Ralph Waldo Emerson: “What is a weed? A plant whose virtues have not yet been discovered.” Is the e-portfolio growing wildly across the educational landscape absent a compelling purpose? Is it a digital tool whose real virtues have yet to be realized? Are those of us who so enthusiastically support its use able to clearly define the significance of the e-portfolio for higher education?

To answer this question, we return to the inception of e-portfolios. In 1996, when Paul Treuer first conceived of the electronic portfolio tool that the University of Minnesota Duluth (UMD) subsequently built and that later became the foundation for OSP (Open Source Portfolio), he identified for software developers its four defining characteristics:

1. E-portfolios were to be owned and managed by the users (i.e., the students).
2. E-portfolios were to be used responsibly, through selective, thoughtful sharing of granular pieces of digital information.
3. E-portfolios were to be used to promote critical reflection.
4. E-portfolios were to be used to foster lifelong learning.

From the start, Treuer saw the e-portfolio as a tool for helping students deepen their learning in the emerging open network of the developing Web. However, after seventeen years of building and attempting to implement e-portfolios at UMD, we have yet to see evidence of its use to “foster lifelong learning.”

Our students will use e-portfolios when directed to do so as part of the curriculum, but the vast majority do not use their accounts following graduation, despite their availability. Apparently, we are not alone. We find no evidence in the national and international literature that widespread use of e-portfolios occurs beyond the users’ college years. Why?

Our answer is that the purpose of the e-portfolio is poorly understood.

If we consider the multiple ways the e-portfolio is being used in light of the principles on which it was founded, we begin to see the problem. Although the electronic nature of the tool allows it to be used as a gigantic file cabinet for collecting evidence of learning, it was not meant exclusively for storage. Because it is owned and managed by the student, rather than by an institution seeking accreditation, it was not built for the sole purpose of assessment. The e-portfolio works well for career services, but it was intended to be used for far more than a student’s job hunt.

The e-portfolio contains features course instructors are unable to see or to use because course management was never its primary intended purpose. Since it was not built to imitate online what an instructor does in the classroom, it was not created as a learning platform. Finally, because e-portfolio elements were always meant to be selectively shared according to audience and purpose, the option of retaining the owner’s privacy was essential. So the virtue of the e-portfolio was not in creating a virtual identity, or persona, for public viewing.

In short, the e-portfolio was created to be something bigger than the sum of these parts. But in attempting to achieve that “something bigger” with our students, we have learned that simply introducing students to the tool and identifying the principles guiding its development were not enough. We realized we needed a definition of the e-portfolio that, in the words of Emerson, captured its *virtue* in order to realize its potential.

Our attempt to craft that definition sheds light on how to prepare college graduates to use the e-portfolio as an integral part of the learning process, a process we argue must ultimately become self-directed in order for learning to become lifelong.

## THE E-PORTFOLIO REQUIREMENT

When Treuer first introduced the e-portfolio to the UMD campus in the late 1990s, some saw its potential but were unable to realize it, so the tool was used sparingly. But then, in 2001, Jill Jenson made it part of UMD’s first-year writing program. This meant that nearly all incoming freshmen—

Despite the ever-growing number of institutions using the e-portfolio, educators do not agree on a common definition of it.

about 2,000 of the campus's 10,000 undergraduates—would be introduced to the tool each year.

Although this was far from campus-wide implementation, we were naïve enough to believe that establishing an e-portfolio requirement for freshmen would make them realize its potential and—since they had been promised access after graduation—continue to use the e-portfolio throughout the college years and beyond. We took it for granted that students would embrace this electronic marvel in the same way they have so many others. Over time, we learned that our assumption was wrong.

Our original e-portfolio requirement was similar to that of many early adopters. First-year writing students used the tool as a file cabinet into which they uploaded their final research papers at the end of the semester. Although we called this “documenting their learning,” for most this entailed simply electronically filing the paper and labeling the “tab” of the “file folder” with its contents, just as they would have manually labeled and filed a regular manila folder.

Recognizing that this practice involved little thought and yielded little value for the students, the term-end expectation was soon increased to having students upload all the papers written for the course, as well as to write a final reflective statement on their learning. The results were disappointing. Many student “reflections” were merely descriptions: “This is my research paper for freshman comp. It is on organ donation.” Others were simply a list of the assignments they had completed for class.

