

Developing a Pathway for an Institution Wide ePortfolio Program

Laurie Posey, Margaret M. Plack, Robert Snyder,
Patricia Low Dinneen, Melissa Feuer, and Andrew Wiss
The George Washington University

A grassroots committee of faculty and administrators from eight academic and student service units at the George Washington University used a five-phase process to identify the ePortfolio needs of its diverse community; select appropriate technologies to support the breadth of functions required; perform usability studies; pilot test the platform; and evaluate the outcomes of this process. The ad hoc committee identified a wide range of unique uses of ePortfolios, including: facilitating reflection and critical thinking; documenting student learning and program outcomes for accreditation purposes; facilitating advisement; and highlighting student skills and accomplishments for potential employers and graduate schools. As a result of these grassroots efforts, the Office of the Provost funded a pilot test for 1000 participants to use the selected ePortfolio solution. Key outcomes of the process include assessing the feasibility of a unified, university-wide ePortfolio platform; creating a structure for a centralized approach to faculty and student development; and obtaining data to support future decision-making regarding long-term adoption of the ePortfolio platform. Further, the work of the committee led to the development of a learning community comprised of ePortfolio champions and early adopters, which will be critical to the potential long-term, university-wide adoption of ePortfolios.

As educators, we embrace the importance of reflection to support student learning and development during the course of their studies and, post-graduation, as lifelong learners. Using ePortfolios is an effective means of enhancing student reflection and learning across curricular and co-curricular activities, and documenting and promoting the effectiveness of our work. When implemented with strong faculty guidance, ePortfolios can promote deep and reflective learning (Zubizarreta, 2004). They enable students, faculty, and administrators to curate evidence of learning in creative ways that are not possible with typical paper-based methods. For example, ePortfolios enable learners to demonstrate, reflect on, and easily share scholarly and other work products using graphics, video, web links, and presentations. In addition to facilitating reflection and shared learning, ePortfolios can be used to assess complex, higher-order student competencies, such as critical thinking and applied knowledge and skills, more authentically than traditional score-based assessments to provide evidence of educational program effectiveness (Lorenzo & Ittelson, 2005a, 2005b). Further, ePortfolios have been used to help students promote their achievement to employers who are increasingly seeking evidence of real-world competencies in those they hire (Hart Research Associates, 2013).

There are many examples of creative and effective uses of ePortfolios at the course and program levels, often initiated by faculty who recognize the ePortfolio's value as a learner-centered teaching tool (Lorenzo & Ittelson, 2005b; Ring, Weaver, & Jones, 2008). To optimize the value of ePortfolios, in terms of both student engagement and economies of scale, it is important for academic institutions to consider broader adoption of a common platform that can be used by students, faculty, and administrators in a variety of

ways—inside, across, and outside of individual courses. Adopting new technologies such as ePortfolios at the institutional level is a complex process, however. It can be difficult to meet the disparate needs of different disciplines and degree levels and to navigate across complex academic and administrative structures. Faculty, administrators, or others interested in implementing any type of new technology solution are often challenged to evaluate diverse needs and to assess the ability of various solutions to meet those needs. To address these types of functional and structural challenges, identify an optimal solution, and provide evidence of value to decision-makers, a comprehensive evaluation process is critical.

This paper presents a five-phase model used at the George Washington University to meet the needs of its diverse stakeholders and to guide institution-wide adoption of an ePortfolio platform. The model evolved out of a collaborative, grassroots effort driven by faculty and administrators who recognized the potential value of a common ePortfolio platform to meet a wide range of academic and co-curricular needs. The outcomes of this process will drive institutional decision-making related to possible enterprise-level adoption and integration of the chosen platform with existing administrative and learning management systems to support both on-campus and online teaching and learning activities.

