

Eportfolios: In search of a silver bullet

by

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A research paper submitted in partial fulfillment of the requirements of the degree of

MASTER OF ARTS

in

LEARNING AND TECHNOLOGY

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ROYAL ROADS UNIVERSITY

January 2010

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Abstract

Eportfolios offer compelling opportunities for institutions seeking more authentic ways to assess student learning, help students become reflective learners, and to integrate formal and informal learning experiences. In spite of this potential, there is little evidence of widespread adoption of institutionally supported eportfolio tools in the British Columbia post-secondary system. To understand why, this study examined 29 case studies of eportfolio implementations in post-secondary institutions, primarily in the US and UK, and compared the results to four broader research reports to identify the key issues affecting institutional decisions for implementing eportfolios.

The study reveals a complex pedagogical practice typically influenced by both internal motivations and external drivers. Disciplines with professional requirements for the demonstration of standards or competencies may be the easiest fit for eportfolio use.

Consistent lessons from eportfolio pioneers suggest that institutions considering implementing eportfolios should pay close attention to the following: clarity of purpose; selecting appropriate tools (while recognizing tools are in their infancy); purposeful integration of eportfolios into curriculum; attention to training and support; engagement and buy-in from all stakeholders in the planning and implementing phases; and the challenges of addressing issues of time and workload, assessment, providing frequent feedback, and encouraging meaningful reflection.

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Introduction

On first glance, electronic portfolios in higher education make perfect sense for institutions and students alike. A practice that puts students in control of demonstrating their learning by “collecting, selecting, reflecting, evaluating, and celebrating” (Abrami & Barrett, 2005, p. 4) products or artifacts of that learning seems an ideal fit for institutions struggling to find more authentic ways to assess students. Few are likely to argue against the benefits of a practice that offers greater potential for students to make connections among courses and areas of study, or between formal and informal learning, or to represent and realize their own progress over time. Providing students with a flexible and portable means of representing their competencies, skills, and knowledge to multiple audiences would appear to be an obvious advantage for students transitioning from school to an increasingly competitive job market. And yet, in spite of this potential win-win opportunity for both institutions and students, the adoption of institutionally supported eportfolio tools seems to be rare in Canadian post-secondary institutions.

From my perspective as a learning technology manager working within an IT support unit, I became interested in eportfolio tools for their potential to solve a very practical problem: how to allow students to manage and access their files, especially large media and PowerPoint files, outside of the institutional learning management system. Students are increasingly requiring better ways to collaborate and share information within a course, as well having control over their intellectual property beyond the duration of a single course. My experimentation with eportfolio tools began with Mahara, an open source eportfolio application. I piloted the use of Mahara with a small group of students to test whether it would meet their file sharing needs. It was quickly apparent that without faculty engagement, students would be unlikely to invest time

in using such a system on their own. Thus began my journey into the world of eportfolios and their diffusion into the landscape of higher education.

Research Questions

Being a novice to eportfolio tools and practices, I was surprised by the range of purposes and contexts in which eportfolios have been piloted and implemented, and more so by the vast numbers of case studies from educators, institutions, organizations, and communities of practice wishing to share their experiences. I was encouraged to discover this overwhelming evidence of a sincere desire to collect and provide proof of the value of eportfolios in improving the educational landscape. Clearly, many had already travelled the path I was contemplating. How could I synthesize this experience to help me understand what is involved in considering an eportfolio implementation?

This paper documents an analysis of 29 individual case studies and 4 comprehensive research reports to determine:

1. What factors influence the success or failure of institutionally supported eportfolio implementations?
2. What conditions contribute to sustaining and supporting eportfolio tools and practices?
3. To what extent are some disciplines better suited to eportfolio practice than others?
4. What factors influence institutional decisions on which tools or platforms to support?

Eportfolios Defined

A scan of current literature will reveal quickly that “eportfolio” is really an umbrella term that encompasses a wide range of purposes, practices, and tools. There appears to be general

agreement that any definition should draw attention to the “purposefulness” of the endeavour, as well as to the importance of *process* over end *product*. The “e” in eportfolio also calls for acknowledgement of the value or affordances added by introducing technology. As an example, Cotterill’s definition below draws a distinction between the eportfolio as a concept and the eportfolio application or tool set which delivers the concept to its intended audience:

...A purposeful collection of information and digital artifacts that demonstrates development or evidences learning outcomes, skills or competencies. The process of producing an ePortfolio (writing, typing, recording etc.) usually requires the synthesis of ideas, reflection on achievements, self-awareness and forward planning; with the potential for educational, developmental or other benefits. (Cotterill, 2007, “What is an e-Portfolio,” para. 1)

ePortfolios can be produced using simple tools (such as presentation software or blogs) but more typically using specialist ePortfolio applications that contain a level of structure (pedagogy and learning outcomes/skills) with a high level of customisation for specific contexts and support for multiple purposes....

ePortfolio applications allow the owner to share specific parts or views of their portfolio online and support feedback and dialogue. Ideally ePortfolios are interoperable (for example with learning environments, recruitment services or for the migration of portfolio data to support continuity in life-long learning). (para. 2 & 3)

Eportfolios can also be categorized by type. The IMS Global Learning Consortium, an organization committed to developing standards for learning technologies and for eportfolios specifically, identifies the following major eportfolio types (2005, Section 2.3, “Major Types of ePortfolios”):

- Assessment eportfolio (to evidence learning or achievement)
- Learning eportfolio (to document or guide learning over time within a curricular context)
- Personal Development Planning eportfolio (particularly in the UK, a structured process for planning and reflecting on learning for personal, educational, and professional development)
- Multiple owner eportfolio (to represent the work or growth of a group collaboration, organization, or unit. Typically a presentation or learning portfolio)
- Working eportfolio (a larger archive that may contain elements of all types but allow the owner to draw content to present different views to multiple audiences for different purposes)

Eportfolios within a Constructivist Framework

Also apparent in current literature are four primary drivers that are converging to focus attention on the use of eportfolios in higher education. These include the recognition and acceptance of the value of active; reflective, and constructivist learning principles; new opportunities afforded by the widespread adoption of Web 2.0 and social networking tools; the demand for greater accountability and more authentic assessment methods in higher education;

and the growing need to integrate and transfer learning and knowledge among multiple educational, professional, and life contexts (Clark & Eynon, 2009).