Reviewing the students' e-portfolios in light of the four principles on which the tool had been built showed that they enacted none of them. First, students quit using the e-portfolio as soon as the requirements for the first-year writing course were met. Second, they did not selectively share their e-portfolio elements after careful consideration of audience and purpose; they shared no more or less than what their instructors required. Third, far from using the tool for critical reflection, the students wrote very little, and what they did write could not be considered insights on their own learning. Finally, given that students were not using the tool for learning *within* the confines of the classroom, it was clear they would not be using their e-portfolios for a lifetime of learning *outside* the university.

**Self-regulation and critical reflection are different, with the latter being far more difficult to master than the former.**

In short, students simply wanted to “get done” with the e-portfolio requirement so they could move on to the next task. Obviously, neither learning nor campus-wide implementation was going to spontaneously occur based on a course requirement.

## CONDUCTING RESEARCH ON E-PORTFOLIOS

Seeing the disconnect between the vision for e-portfolio use and the reality, Jenson undertook a research project to determine whether any of the four learning principles, particularly the one promoting critical reflection, was achievable, even in just one course (Jenson, 2011). Discoveries made through this research started to uncover how to better use e-portfolios for learning.

The first discovery was that much of the literature on critical reflection equated the concept with what most educators would label self-regulation. In actuality, self-regulation and critical reflection are different, with the latter being far more difficult to master than the former. Svinciki's *Learning and Motivation in the Postsecondary Classroom* (2004) identified the steps to student self-regulation, which include their identifying the learning strategies that work for them in various situations (e.g., highlighting the textbook, using flash cards, having a study partner) and then setting goals to monitor their own learning.

In contrast, critical reflection involves making meaning of that learning. As Klein (2003) defined it, meaningful reflection is accomplished by those who are able to connect their coursework to their practice and have an understanding of how learning occurred. They see how and when outcomes have been reached and are able to set future short- and long-term goals that build on their learning.

The goal of e-portfolio use by first-year writing students became acquiring the ability to both self-regulate and critically reflect. But in order to do this, they had to shift from surface to deep learning (Biggs, as cited in Leung & Kember, 2003). Surface learners look at each assignment as a demand to be met, a necessary imposition in order that some other goal, such as earning a degree, may be reached. They see parts of the task as discrete and unrelated, either to each other or to other tasks, and they worry about the time the task is taking. Surface learners avoid attaching any personal or other meanings to the task and typically rely on memorization, the lowest level of development in Bloom's taxonomy.

In contrast, deep learners are interested in the academic task and derive enjoyment from carrying it out. They search for the meaning inherent in the task and personalize it, connecting it to their own experience and to the “real” world. Moreover, deep learners integrate aspects or parts of the task into a whole, seeing relationships between this whole and previous knowledge. Finally, deep learners theorize about the task.

Unfortunately, the thousands of students being introduced to the e-portfolio through our first-year writing course were not using the tool to reach deeper levels of learning. The question was, “Why not?” Could the answer be as straightforward as realizing that no one was teaching them how to do so?

The research project became a quest to answer this question: Could an educator implement pedagogical approaches that help students use the e-portfolio in ways that move them beyond surface learning to deeper learning, thereby developing in them the skills to achieve the learning outcomes the e-portfolio was built to foster?

Accordingly, three strategies aimed at promoting self-regulation were implemented in the first-year writing course. First, students completed surveys that asked questions regarding aspects of the assignment under their control. What was your goal for this assignment? When did you start working on it? Did you read the assigned material? If you had questions about the assignment, did you seek answers? If so, from whom? How much attention did you pay to your peer reviewer’s comments? Did you read none, some, or all of the instructor’s comments on your previous paper? Did you revise your draft thoroughly? After students received their grades, they were asked to consider, in writing, what they had learned through the assignment, what they would do the same for the next paper, and what they would do differently.

Second, nearly every class period included discussion designed to help students connect the course’s learning objectives to other classes, as well as to life outside the college classroom. For instance, students discussed why they were being asked to do a particular assignment and how a particular skill, such as analyzing sources, might be useful in a professional work setting or as a contributing citizen.

The third and final strategy involved once again increasing the e-portfolio requirement so that students uploaded their work and wrote reflections on each paper throughout the term, rather than writing one reflection covering all their papers at the end of the semester. All first-year writing students joined an e-portfolio community, through which they accessed templates of what to include in their e-portfolios and writing prompts that guided them through their critical reflection.

A qualitative analysis of students’ reflection statements both before and after the strategies were implemented showed that the first-year students made marked improvements in meeting the goals e-portfolio use was intended to foster. Anywhere from 30 to 90 percent of each class made progress in their ability to recognize whether they were reaching their learning goals, employing self-regulation strategies to do so, and integrating the learning that occurred in their first-year writing course with that acquired in other settings, both on and off campus. In other words, they showed early signs of moving from surface to deep learning.