Background

The adoption of ePortfolios at the institutional level is growing. Based on interviews with 14 ePortfolio vendors, Baston (2012) concluded “typical campus implementations have moved beyond scattered

individual and program pilots to large program rollouts” (p. 1). This observation is supported by evidence from annual surveys of the Association for Authentic, Experiential and Evidence-Based Learning (AAEEBL). Results of the 2012 AAEEBL survey highlighted a shift from a higher percentage of participants reporting a course-level focus to a higher percentage of participants reporting a program or department focus-based, with a relatively small number of participants reporting an institution-wide focus (Brown, Chen, & Gordon, 2012). In the 2013 survey, reports of institution-wide initiatives increased to exceed the percent of participants reporting either a course or program/department-level focus (Brown & Chen, 2014).

Institution-wide ePortfolio implementations can support a wide range of educational and co-curricular needs. ePortfolios can serve multiple purposes, including course and program planning and evaluation; facilitating, documenting, and tracking learning and development within and across courses; monitoring and evaluating individual and program performance over time for purposes of accreditation; and developing resumes and supporting job searches (Lorenzo & Ittelson, 2005a, 2005b; Housego & Parker 2009). ePortfolios can provide evidence of teacher performance through teaching portfolios; student performance through student, course, or program portfolios; and program performance through evidence of learner achievement for program accreditation. ePortfolios enable students and faculty to reflect on and document their learning, development, and progress (Housego & Parker, 2009). As an effective teaching and learning tool, ePortfolios enable users to collect artifacts, reflect on learning activities, self-evaluate products and/or processes, evaluate products and/or processes, and present themselves (Himpls & Baumgartner, 2009).

Because ePortfolios enable students to document, reflect on, and display their professional growth throughout their academic experience, they offer an excellent way for students to demonstrate “authentic learning” (i.e., educational curricular and co-curricular activities that reflect creativity, critical thinking, problem-solving, and applied knowledge and skills; Reese & Levy, 2009). Thus, ePortfolios can provide potential employers with tangible evidence of students’ competencies related to real-world practice. In a recent survey of employers, 83% viewed ePortfolios as a useful indicator of job applicants’ potential ability to succeed in the workplace (Hart Research Associates, 2013).

Implementing an ePortfolio at the institutional level is a complex process that requires careful planning. Before considering institution-wide implementation, the institution must define its purpose

or purposes for using ePortfolios, which, as noted above, can range from learning, to assessment, employment, and finally to lifelong learning. In doing so, Balaban, Divjak, and Mu (2011) emphasize the importance of considering all stakeholders and propose a meta-model that considers three levels of stakeholders: individual (student and faculty), institution, and employer. To promote acceptance throughout the institution, these authors further recommend introducing the ePortfolio at three levels. At the strategic level, the ePortfolio should be consistent with the institution’s mission, vision, and strategy; at the tactical level, the teaching and learning processes that the ePortfolio is intended to support must be carefully defined; and at the operational level, the hardware and software infrastructure and user acceptance are important factors to consider. Finally, to ensure long-term use and sustainability, Lorenzo and Ittelson (2005b) raised additional issues for consideration, including support and scalability, security and privacy, ownership and intellectual property, assessment, adoption, and long-term maintenance.

Successful implementation and institutionalization of any new technology depends upon acceptance and adoption by its end users. Perceived usefulness, ease of use and service quality have been shown to significantly influence users’ attitudes and satisfaction toward ePortfolios, underscoring the importance of providing adequate support to promote user self-efficacy (Chen, Chang, Chen, Huang, & Chen, 2012). Based on their experience with a program-level ePortfolio initiative, Housego and Parker (2009) outlined a broad set of processes and supports required for successful implementation. Students require both educational and technical support. Educational support includes reinforcement of the value and purpose of the ePortfolio, of the competencies expected, and of how they map to the curriculum. Students also need guidance on reflective writing, presenting information for different audiences, and in the technical use of the ePortfolio content development and media features. Additionally, opportunities for informal and formal assessment and feedback on the ePortfolio at different points within the program are helpful. Faculty members and administrators require similar support, including curriculum maps that link competencies throughout the academic program as well as professional development in the pedagogy of ePortfolios within and across courses for teaching and assessment purposes. Faculty members and administrators also require an infrastructure that considers processes, resources, and workload allocations to support changes in teaching, learning, and assessment activities.