Eportfolio practice seems naturally aligned with constructivist learning principles, based as these principles are on the assumption that learners “construct” rather than “acquire” knowledge and that they do this best through collaborative experiences which take place in relevant or real-life settings. Driscoll (2000) summarizes typical constructivist learning goals as including “problem-solving, reasoning, critical thinking, and the active and reflective use of knowledge” (p. 382). These goals are ones for which traditional lecture-based teaching and individual reading assignments are not well suited. Likewise, traditional assessment strategies such as multiple-choice, true or false, and other response selection methods restrict learners to demonstrating recognition and recall rather than an ability to apply knowledge in realistic or authentic contexts (Mueller, 2008).

Also fitting within a constructivist framework, is the concept that meaning or knowledge is not constructed in isolation, but rather negotiated among multiple social contexts. Web 2.0 and social networking tools offer learners new opportunities to represent new knowledge and meaning and to more easily co-create, share, and receive feedback about this knowledge across multiple communities.

One of the important conditions leading to the attainment of constructivist learning goals is the ability for learners to be attuned to their own thinking processes and to gain awareness of how their own views and assumptions are connected to the construction of knowledge. This self-awareness is critical to the development of reasoning, and of critical and flexible thinking (Driscoll, 2001). Developing the ability to reflect on learning experiences, make connections,

and integrate learning across multiple contexts is increasingly viewed as a key responsibility of higher education in preparing students for life-long learning (AAUC, 2004).

Eportfolio practice which encourages the “purposeful” collection of evidence of learning and the “synthesis of ideas, reflection on achievements, self-awareness and forward planning” (Cotterill, 2007) would appear to be well suited for achieving constructivist learning goals, offering greater promise than traditional teaching and assessment methods for allowing learners to demonstrate growth over time.

Policy Drivers

In addition to pedagogical motivations, there are external forces driving institutional decisions about implementing eportfolios. In the UK, eportfolios are addressed directly as part of a national educational e-strategy calling for schools at all levels across the system to provide a “personal online learning space” for all learners (DfES, 2005). Coordination and support for the e-strategy, including eportfolio research and development, is provided by the British Educational Communications and Technology Agency (BECTA) and the Joint Information Systems Committee (JISC).

In 2004, the European Union adopted the Europass as a framework to improve the transparency of qualifications to facilitate mobility in both educational and occupational sectors. The Europass consists of five documents describing educational and vocational achievement, work experience, language skills, and international educational experience (mobility). While not in itself an eportfolio, the Europass framework is clearly linked to the concept of a “personal database system” required for storage and as a sharing mechanism for Europass components. The framework has contributed to the establishment of a connected stakeholder community who

share common goals. The Europass is also spearheading interoperability efforts across this diverse community by providing tangible artifacts on which to focus ongoing development of technical standards. The European Institute for E-Learning (EIFEL) created the Europortfolio consortium to coordinate and support eportfolio research, the development of benchmarks and standards, and sharing of information and best practice in the use of eportfolios across Europe.

Australia is currently committed to a comprehensive project to support and enhance the use of eportfolios across the school, vocational, higher education, and business and industry sectors. The Australian Eportfolio Project grew out of the Australian government's identification of education as a key component of a national productivity agenda that seeks to improve access to education and enable greater participation in a "digital economy" (AeP Final Report, 2008). The project is in its second phase and is now focused on implementing the recommendations identified in phase one, including the creation and promotion of a toolkit and a nation-wide eportfolio community of practice.

In contrast, Canada has no such national strategies or vision for elearning. The Canadian Council on Learning's 2009 report, *The State of E-learning in Canada*, draws attention to the slower than anticipated adoption rate of elearning nationally, as well as to the lack of a cohesive national framework for elearning development. Canada's early attempts at coordinating a national eportfolio agenda through the work of *The Learning Innovations Forum d'Innovations d'Apprentissage* (LifLA), dissolved in 2007, due to "insufficient support" according to the organization's founder, Katherine Chang Barker, as quoted in an Educause blog posting by Catherine Howell (2007).

In addition to governmental policies, other types of external drivers include those that seek to establish evidence of institutional accountability or standards for accreditation and

outcomes assessment such as those established by professional regulatory bodies (for example the US National Council on Accreditation of Teacher Education and the Teacher Qualification Service in BC, and Canada's Certified Management Account (CMA) accreditation process).

Research Methodology

There is strong evidence in the eportfolio literature (Jafari & Kaufman, 2006; Cambridge et al., 2009; Stefani et al., 2007) of the common desire to share information and “lessons learned” about emerging eportfolio implementation and practice through case study methodology. Given this abundance, I was interested in examining a representative set of these studies to determine whether there are common factors or patterns that can shed light on institutional decisions to adopt eportfolio tools and practice. As I was primarily interested in eportfolio adoption within an institutional context, I narrowed the focus to studies describing implementations within a single university or college as opposed to projects spanning multiple institutions or consortia. Twenty-nine case studies were selected from among two published research collections (*The Handbook of Research on Eportfolios*, Jafari, 2006, and *Electronic Portfolios 2.0: Emergent Research on Implementation and Impact*, Cambridge et al., 2009), from the Joint Information Systems Committee website (<http://www.jiscinfonet.ac.uk/case-studies/tangible/cs-e-portfolios>), from the BECTA 2007 *Impact study of eportfolios on learning*, and a single independent internal report on the use of eportfolios at the University of B.C. (Fleming, 2006).