**Nearly every class period included discussion designed to help students connect the course’s learning objectives to other classes, as well as to life outside the college classroom.**

#### MAKING MEANING OF THE RESEARCH

The research led to our identifying five fundamental learning skills, which demand increasing levels of thinking and independence, in order to use e-portfolios as the learning tools they were meant to be. At the lowest skill level, students *collect* relevant artifacts that document their learning. At a slightly higher level, students *self-regulate*, or become aware of and exercise behavior that leads to learning. At the next higher level, they *critically reflect*, contextualizing the meaning and significance of their learning in terms of established goals and value systems. At an even higher level, students *integrate* their learning, synthesizing their experiences and transferring them to new situations. Finally, at the highest skill level, students *collaborate*, building on their existing knowledge by applying it in community with others.

Clearly, students will not master these increasingly difficult skills in one first-year course. The focus shifts, then, to determining how to permeate each student’s higher education experience with opportunities to reach deeper and deeper levels of learning. In our decades of experience, we have seldom seen students with the motivation and curiosity needed to advance to higher levels of learning on their own.

Neither do the skills magically appear as students’ cognitive abilities develop, as UMD’s medical students demonstrate. After using e-portfolios for the past six years, administrators of our medical school recently decided to stop. A colleague privately admitted, “Much as I know e-portfolio is the future of medical education, we just don’t have the time or the means to teach our first and second year medical students critical reflection.”

In other words, although top students such as those found in a medical school might be able to collect artifacts and regulate their learning behaviors, even the best must be taught the more difficult skills associated with effective e-portfolio use. Those lessons cannot be left to professional schools.

The skills must be taught and learned throughout the undergraduate curriculum.

But this involves time, effort, and expense on everyone's part. Administrative leaders provided the vision, funding, and encouragement to build the tool and implement it across the UMD campus, not only in first-year writing courses but also through our freshmen seminar and other academic and co-curricular programs such as career services. As a result, as recently as two years ago the majority of UMD undergraduates had used e-portfolios. They and their viewers had accessed e-portfolios approximately one million times a year from 105 countries.

That said, the usage patterns clearly followed weekly classroom assignments, and seasonal patterns aligned with the academic calendar. Student reception of e-portfolios remained lukewarm at best; they treated it as just another assignment. Faculty members typically saw it as a burden—a task that produced more work on top of heavy teaching and research loads.

The failure to see large-scale results from using the tool, coupled with the enormous expenditures needed to support and maintain the software, made continuing on the current path impossible. Recent turnover has left our newly appointed top-level administrators with no choice but to curb support for the once-celebrated e-portfolio initiative.

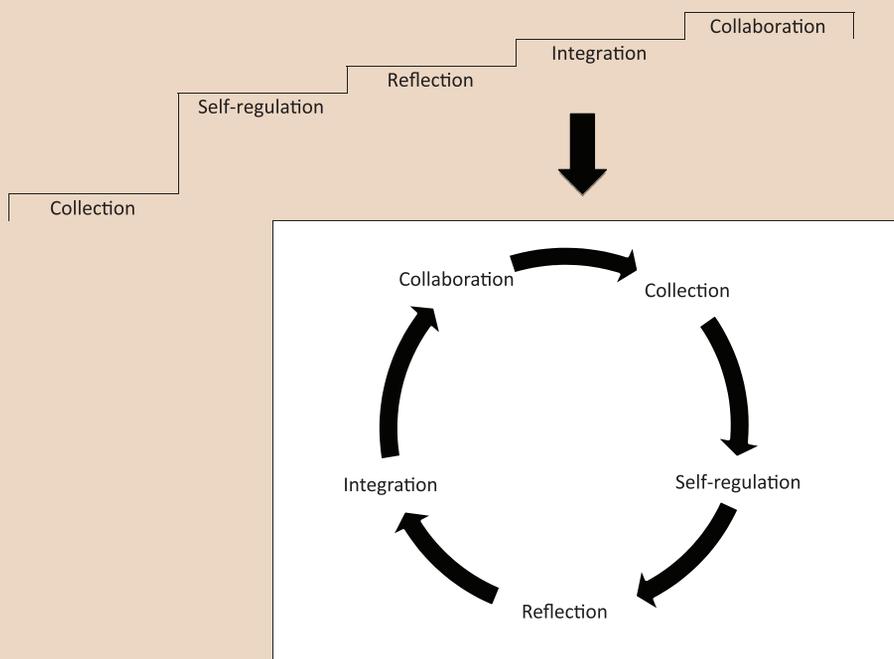
In short, after years of tremendous effort and some notable successes, UMD is stepping back to assess both the e-portfolio product it built and the ways in which it has been used.