Although ePortfolios offer a wide range of benefits to all stakeholders, long-term, wide-scale adoption of ePortfolios in the university setting is not without its

challenges, regardless of whether the adoption is implemented in a top-down or bottom-up manner (Beishuizen et al., 2006). A lack of perceived need among different user groups, perceived costs (i.e. financial, time, effort) vs. benefit, lack of a shared vision and coordinated strategy for implementation, and inadequate integration with other technology systems are among the challenges noted (Reese & Levy, 2009). Further, as described by Rogers (2003), diffusion of innovations such as ePortfolios begins with “*initiation*, consisting of all of the information gathering, conceptualization and planning for the adoption of an innovation, leading up to the decision to adopt” (p. 421). Early adopters who provide information and model the adoption of an innovation within their respective local units can help speed up the diffusion process and move an organization toward “*implementation*, consisting of all of the events, actions and decisions involved in putting the innovation into use” (Rogers, 2003, p. 421). Developing and communicating a shared vision, obtaining organizational support, creating short-term successes upon which to build, and communicating those successes can all serve to mitigate the challenges of implementing wide-scale changes such as the implementation of ePortfolios across a campus (Gesme & Wiseman, 2010; Kotter, 1995).

ePortfolio Adoption Model

A group of faculty, administrators, and staff representing five schools (arts and sciences, public health, medicine and health sciences, professional studies, and nursing) and three administrative units (teaching and learning, student affairs, and academic technologies) came together as an ad hoc committee to consider how their independent ePortfolio initiatives and interests might be woven together into an institution-wide implementation to meet a range of educational needs. This grassroots initiative began with pockets of faculty and staff throughout the university who were using ePortfolios within courses, and in two cases, across the curriculum of a program. Some units had adopted freely available online tools while others had been using the portfolio features of the university’s learning management system. All had encountered challenges due to lack of usability, insufficient support, and other limitations, primarily at the technical and operational levels.

In response to requests from these units for a better ePortfolio platform, the university’s central Teaching and Learning Center (TLC) reached out to schools and departments across the institution to identify other groups that might have a need for a new ePortfolio solution or that might be interested in implementing an ePortfolio program for the first time. The broad interest from different schools and departments closely

followed the teaching and learning, assessment, and career search categories, as described by Lorenzo and Ittelson (2005b) and Housego and Parker (2009). The challenges encountered, along with the wide range of purposes identified, reinforced the potential need for and value of a robust institution-wide ePortfolio platform.

The TLC invited those interested to serve on an ad hoc university committee whose goal was to address the very diverse ePortfolio needs of administrative and academic groups at the university. To achieve its goal, the committee met several times to develop a process to identify needs and challenges individuals faced in implementing ePortfolios. Once identified, the appropriate infrastructure (i.e., platform) could be determined, implemented, and evaluated, and then a shared vision developed and communicated, which will be essential for long-term, widespread use of ePortfolios across the university. The committee used a process grounded in concepts of change management and developed strategies to overcome some of the challenges noted in the literature (Gesme & Wiseman, 2010; Kotter, 1995; Reese & Levy, 2009). The result was a five-phase process, which included completing a needs analysis, selecting a platform on the basis of desired features, platform usability testing, pilot testing, and evaluation.

Phase I: Needs Analysis

During the first phase of the project, the team worked to define a common set of goals and needs for ePortfolios, and explored platform options, with the short-term goal of pilot testing one or two options before full, university-wide implementation would be considered. Given the diverse membership in the group, it was possible that after exploration one platform would not emerge as a clear “winner.” Consistent with the work of Lorenzo and Ittelson (2005b) and Housego and Parker (2009), the group identified a wide range of current and future uses and therefore could identify the specific requirements for the ePortfolio platform across the campus (see Table 1). Given the diversity of needs and the potential that one platform might not meet all of these needs, each committee member was then asked to prioritize the specific functions each required in an ePortfolio platform.