The reporting format for eportfolio case studies, while varying widely, share common elements: a description of the background/context; a description or analysis of the usage; reporting on some form of evaluation, feedback, or success factors, and a “lessons learned” or

recommendations section. From these common elements, the following descriptive patterns emerged:

- Goals/Motivation (what was the primary driver for implementation)
- Size of institution (does size predict or effect implementation efforts)
- Discipline (are specific disciplines more likely to implement eportfolios)
- Portfolio type (assessment, show case, learning, or for multiple purposes)
- Assessment (was the eportfolio assessed as part of a course or program)
- Tools
- Lessons/Recommendations
- Sustainability (searched institutional websites for evidence of whether eportfolios were still in use)

The limitations of this approach include the extent to which the analysis of the case study content is subject to interpretation by the researcher. In an effort to mitigate this limitation, I compared my findings to those reported in 3 comprehensive research reports undertaken by national organizations in Australia, Europe and the UK to determine whether the common themes or patterns were consistent within broader contexts.

Findings

Why Do Institutions Implement Eportfolios?

Goals or motivations for implementing eportfolios are generally articulated in the background, introductory, or context sections of case study reports. Figure 1 illustrates the categories that emerged on examining the case studies. Further details are provided in the following section.

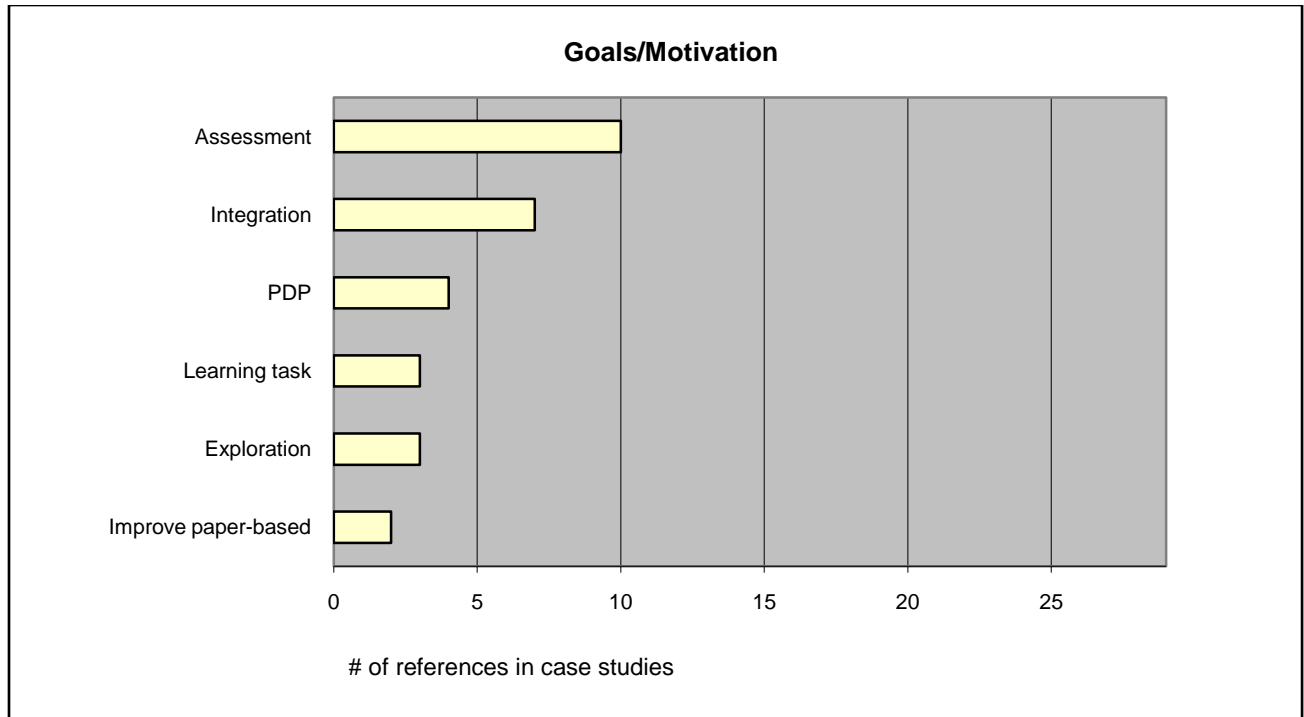


Figure 1

- *Assessing outcomes or competencies*: Ten case studies indicated that tracking or demonstrating outcomes or competencies was the primary goal for implementing or studying the use of eportfolios.
- *Integrating or making connections*: Seven of the studies implemented eportfolios to help students make connections or integrate learning across programs or among multiple work and personal contexts.
- *PDP: Personal Development Planning*: Four of the case studies indicated PDP as the primary goal.
- *Course related learning task*: In three instances, eportfolios were implemented to achieve a specific learning goal or task, for example “replace a 3 hour exam with portfolio of selected writings”.

- *Exploratory*: Three studies listed exploration or experimentation as the primary driver for implantation, for example: “to find out about challenges and benefits”.
- *Improve paper-based portfolio practice*: Two case studies reported implementing eportfolios as an evolution of an existing paper based system.

Does Size Matter?

Size of institution did not appear to be related to motivation/goal although the significant predominance of large institutions represented in the case study literature may suggest that large institutions are more likely to have the support and infrastructure resources necessary to consider an eportfolio trial or implementation. Table 1 illustrates the size of institutions from which the case studies were drawn.

Institutional Size

Small (>5,000)	Medium (5000-15000)	Large (<15,000)
6	7	16

Table 1

Disciplinary Fit

Institution-wide initiatives were reported more frequently than projects driven by a single discipline. Of the specific disciplines reported, teacher education and communications/writing programs respectively were represented most frequently. Teacher education is an area which typically has competency requirements coordinated externally through national, state, or provincial accreditation bodies. In five of the six studies focused on teacher education, assessment was indicated as the primary goal for implementation, suggesting that eportfolios are

primarily implemented in teacher education as a response to external accreditation requirements.

Table 2 lists the disciplines represented in the case studies. The term multi-discipline is used in the table to describes cases where more than one discipline, but not the entire institution participated in the study.

Disciplinary Fit

Discipline	Frequency
Institution-wide	8
Teacher Education	6
Communications/Writing	5
Multi-discipline (not institution-wide)	3
Program-based	2
Social Science	2
Medical Education	2
Viticulture	1

Table 2

Is this for Marks?