**“If the true value of the e-portfolio is ever to be realized, students need to be taught how to use it to foster deep, self-directed, lifelong learning.”**

We now see that in order for our campus—and others—to use the e-portfolio effectively, it must be part of a major overhaul of the teaching and learning paradigm that calls for lifelong learning but does not produce it. Given the pace at which knowledge is currently produced and exchanged, we argue that if the true value of the e-portfolio is ever to be realized, students need to be taught how to use it to foster deep, self-directed, lifelong learning.

To achieve this goal, such instruction must occur throughout students' formal education; implementation must be campus-wide and continual until the needed skills become habits of mind. Only then will graduates have the skills they need to independently use their e-portfolios for learning.

**FIGURE 1. CYCLE OF DOCUMENTED LIFELONG LEARNING**



Realizing this led us to define e-portfolios and the unique nature of their use.

### THE DEFINITION AND USE OF E-PORTFOLIOS

Our definition of the e-portfolio is this: The *e-portfolio is a tool for documenting and managing one's own learning over a lifetime in ways that foster deep and continuous learning*. The e-portfolio is uniquely suited for 21<sup>st</sup> century learning, an age when learning takes place anywhere and anytime, both inside and outside formal education.

The definition starts with acknowledging that the e-portfolio is *a tool*—not a paradigm or a way of teaching, learning, thinking, or being. As a tool, it is just as essential for 21<sup>st</sup> century education as a hammer is for building. Nevertheless, like any other tool, it is without value unless one knows how to put it to its proper use.

Next, the e-portfolio is *for documenting and managing one's own learning*. Why would college students have to do that? Haven't educators and institutions always managed that evidence by assigning grades to indicate how much students have learned? Isn't the institution responsible for tracking progress toward degree completion and for generating "official" transcripts to verify that students have been educated?

Yes, these have been our practices. Moving forward, however, this cannot be the case. In the words of Douglas Thomas and John Seely Brown, "a growing digital, networked infrastructure is amplifying our ability to access and use nearly unlimited resources and incredible instruments while connecting with one another at the same time" (pp. 17-18). This means that educators must reevaluate current practices of knowledge management.

We need look no further than the burgeoning popularity of competency-based certificate programs and massive online open courses—MOOCs—to understand why our old ways will not continue to serve us. Tens of thousands of learners are taking courses from institutions to which they have not gained admission nor from which the vast majority seek to

graduate. These learners will be responsible for their own learning, tracking its arc, and documenting what they know.

The final piece of our definition addresses a goal currently espoused by virtually every educator: to graduate students who value *learning over a lifetime*. To that end, we have added the need to *foster deep and continuous learning*. As we have discovered, the habits of mind that result in such a commitment to learning are not, for most students, innate. Although we begin life with an inquisitive nature, a curious thing happens on the way to being "educated": Too many students relinquish the responsibility for asking and answering questions to those in authority.

In the new culture of learning, however, students must ask and answer their own questions: What are my goals? What questions do I still have? How will I find answers to those questions? With whom do I need to collaborate in order to find those answers? How will I know when I have learned what I need to learn? How will I validate my learning?

The skills needed for our students to become deep and continuous learners must be nurtured and developed through formal education, with the aim of fostering learning independence. We believe that the e-portfolio enables individuals to manage their own learning, in whatever form (and wherever and whenever) that learning occurs.

### DEVELOPING AND ASSESSING LEARNING SKILLS

In their book *Documenting Learning with E-Portfolios*, Tracy Penny Light, Helen Chen, and John Ittelson (2012) ask this question: How do we "enable students to authentically represent their own learning in a way that makes sense to them and encourages them, ultimately, to take responsibility for their own learning?" (p. 11).

We answer this question in two ways. First, we earlier identified five skills essential for effective use of the e-portfolio and for learning: *collection, self-regulation, reflection, integration, and collaboration*. Although these skills can be learned in isolation, there is good reason for developing them sequentially—not only because they build on one another but also because the only way to embed them as habits of the mind is to reinforce them throughout the college years.

Second, although these skills are initially best learned in sequence, the learner must ultimately practice them in a cyclic rather than a linear way (see Figure 1). Having mastered all five skills, a participant can enter any learning environment at the appropriate point.