Phase II: Selecting a Platform for Pilot Testing

Based on these identified needs and priorities and a review of available platforms, five ePortfolio solutions were chosen for in-depth analysis: Desire2Learn, PebblePad, Digication, Pathbrite, and TaskStream. Each of these vendors was invited to demonstrate the features and functionality of their platform to the

Table 1
Campus-Wide Goals and Objectives for ePortfolio Use

Goals and objectives of ePortfolios	Programs and units
Support student reflection throughout their degree programs and other learning experiences to help students make sense of their learning	Center for Student Engagement, Doctor of Physical Therapy, English Department, Human Service and Social Justice Program, Masters of Science in Nursing, Medical Education, Milken Institute School of Public Health Executive MHA Program, College of Professional Studies
Help students link academic work with their experiences outside the classroom	Center for Career Services, Doctor of Physical Therapy, Human Services and Social Justice Program, Masters of Science in Nursing, College of Professional Studies, Milken Institute School of Public Health Executive MHA Program
Track student learning across course sequences, in face-to-face and online programs	College of Professional Studies, Doctor of Physical Therapy, English Department, Human Services and Social Justice Program, Masters of Science in Nursing, Milken Institute School of Public Health Executive MHA Program
Demonstrate and capture program outcomes and competencies to support accreditation and broader assessment activities	College of Professional Studies, Doctor of Physical Therapy, Human Services and Social Justice Program, Masters of Science in Nursing, Milken Institute School of Public Health Executive MHA Program
Enhance Career Planning, Advisement, and Development	Center for Career Services, College of Professional Studies, English Department, Center for Student Engagement
Provide students with a platform to publish work creatively for potential employers and other audiences	Center for Career Services, Center for Student Engagement, Doctor of Physical Therapy, English Department
Provide faculty with a platform to curate materials for teaching dossiers	Future Potential
Foster alumni connections with GW beyond graduation as well as the development of lifelong learners	Future Potential

committee. The committee began the selection process by using criterion-weighting software called Comparion that enabled members to weight the importance of different features and functions and to evaluate the platforms anonymously. The committee then developed a more detailed set of criteria and questions that were provided to each vendor in advance of the demonstrations. Appendix A provides a synthesis of these criteria in a checklist that was used to guide ePortfolio vendor selection.

Phase III: Usability Testing

Following the vendor demonstrations, the committee selected three platforms that best met the criteria for further exploration: Digication, PebblePad and PathBrite. To further assess the end-user experience, the committee decided to conduct hands-on usability testing. The committee recruited undergraduate and graduate students from different schools, departments, and degree-levels to participate. A total of 25 students participated in the testing. Students were assigned to different groups with each group testing a different ePortfolio platform.

Over a 30-minute testing period in a campus computer lab, the students were asked to perform a

series of 11 basic web publishing tasks using the same set of pre-made web content (i.e., documents, images, and video). These tasks included: creating and editing the structure of a basic portfolio, uploading and managing files, inserting and manipulating images and video, and adding and formatting text-based content. If needed, students were given basic help documentation for each portfolio platform. Three members of the committee also collected student feedback as it arose organically during the testing session. Students were also asked to evaluate and discuss briefly a fellow student's newly created portfolio and the process they both engaged in to create that portfolio. At the conclusion of the 30-minute test period, students were asked to complete a brief survey to self-report their experiences with the ePortfolio platform in terms of usability, satisfaction, and perceived utility. A summary of the usability questions and results is presented in Table 2.

The 25 students who completed the usability testing also participated in a follow-up focus group discussion. The qualitative comments from the focus group were highly beneficial in revealing issues and concerns not apparent from the usability surveys and which the committee had not previously considered. For example, the tool that was reported as easiest to use