I originally sought to capture information about the assessment value or weighting given to the eportfolio tasks within the case studies to determine if an assessment requirement is linked to successful implementation. However, I found it problematic to extract this information in a consistent way. Eportfolios are often used in a variety of ways within a single institution. Some courses or programs may use eportfolio activities as part of formative and summative assessment requirements and other courses may focus on ungraded reflective or integrative eportfolio

activities. Although I was not able to extract meaningful data, the literature suggests links among assessment, perceived value, and student motivation and buy-in (Tosh et al., 2005).

What Tools are Being Used?

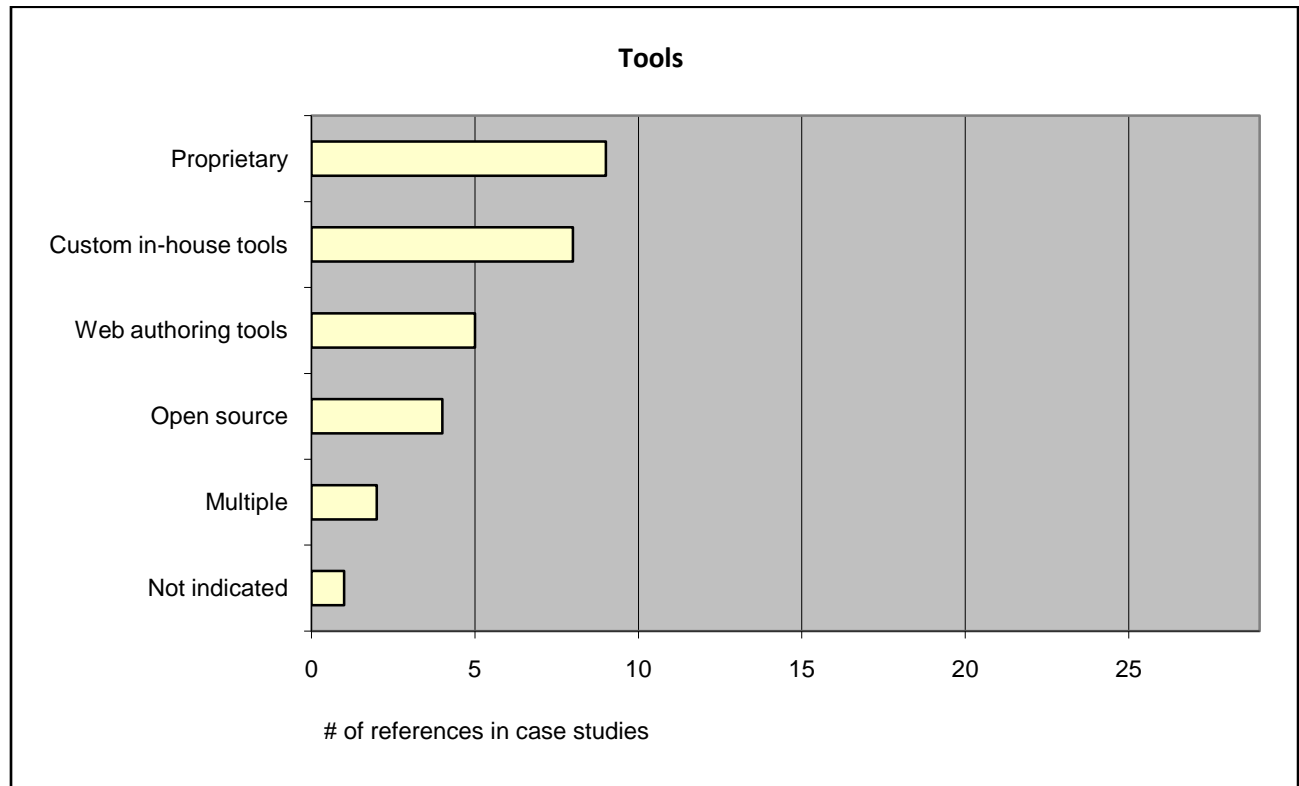


Figure 2

Figure 2 illustrates the range of tools represented in the case studies. Proprietary tools included PebblePad (4), Epsilon (2), Blackboard (1), Sharepoint (1), and Chalk & Wire (1). Custom, in-house applications were reported in eight of the studies. It should be noted that there was no evidence connecting the size of institution to the development and use of a custom tool. One might assume that larger institutions may have more resources available for this type of development but this did not seem to be the case. Web tools included applications such as Dreamweaver, FrontPage, Keep Toolkit, and Sea Monkey. Open source tools included Moodle and Elgg, Sakai and OSP (Open Source Portfolio). Two case studies reported offering a choice

of software and supporting multiple tools (WebCT, WordPress, Blackboard, web authoring software etc.). In one case, the tool or tools used could not be determined from the case study report.