For example, perhaps in a group of professional peers a junior employee will assume the lowest-level role of the collector and organizer of information. However, this same person may be a member of a sustainable gardening group in which she practices higher-level skills—guiding the group through self-regulation, asking them to reflect on what they are doing and why, helping them integrate what they know as

**The e-portfolio is uniquely suited for 21<sup>st</sup> century learning, an age when learning takes place anywhere and anytime, both inside and outside formal education.**

TABLE 1. RUBRIC FOR MEASURING E-PORTFOLIO LITERACY

<b>E-Portfolio Skills Defined</b>	<b>Level 1: Lacking Proficiency</b>	<b>Level 2: Partially Proficient</b>	<b>Level 3: Proficient</b>	<b>Level 4: Exemplary</b>
<b>Collecting</b> Collecting relevant artifacts that demonstrate learning outcomes.	Collecting artifacts with prompting, but without demonstrating their relevance to learning.	Collecting relevant artifacts to demonstrate learning outcomes as a result of prompting.	Collecting relevant artifacts to demonstrate learning outcomes without prompting.	Habitually collecting relevant artifacts that demonstrate learning without external prompting.
<b>Self-Regulating</b> Being aware of behavior students can control and exercising that control for learning.	Being unaware of individual behaviors that affect learning; putting responsibility for learning on others.	Being aware of learning behaviors and strategies but depending on others to enable and/or require those behaviors.	Consistently controlling behaviors and strategies to meet learning goals in a structured learning environment.	Consistently and independently controlling behaviors and strategies to meet learning goals in any learning context.
<b>Reflecting</b> Contextualizing the meaning and significance of learning, consistent with established goals and values.	Naming and/or describing educational artifacts as prompted but lacking awareness of learning goals or their significance.	Identifying processes and experiences associated with a formal learning situation but being unable to relate them to outcomes or values when prompted.	Contextualizing the meaning and significance of formal learning experiences consistent with established goals and values as prompted.	Contextualizing the meaning and significance of learning experiences consistent with evolving goals and values without prompting.
<b>Integrating</b> Synthesizing and transferring learning to any number of situations.	Being unable to recognize the significance of a formal learning experience as it relates to any other setting.	Recognizing the significance of a formal learning situation to other formal learning situations when prompted.	Synthesizing and transferring learning in a formal situation to other situations inside or outside an educational institution when prompted.	Synthesizing and transferring learning of any kind to other situations in any number of environments.
<b>Collaborating</b> Participating in community to build knowledge and skills on a foundation of existing knowledge.	Following the lead of others to demonstrate learning but unable to connect that learning to the goals of the community.	Participating in a community of practice to develop, document, and assess knowledge and skills in response to prompts.	Actively contributing to a community of practice to develop, document, and assess desired knowledge and skills.	Stewarding a community of practice that collaborates to meet the learning goals of its participants.

## The e-portfolio is well positioned to be an essential tool in a culture of ubiquitous learning resources.

it applies to larger, more complex issues, and collaborating to solve problems the community is currently facing.

How will we know when we have reached the goal of developing students who are prepared to document and reflect on their own learning? Table 1 illustrates our Rubric for Measuring E-Portfolio Literacy, which measures students' progress at acquiring and practicing the needed skills throughout their degree programs. Scores generated by applying the rubric during learners' undergraduate education—and afterward—will indicate their ability to use the e-portfolio to provide evidence that deep, self-directed learning is taking place.

### AT A CROSSROAD

We are at a crossroad with respect to the term *e-portfolio*. Either it remains a catch-all name for a tool with a wide range of technological, pedagogical, and institutional purpose, or it has a clear, overarching purposes. Because we believe that a technology that tries to be all things to all people is unsustainable, we advocate for the clear, purposeful, and measurable definition of the e-portfolio described in this article.

The e-portfolio is well positioned to be an essential tool in a culture of ubiquitous learning resources. To harness these resources, students must develop the discipline and skills that until recently were the responsibility of teachers. This shift in control requires that we develop in students the tools and skills to direct their own learning; at the same time, it provides educators with the opportunity to do what they do best: to facilitate, mentor, coach, teach, guide, and evaluate learning.

We believe that a comprehensive implementation of e-portfolios must become a priority for higher education. Their purpose should be communicated to all students, the expectation of independent learning should be unequivocal, and the support for achieving learning goals should be continual throughout the undergraduate experience.

The true measure of successful e-portfolio implementation is not only where students score on the Rubric for Measuring E-Portfolio Literacy at graduation but also five, ten, or twenty years later. Only then will we know whether we educators are preparing graduates for deep learning in the 21st century and, more importantly, whether they will continue on that path for a lifetime. ☐

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