Table 2
Summary of Usability Testing Survey Questions and Results

Questions	Results		
	Digication (n = 10)	Pathbrite (n = 9)	Pebblepad (n = 6)
Do you consider yourself not skilled at all or very skilled at using technology? (1 = <i>not skilled</i> to 5 = <i>very skilled</i>)	3.7	3.8	4.0
Overall, how difficult/easy was it to use this e-Portfolio program? (1 = <i>very difficult</i> to 5 = <i>very easy</i>)	3.2	3.4	3.0
How difficult/easy was it to add media files (photos, videos, audio) to the ePortfolio? (1 = <i>very difficult</i> to 5 = <i>very easy</i>)	3.7	4.8	3.2
Would using this ePortfolio discourage or motivate you from completing an ePortfolio project? (1 = <i>highly discourage</i> to 5 = <i>highly motivate</i>)	2.6	3.7	4.2
How likely is it that you would want to show an ePortfolio made with this program to potential employers? (1 = <i>very unlikely</i> to 5 = <i>very likely</i>)	1.9	3.2	3.2

was seen as too simple for long-term use within academic programs. Although not one of the platforms was favored by a clear majority of the participants in the focus group, 92% completed the usability test protocol with little to no assistance, 70% recommended we pursue using ePortfolios, and 50% indicated they would use the ePortfolio in their job search. The 92% student completion rate of the usability testing protocol for all three ePortfolio products was an important discovery, as it alleviated committee concerns about student technology skills related to basic web publishing and file management. The high completion rate, combined with generally high student satisfaction scores for all three products, also indicated to the committee that any of these ePortfolio solutions would be both usable and useful for this university's diverse curricular and co-curricular needs across its undergraduate, graduate and professional programs.

Phase IV: Pilot Testing

Based on the results of the usability testing, the qualitative comments from the focus group discussion, and ongoing discussion among committee members, the group selected the Digication platform for pilot testing. In the committee's opinion, despite slightly lower scores on the usability testing, Digication's overall feature set most closely aligned with the collective needs of the academic and administrative departments participating in the pilot.

With an established working group in place representing different units from across the school, and the results of a comprehensive needs analysis, the committee was well poised to take advantage of an

internal grant opportunity from the Office of the Provost intended to fund inter-professional and inter-disciplinary collaboration and innovation, one of the pillars of the newly developed University Strategic Plan. The strategic plan also focuses on the development of leaders and global citizens and development of reflective practice. The ePortfolio initiative was positioned to support these pillars of the strategic plan as well, as this complex construct would likely be achieved through curricular and co-curricular activities, which are more easily captured using a pedagogical tool such as an ePortfolio, in which students can document their development through a reflective process. The committee was aware of the Provost's academic interest in ePortfolios and the interest of those who were responsible for developing the leadership, global citizenship, and reflective practice pillars of the strategic plan in identifying a tool to assist in documenting student engagement with these activities. All of these interests added further support to the committee's request and likely contributed to the funding being awarded.

As a result of this grant opportunity, the committee was able to support a much larger pilot test than was originally planned. The funding enabled the committee to guarantee funding for 1,000 seats for one year and to guarantee that all students participating in the pilot could keep their ePortfolios for the duration of their enrollment at the university. The grant also provided additional funding for the vendor to provide onsite training to the ePortfolio administrators, faculty, and students. Also included in the grant funding was support for the committee to undertake outreach activities to promote the pilot to others in the

university community, including a planned ePortfolio showcase day.

The committee has begun a pilot test of the Digication ePortfolio platform, with each school and department implementing it in a different way to assess its capabilities related to the diverse needs of the group. The pilot test began in September 2014 and will run through July 2015. A description of each of the ePortfolio pilot projects follows:

- Masters of Science in Nursing students are creating a capstone ePortfolio comprised of multiple assignments and other professional works completed throughout their program, documenting evidence of their learning related to essential competencies defined by the American Association of Colleges of Nursing for graduate level nursing education.
- The English Department is using the pilot to fulfill a departmental requirement that all undergraduate majors create an ePortfolio to graduate. The ePortfolio is being integrated into faculty advising sessions with junior and senior students to help them document and explain the value of the English major.
- Doctor of Physical Therapy students are evaluating the new ePortfolio platform as a means for improving the student experience with reflection across the 3-year curriculum. Students reflect on curricular and co-curricular activities that support the development of their professional identities. Since the ePortfolio was framed around the program mission, ePortfolios from graduating students can be used to document the program's achievement of its mission for accreditation purposes. Students upload a variety of artifacts including papers, presentations, videos of simulated patient interactions and community service activities relevant to their professional development.
- The Milken Institute School of Public Health is integrating ePortfolios and reflective practice into a competency based hybrid Executive Master's program in Health Administration (MHA). The portfolio will serve as a record of program competency attainments over the program's duration and as a location to house research, data and other evidence relating to a year-long health systems quality and performance improvement capstone project.
- The School of Medicine and Health Sciences MD Programs is evaluating the ePortfolio to support its new curriculum, which places greater emphasis on professional development and reflective medical practice.
- The College of Professional Studies is exploring the ePortfolio as a tool for tracking core competencies, for use as a career-advising tool, and for providing students with opportunities to reflect on the professional skills they had acquired. The school has not used ePortfolios previously and is determining whether their use should become a permanent part of each individual program's curriculum.
- The Center for Student Engagement is using the ePortfolio to enable undergraduate student Resident Advisors to market their skills and involvement efforts to potential employers and to reflect on their experiences working in the residence halls. Graduate Residence Directors will have the opportunity to integrate across the two levels of staffing and document the crisis management, mentoring, and student support model.
- The Center for Career Services is using the ePortfolio to capture and blend learning from co-curricular and curricular experiences to highlight undergraduate students' skills and accomplishments for potential employers. Their activities focus on integrating ePortfolios into two sections of a career management course for undergraduate students studying international affairs.
- The Human Services and Social Justice Program is using ePortfolios with undergraduate students enrolled in two required courses in the program. In the first course, students are using ePortfolios to document and reflect on the planning and execution of a university-wide Hunger and Homelessness Awareness Week. In the second course, senior-level students will be using ePortfolios to curate and reflect on their work from across the courses in the program to demonstrate their learning and personal growth. The implementation in the second course will replace a paper-based portfolio that has been a requirement for several years.

Phase V: Evaluation

While each implementation is somewhat unique, reflecting the distinct motivations and needs of each program, the group identified common themes for evaluation, which include those identified in Table 1, as well as determining if the selected platform is an appropriate long-term solution that the university should sponsor. In addition, the committee wanted to evaluate whether the process encourages faculty and staff to work across programs and disciplines to use ePortfolios to support student success before and after graduation.

To evaluate the pilot and provide evidence to leadership for decision-making regarding long-term adoption, the committee decided to develop student and faculty/administrator surveys administered before and after using the Digication platform. Because of the diverse user groups participating in the pilot, developing a survey that made sense in each context was challenging. However, it was important from an evaluation standpoint to agree upon a common set of questions. Through extensive discussion and revision, the committee was successful in developing common surveys, with the recognition that some questions would not be applicable to all participants.

The student surveys (Appendix B) are designed to gather data related to degree level/status; academic or co-curricular program; reflection on coursework and co-curricular activities with and without a portfolio; current practices for storing coursework and co-curricular products and reviewing those products across a curriculum or program; and plans for showcasing academic or professional work to potential employers or others via ePortfolio, other web-based tools (e.g., social media), e-mail, or in-person. The faculty/administrator surveys are designed to gather data related to the academic or co-curricular program in which they teach or work; previous use of ePortfolios; means of providing students with feedback on their work; methods within courses for student reflection on feedback; satisfaction with current mechanisms for student reflection; current practices for storing student work products and satisfaction with those processes; and opinions related to the ability of students and faculty or administrators to monitor students' learning and progress throughout their programs. The post-pilot surveys for both faculty/administrators and students also gather data related to the ease of use of the platform and satisfaction with the ePortfolio end products, along with general opinions and comments.

Once the pilot is completed, the committee plans to summarize the results and compile recommendations for the university leadership. If the evaluations support the adoption of the Digication platform, the goal is to request funding for an institution-wide adoption that can be included in the 2015-2016 fiscal year budget.