Lessons Shared

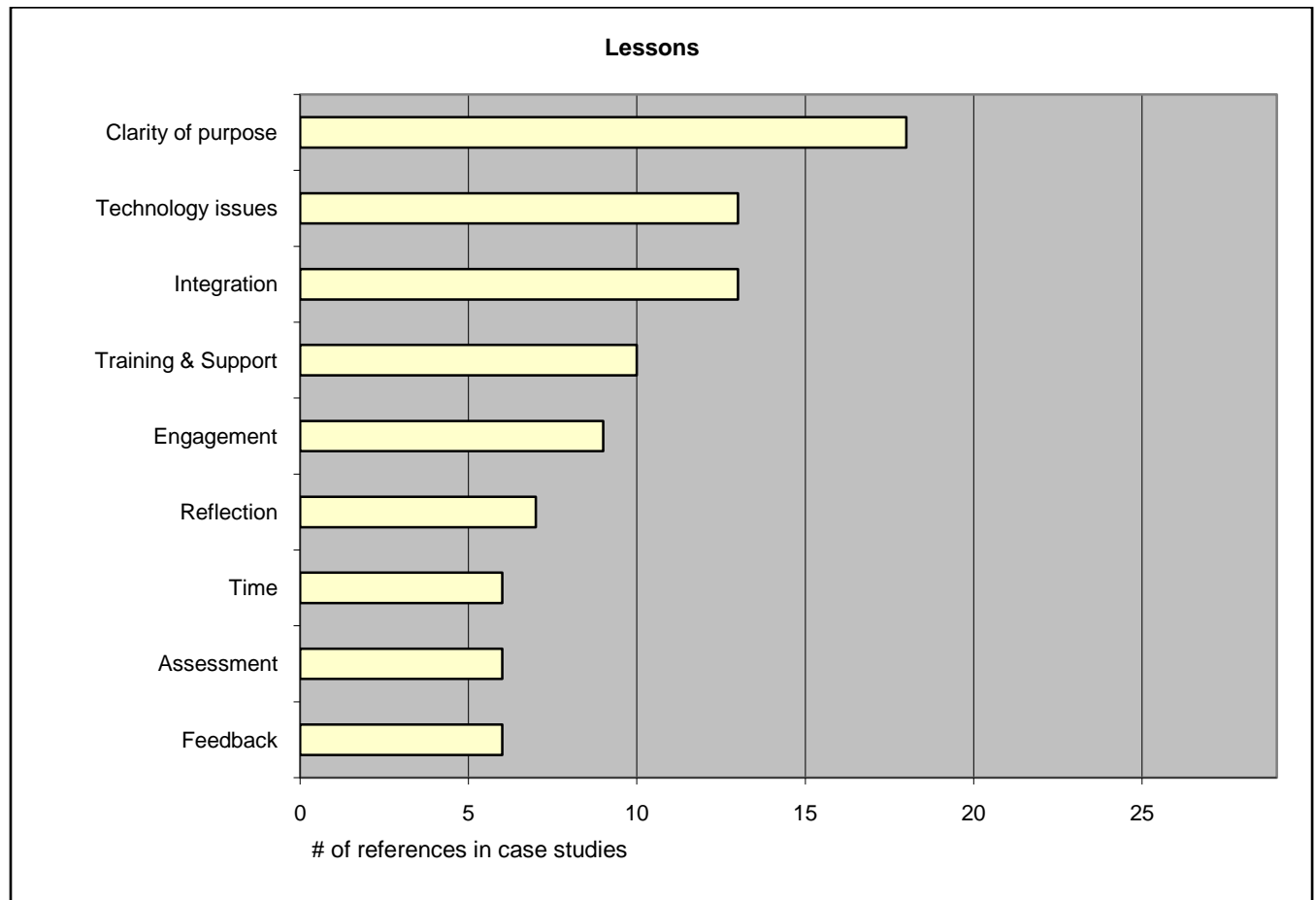


Figure 3

Often the most useful and generalizable part of a case study is the “lessons learned” segment where authors reflect on and share their experiences. Figure 3 illustrates the frequency of common themes that emerged within the case study lessons. Further detail is provided in the following sections. The numbers in parentheses indicate the number of case studies that referenced the item as a significant issue in the pilot or implementation project.

Clarity of purpose (18).

The most commonly shared lesson was the importance of communicating clearly to students the intended purpose of the eportfolio within the intended context. Eighteen of the 29 case studies included clarity as a key recommendation. Suggestions included providing concrete examples and coherent conceptual frameworks, providing clear guidelines on connecting artifacts to principles or standards, explaining how eportfolios differ from other web-based presentations, providing clear guidelines on what makes a successful eportfolio, and making a distinction between presentation portfolios and reflective portfolios. Students appear to more naturally grasp the concept and benefit of presentation eportfolios as something that will help them advance their careers. Students appear to need more guidance and greater clarity when the goal of the eportfolio is reflection or integration. In these areas, students may require more concrete examples and continuous reinforcement to understand and internalize the “folio thinking process” (Fleming, 2007, p.15).

Technology issues (13).

In spite of the widely asserted principle that the term eportfolio describes a “process” rather than a specific technology, technology issues figured prominently in 13 of the case studies analyzed. Structured, enterprise level applications are still in their infancy. As many case studies reported, there is no “one-size fits all” tool or “killer app” on the horizon. Students (and faculty) with limited technology skills are at a disadvantage and need to spend additional time learning how to use the tools. On the other hand, students with advanced technology skills are used to, and demand, more flexibility and greater ability to customize and personalize the online learning space beyond what is typically available with most of these fledgling systems. Issues of storage capacity, ownership, and interoperability among systems continue to challenge

institutional IT service providers. The proliferation of Web 2.0 tools and the challenges of how to integrate these tools within structured systems still in the early stages of development will continue to be an issue for the foreseeable future (see section on Gartner's Hype Cycle and Eportfolio Tools in further in this report and Appendix A for examples of two open source applications).

Integration (13).

The importance of integrating or embedding the use of eportfolios into the curriculum was another commonly shared lesson. Suggestions included connecting eportfolio use within institutional and departmental frameworks; providing guidance, feedback and iterative activities; providing scaffolding as students learn to be reflective; being intentional about integration; being aware that activities cannot be "bolted-on" but must be embedded; and being aware that the collection of artifacts must be clearly linked to principles and goals. Most of the case studies that listed the importance of integration as a key recommendation also acknowledged the time, effort, or workload issues involved in course and curricular redesign to make eportfolio use successful.

Training and support (10).

Ten of the case studies made specific reference to the importance of training and support for both faculty and students. Most of these studies reiterated a common recommendation for adequate technical and pedagogical support. Suggestions included recommendations that a core team be responsible for design management and support. It was suggested that instructors also need to be relieved of answering technical questions so that their time is not spent battling the technology rather than on content or process. Other suggestions included implementing technology lab assistant positions where possible to provide student support, and considering an educational technology course as a student prerequisite.

Engagement (9).

Nine of the studies highlighted the importance of engaging multiple stakeholders within the institution to ensure a successful roll out and adoption. Suggestions included: being inclusive in design and development; striving for top-down validation and instructor buy-in; striving for community wide engagement; proving value to internal and external stakeholders; and aiming for integration with other university systems with seamless support.