Outcomes

Within a 6-month time frame the committee, representing a diverse group of institutional stakeholders with a wide range of needs, successfully developed a shared vision, and launched the Digication ePortfolio platform in eight academic and student service units across the university. A total of 555 students and 141 faculty and administrators have established accounts with Digication and currently are participating in the pilot project. Additional students,

faculty, and administrators are expected to establish accounts as the pilot continues. Student and faculty/administrator surveys have been administered to all participants in advance of using the ePortfolio tool. Students and faculty/administrators will complete the surveys again at the end of the pilot test. Results will be analyzed, along with general feedback from the committee members and pilot participants, to provide evidence for decision-making about long-term implementation of the Digication platform at the institution level.

An equally important, if not more important outcome of this five-phase process has been the emergence of an interdisciplinary community of learners from across the university, committed to ongoing learning and assessment related to ePortfolios. Committee members have demonstrated a commitment to the process by sharing their own knowledge and skills and learning from the knowledge and skills of peers. Collectively, each group member broadened his or her understanding of the range of uses for ePortfolios, of how to effectively design and implement ePortfolios, and of strategies for facilitating reflection. In addition, they worked together and have supported each other in addressing some of the typical challenges noted in the literature, such as technology and less than supportive colleagues (Housego & Parker, 2009). The committee has also worked together to address administrative and educational issues, such as academic integrity considerations and enhancing integration with career services and assessment activities.

This community of learners is comprised of the champions and early adopters of ePortfolios, which, as noted by Rogers (2003), will be critical to the potential long-term, campus-wide adoption of ePortfolios at the institution. As early adopters and champions, this community of learners has plans for future educational seminars where the vision of the group can be communicated and completed ePortfolios can be showcased as models for other students, faculty, and staff and local successes celebrated with the larger community (Kotter, 1995). Having a single platform for all ePortfolio users at the university will also streamline and centralize the faculty development process essential to the successful adoption of ePortfolios across the campus.

Discussion

In this digital age, ePortfolios are becoming an increasingly more important component of any university's academic toolkit. There are many ePortfolio platforms available, each with a unique set of features and functions to support different educational needs. Different platforms have different strengths: some have more robust assessment capabilities, while

others provide a better user experience. It is also apparent that all of the platforms are evolving and working to improve their suite of features and functions on an ongoing basis.

Through the five-phase process that has been described, we identified a broad range of user needs based on different purposes for implementing ePortfolios, which were consistent with the findings of Lorenzo and Ittelson (2005b) and Housego and Parker (2009). The goals and purposes identified for implementing the use of ePortfolios helped to guide which platform to use. This enabled the committee to allow the learning objectives to be the driver for the technology decision, which is not always the case in university-wide initiatives.

The selection of the Digication platform for the ePortfolio initiative described in this paper was based on its flexibility to meet the diverse needs of students, faculty, and administrators at both the strategic and operational levels (Balaban et al., 2011). While all three of the platforms selected for usability testing had unique strengths, Digication was chosen for its capacity to support creativity in the ePortfolio creation process; its robust assessment features and the ability to link ePortfolios to competencies for accreditation purposes; the ability for faculty to capture a moment in time for each portfolio; the ability for alumni to keep and continue to curate their ePortfolios after graduation; and excellent technical support. Notably, the support and responsiveness of the vendor at the technical level during the evaluation process was a critical decision-making factor.

As academic institutions move from course, department, or program level ePortfolio implementations to full scale, institution-wide initiatives, it is essential to take a systems approach to exploring, evaluating, and ultimately implementing a solution that fully meets the needs of diverse stakeholders. Considering all stakeholders and all three levels of implementation (strategic, technical, and operational) is critical to the ultimate success of implementation (Balaban et al., 2011). The committee addressed the strategic level by creating an ad hoc interdisciplinary group to develop a shared vision and innovative approach to implementing ePortfolio use across the university and effectively communicating the potential use of ePortfolios in capturing complex constructs of the strategic plan, including interdisciplinary innovation and the development of leadership and global citizenship. The committee also addressed the technical level by selecting an ePortfolio solution with significant technical support available and by becoming a community of learners that both supports and learns from each other to optimize the use of effective ePortfolio pedagogies. The committee is planning campus-wide education sessions during which