Reflection (7).

Seven of the studies commented specifically on the benefits of reflection within eportfolio practice while acknowledging the challenges of encouraging and supporting learners in becoming reflective practitioners. Questions about how to assess reflection were also raised. Suggestions included: providing rubrics, guidelines and questions that help students internalize reflection; considering how reflection is included in the rationale for implementation; understanding that faculty feedback is important to encouraging reflective practice.

Time (6).

Time was a significant element in six of the case study reports. One case study indicated the time requirement to adequately document competencies was perceived as overwhelming, while others acknowledged the significant time requirement for both faculty and students. Other advice included thinking about eportfolio implementation as a long-term process and understanding the importance of adequate lead in time when introducing eportfolios into an institution, course, or program.

Assessment (6).

The potential and challenges of assessment were reported as part of the lessons learned in six of the studies. The promise of eportfolios as a valuable alternative assessment method and

evaluating learning across disciplinary boundaries was acknowledged, as was the challenge of transitioning from traditional assessment methods.

Feedback (6).

The importance of faculty feedback for students was emphasized in six of the cases. Feedback was acknowledged to be particularly important where reflection or integration was a primary motivation for implementation. Suggestions included realizing the importance of the new opportunities eportfolios provide for mentorship and guidance, and the importance of providing feedback on what makes an eportfolio successful.

Sustainability

In 25 of the 29 case studies, a follow up search of the institutional websites indicated that eportfolios were still in use in at least some capacity. In some cases, tools were shown to have evolved over time (in the case of in-house tools) or to have been replaced by different or multiple tools or systems (particularly for the cases from Jafari which were published in 2006).

Lessons from Further Afield

The Australian E-Portfolio Project

In 2008, a government commissioned consortium of institutional partners from Queensland University of Technology, University of Melbourne, University of New England and University of Wollongong, published a comprehensive report on the state of eportfolio practice in Australian higher education. The report presented data gathered from a range of contexts and stakeholder groups including students, government and academic policy makers, academic managers and educators. This report proposed a series of recommendations intended to guide a collaborative national eportfolio strategy across the higher education sector.

Survey data from a national audit of eportfolio use indicated that Australian institutions tended to implement “at the course subject-specific or program-based activity, as opposed to faculty- or university-wide activity” (p. iii) with teacher education and medicine as disciplines leading the way with eportfolio implementations. The survey data also indicated that the most commonly held philosophy pertaining to the use of eportfolios was “evidence of skills, but there’s also an opportunity to show the process and to reflect on what this means to the student” (p. 94).

With regard to the tools and systems in use: “the learning management system was the most common application, but paper-based systems, student web pages, blogs and wikis featured. There was often an element of choice of tool, which underscored the climate of experimentation” (p. 133).

The report identified the following five key themes driving the development of the resulting recommendations: ownership and purpose; interoperability; shared understandings; training and user/teacher support; and resourcing.

Effective Practice with e-Portfolios (JISC)

The JISC is a government funded advisory organization that provides leadership in the use of information and communication technologies (ICT’s) in the UK’s higher education (HE) and further education (FE) sectors. JISC is at the forefront of UK eportfolio research and development and has produced comprehensive reports, tools, and resources about their implementation and use. The JISC Eportfolio Infokit lists the following “emerging lessons” from extensive case studies and projects:

- Think about requirements
- Think about the context

- Embed into the curriculum
- Win hearts and minds
- Staff engagement is key to learner engagement
- Timing of implementation
- Personalisation is key
- Reflection is hard
- Listen to the learner and staff voices
- Training
- Longevity

With regard to tools and technologies, JISC pilot projects demonstrated that:

... a simple, single software solution was inappropriate due to the diversity of approaches to e-portfolios and the wide range of learner needs. Other JISC projects have shown that to support learning effectively e-portfolio systems should be able to accommodate the differing pedagogic models and curriculum approaches of each programme. (JISC Infonet, Eportfolio Infokit, Technologies, para. 3)

JISC suggests that other emerging tools include “aggregated web service which are integrated with an interface” (para. 4) and eportfolios which are integrated into a portal or VLE.

More Self Esteem with my e-Portfolio (MOSEP) Study

The European Union’s MOSEP project was undertaken to report on the potential of eportfolios as a way to combat high drop-out rates in the 14-24 year-old age group. The 2007 report presents case studies and critical success factors from eportfolio implementations across Austria, Bulgaria, France, Germany, Lithuania, Poland, and the UK.

The MOSEP report (pp. 25-26) identifies the following as critical success factors:

- Reasons for implementing eportfolios must be clear and understood by all stakeholders
- Curricula need to be revised in order to integrate the eportfolio
- Instruction and guidance is crucial as is freedom in terms of tools and structure
- Adequate time and money available for teacher professional development both tools for methodologies
- Collaboration or support from business and industry is important
- Technology decisions must consider costs, support for different formats, reliability, portability, ease of use must also be considered within each institution.

Gartner's Hype Cycle and Eportfolio Tools

Gartner Inc. is a large and influential US based IT research company that, since 1995, has produced an annual snapshot of the maturity levels and adoption rates of a wide range of technologies and applications. Gartner's Hype Cycle methodology contends that technologies emerge through five evolutionary phases along a predictable curve or cycle: technology trigger, peak of inflated expectations, trough of disillusionment, slope of enlightenment, and plateau of productivity. Included in the methodology is a "priority matrix" which plots technologies on a grid based on benefit and estimated time to mainstream adoption. This methodology is applied across a wide range of IT topics and technologies including education. Although Gartner's methodology is criticized by some for being too static and not sufficiently rigorous (Veryard, 2005), Gartner reports are widely consulted across many sectors of the IT industry in order to make decisions about the timing and risks of technology implementations.

Authors of the Gartner Inc. Hype Cycle for Education, 2009, preface their report by noting the increasing trend away from institutionally provisioned and supported technologies and services towards more user oriented, “cloud-based” services and applications. (Cloud computing is a current buzzword for web-based, externally hosted, on-demand services and tools). Within the Hype Cycle’s phase matrix (p. 53), eportfolios are depicted as beginning an ascent out of the “trough of disillusionment” and onto the “slope of enlightenment”. The maturity level of eportfolio tools is rated as “adolescent” with market penetration estimated at between 5-20% (p. 41). The benefit of eportfolios is rated as moderate, with mainstream adoption predicted in 2-5 years. (In *Understanding Gartner’s Hype Cycle, 2009*, authors Fenn and Raskino define a moderate rating as providing “incremental improvements to established processes” [p. 14]). According to the report, issues of interoperability and ownership will continue to be significant barriers to mainstream adoption for the foreseeable future, or at least “until megavendors such as Microsoft and Google (or even Facebook) enter the market and offer lifelong services in the form of cloud eportfolios” (p. 41).

In contrast, Gartner analysts seem more optimistic about the future of emerging social learning platforms, which they define as “an extension of traditional systems for learning management and learning content management that incorporates social software features to support structured social and informal, as well as formal, learning activities” (Rozwell & Harris, 2009, p. 17). Applications like these, as they mature, are predicted to offer greater potential than current eportfolio tools for allowing individuals to establish a digital identity, collaborate among multiple social networks, and continue to build and share knowledge beyond institutional boundaries.

Discussion

From this examination of 29 case studies and the recommendations from four research reports, a picture of a very complex pedagogical practice emerges. Initial research questions about the factors that influence the success of institutionally supported eportfolio implementations and about the factors affecting the conditions contributing to supporting eportfolios proved to be complicated by the competing aims of multiple stakeholders within a single institution. The philosophies, goals, and motivations of those who are interested in eportfolios primarily as assessment mechanisms can differ substantially from those who envision eportfolios as personalized environments for self-reflection and life-long learning. Institutional decisions on which tools or platforms to support are widely impacted by the proliferation of immature and evolving technologies which offer compelling glimpses of great potential but, as of yet, remain out of reach. This analysis also suggests that some disciplines, particularly those with established professional standards or required competencies, or those with a pre-existing history of paper-based or physically representational portfolios, do appear have a shorter and smoother ramp up phase than those for whom portfolios are a totally new concept. In spite of these layers of complexity, some institutions *are* making decisions about eportfolio use and the lessons shared by these pioneers are pointing to some consistent factors that contribute to the decision making process.

Not surprisingly, eportfolio experimentation and adoption has gained a stronger foothold in countries where elearning is acknowledged as part of a national strategy and where coordinated support infrastructures are in place, such as in the UK and the European Union. In the US, demands for institutional accountability appear to be a strong motivating factor driving eportfolio adoption. In Canada, there are no clear external policy drivers compelling institutions

to explore or implement eportfolios. Eportfolio adoption appears to be more widespread among disciplines that have established professional competencies or standards such as teacher education, medicine, and accounting. Writing intensive disciplines such as introductory composition courses, where growth and development can be illustrated over time, also appear to be a good fit for eportfolio experimentation.

Toward Clarity

In considering the cumulative lessons learned, some consistent factors emerged about the institutional conditions that contribute to the success of an eportfolio pilot. The requirement for clarity about the purpose and objectives for implementing eportfolios, and the ability to communicate this in a way that is accepted by instructors and students, is reiterated frequently through most of the case studies and is reinforced in the three research reports examined in this study. A number of tools and resources are now available to help institutions consider the right questions about readiness and goals for eportfolios use. These include BECTA's eportfolio maturity model which provides a range of descriptors for policy, teaching and learning conditions, and technology infrastructure that can help institutions establish a starting point for eportfolio use and track progress over time. Toolkits have also been developed by the JISC and the Australian Eportfolio Project that provide concept guides and checklists for decision making. Ehrmann's Flashlight Evaluation Model (2006) provides a formative evaluation plan that can help institutions focus on activities and needs and outcomes assessment for eportfolio projects.

Integration Challenges

The cumulative lessons learned also focus attention on the questions and challenges related to integrating or embedding the use of eportfolios into the curriculum. Like any other pedagogical innovation, there are risks for institutions and individual faculty members in

committing to the kind of wide-scale redesign efforts necessary to take full advantage of the opportunities provided by eportfolios, either from an assessment perspective or as a learning and development tool. If parallels can be drawn from the evolution of elearning in general, particularly in Canada, there is little evidence of willingness for post-secondary institutions to consider large scale redesign efforts, even when the potential for increased efficiency or impact on learning is well established. Influenced by the unrealistic and largely unfulfilled promises about the transformational effects of elearning in the 1990's, institutions and educators are justified in seeking evidence of the benefits and impact of eportfolios on learning. Related to these decisions are issues of workload, time, support, and recognition or buy-in at the administrative or governance level.

Evolving Tools

Decisions on which eportfolio tools to choose and support are likely to continue to be a challenge for institutions until these tools reach maturity. As the Gartner 2009 report suggests, eportfolios are still 2-5 years away from mainstream adoption. In the short term, large institutions with well established and supported elearning infrastructure already in place may be more likely to adopt highly structured applications that can be integrated with learning management or student information systems. However, these highly structured systems may not provide the levels of flexibility or customization required if eportfolio goals are based on reflective, ongoing personal development. Proprietary and open source eportfolio applications are still in their infancy and are being impacted by the proliferation of open, cloud-based social networking and collaboration tools. While technical standards are in development, the issues of interoperability, portability, and ownership are far from resolved. The very real possibility that a range of tools and technologies will be required to adequately support the multiple purposes of

eportfolios must also be considered, and with this, the implications for resourcing and support. Even with a generation of students who are generally perceived to be highly technologically adept, there is clear evidence from the case studies that technical support and adequate training are fundamental to successful implementations. Encouragingly, in following up on the sustainability of eportfolios, there is evidence that once they have been piloted, eportfolio practice tends to continue to be supported, even though the tools and applications may change and evolve. (See Appendix A for examples for a comparison of two eportfolio tools, Mahara and WordPress. A summary of this report has been formatted in both applications to demonstrate their similarities and differences.)

Assessing and Motivating

The challenge of assessment of eportfolios and how this is related to student motivation was difficult to examine from the case studies or from the broader research reports but it remains an area which warrants further study. Eportfolios represent considerable time and effort on the part of students. Tosh et al. (2005) identify some of these challenges, calling attention to the need to align grades with workload required, and also to the difficulty in assigning value to personal reflections and to determining whether reflections are “meaningful or contrived” (p. 12). The authors also call on educators to model effective eportfolio practice by creating and maintaining their own teaching or institutional eportfolios. If educators themselves cannot demonstrate commitment or value, students are unlikely to be convinced of the benefit of eportfolios as a life-long development tool.

Conclusion

My eportfolio journey has provided me with an opportunity to delve deeper into the underlying challenges and potentials of a complex pedagogical practice. While on the surface,

eportfolios may appear to be the next logical step in the evolution of elearning, they may also represent an overly simplistic desire to neatly package too many conflicting goals and purposes than can be accommodated by a single tool, application, or process. I feel I now have a better understanding of why institutions implement eportfolios—and perhaps more importantly—why many would choose a more cautious, “wait and see” approach.

Relating this research to my own practice, I now have a framework for examining and evaluating future eportfolio case studies and research, along with some tools to help me to determine the readiness of my institution to consider an eportfolio pilot. My experience has provided me with a foundation on which to base important exploratory conversations with departments or individual faculty members considering the use of eportfolios. Informed by what I have learned, these discussions will now be focused on clearly defining the expectations for what eportfolios will accomplish; on determining the willingness to redesign curricula to integrate eportfolio use as a central element of courses or programs; and on communicating the limitations and risks of the immature and rapidly evolving state of eportfolio applications.

I have also learned that disciplines or areas that have established professional standards, competencies, or outcomes that can be demonstrated in an online environment may be the best candidates for structured systems and may be a good starting point for eportfolio exploration. Areas or disciplines interested in eportfolios primarily to encourage reflective practice, self-regulated learning, and ongoing personal development may need to allow students greater choice in the tools they use. These decisions will have wide ranging impact on resources at all levels: infrastructure, technical training and support, support for pedagogy and course design.

Through this project, I have discovered a rich and active, world-wide eportfolio community where research and best practices are openly shared and debated, and gained an understanding that efforts elsewhere may be driven by very different sets of circumstances than those which affect the BC post-secondary sector. The project has also provided a timely opportunity to explore and compare two different eportfolio tools, reinforcing for myself the ways in which technology choices influence both process and end product.

In spite of the many challenges in implementing eportfolios, there is evidence that once eportfolio exploration has begun within an institution, the practice tends to take hold and evolve. The valuable lessons shared from many eportfolio pioneers do not suggest that eportfolios are a silver bullet to solve all assessment and integrative learning problems. However, with careful planning and attention to some key questions, eportfolios have shown promising early results in providing opportunities for students to more authentically own and demonstrate what they have learned. To effect true transformation, eportfolio implementations must focus on helping students understand what is meaningful in what they have learned and helping them to connect this knowledge to their lives beyond our institutions.

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Appendix A: Mahara and WordPress Examples

A summary of this research paper has been formatted using two different eportfolio tools, Mahara and WordPress. The purpose of the exercise was not to make a case for one platform over the other, but to provide concrete examples of different eportfolio formats and to demonstrate that any tool lends its own aesthetic, as well as its own affordances and limitations to the creation process. Mahara and WordPress were selected as these were tools I had access to through my work unit. Mahara (<http://mahara.org>) is a dedicated, open source eportfolio application. WordPress (<http://wordpress.org/>) is an open source blogging/publishing platform that is gaining increasing popularity for use as an eportfolio creation tool. The examples can be viewed at links below. A brief summary of similarities and differences follows.

- Mahara Eportfolio Summary: <https://cranberry.kwantlen.ca/mahara/view/view.php?id=515>
- WordPress Eportfolio Summary: <http://blogs.kwantlen.ca/meg/>

Similarities

At their most basic level, Mahara and WordPress both allow users to create and publish web pages. Both allow a combination of HTML and rich text editing capabilities as well as allowing users to upload and display multiple file types such as word processing and media files. The applications both make use of widgets (WordPress) or blocks (Mahara) to allow different embeddable pieces of code to be included on a page (such as displaying blog postings, RSS feeds, etc.), although WordPress is further ahead in this regard having a larger and more mature development community. The tools both allow users to control the level of access to pages (for example, control whether a page is private, public, or controlled by a password or hard to guess URL). Both applications are open source and freely available under GNU General Public License. Both systems allow commenting or feedback to be enabled.

Differences

Mahara is a dedicated eportfolio application while WordPress is primarily a blog publishing platform. WordPress is a more mature product, first released in 2003, while the first version of Mahara emerged in 2006. The maturity of WordPress is reflected in a more sophisticated and more familiar interface, as well as in a wider selection of themes and widgets that are currently available. WordPress allows built-in linking of pages while Mahara requires page links to be created manually. Mahara has its own internal blogging tool, messaging system, and eportfolio specific features such as a resume builder. Mahara also allows artefacts (files, media, images, etc.) to be grouped and displayed in different configurations for different audiences. Mahara provides the ability to create user groups and to allow group members options for sharing pages and instructors or tutors options for assessment management such as the ability for students to submit views for assessment. Mahara has also been purposely designed for integration with Moodle, a popular open source learning management system.

Observations

This exercise provided the opportunity to compare two different tools and approaches to eportfolio presentation. I feel it was successful in highlighting how each tool does indeed impact both the process and the end product. It certainly reinforced for me the reality that any new tool requires a period of learning and familiarization with different interfaces and functionality. From a training and support perspective, while the WordPress toolset might be slightly more familiar to those already comfortable with social networking applications, I would not predict that either tool would be easily intuitive for novice users. Both systems are quite complex in terms of options for features, functionality, and settings. I would anticipate that each would require significant orientation and documentation for both students and instructors.