early successes of ePortfolio use can be communicated to the broader community. Finally, the committee addressed the operational level by selecting the ePortfolio solution that best meets the needs of the diverse community. In addition, the committee began to address some of the challenges often encountered with ePortfolio and other change initiatives, namely, developing a shared vision, identifying the benefits of using the new portfolio solution, developing a coordinated strategy for implementation and communication, and integrating technology (Kotter, 1995; Reese & Levy, 2009).

This paper presents a model of how one university sought to meet the ePortfolio needs of its community, both curricular and co-curricular. Using a five-phase process, goals and objectives for portfolio usage across the university were identified; the platform that most effectively met the diverse needs of its community was selected; and a pilot test was implemented across eight units within the university. The results of this pilot test will inform decision-making related to long-term, institution-wide adoption of the Digication ePortfolio platform. Simultaneously, a shared vision was developed and communicated, organizational support was obtained, and short-term successes were amassed as committee members learned from each other – each of which is critical for successful implementation of any sustainable change (Gesme & Wiseman, 2010; Kotter, 1995)

Issues yet to be fully addressed by the committee include those raised by Lorenzo and Ittelson (2005b), including ongoing support and scalability, security and privacy, ownership and intellectual property, assessment, adoption, and long-term maintenance. In addition, limitations to this study should be noted. This is a case study of one university's experience, and the data represent the preliminary results of a pilot test and cannot be generalized.

Conclusions

Grass roots technology initiatives like the one presented in this paper can positively impact the broader university mission in many ways. Through this effort, academic and student service units with diverse needs came together and identified commonalities to successfully launch an important campus-wide initiative. Funding support from university leadership, a centralized development process organized through the University Teaching and Learning Center and Division of Student Affairs, and commitment from diverse members representative of the broader university community have enabled a robust implementation and evaluation process of a single technology platform that will hopefully meet the long-term needs of this very diverse community. Moreover, the committee has

evolved into a learning community that has enhanced the knowledge and technical skills of its members. By bringing this expertise and information back to their home units through the pilot project, these early adopter ePortfolio champions have planted the seeds for a significant and sustainable educational innovation.

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Laurie Posey, EdD, is the Director of Instructional Design and an Assistant Professor in the School of Nursing at The George Washington University. She works with faculty to integrate diverse learning technologies, including ePortfolios, throughout the nursing curriculum. Her research focuses on best practices and quality in online and blended education, with a focus on active-learning strategies to promote motivation, socialization, and critical thinking.

Margaret M Plack, PT, DPT, EdD, is a Professor of Physical Therapy in the School of Medicine and Health Sciences at The George Washington University. She has been involved in using ePortfolios in the classroom since 2005. Her research is related to the scholarship of teaching and learning, more specifically reflective practice, models of education, and educational outcomes. She recently co-authored a textbook entitled "Teaching and Learning in Physical Therapy Practice: From Classroom to Clinic."

Robert Snyder, MEd, MBA, is the Executive Director of Planning and Outreach in the Division of Student Affairs at The George Washington University. In this capacity he oversees assessment (including ePortfolios), communication, and development and alumni relations activities for the division and directs the university's Presidential Administrative Fellowship.

PATRICIA LOW DINNEEN, MDE, directs the University Teaching & Learning Center at The George Washington University. She is responsible for faculty development related to course design, classroom teaching, teaching improvement research, and blended learning across university schools and programs.

MELISSA FEUER, JD, is the Executive Director of the Office for Student Engagement in the College of Professional Studies at The George Washington University. She has also been a member of the adjunct faculty for the College's Paralegal Studies program, teaching both online and face to face courses.

ANDREW WISS, EdM, is the Director of Online Learning at the Milken Institute School of Public Health. His consulting, teaching and research focuses on organizational learning, emerging technologies, and the use of technology to enhance the self-directed learning and performance of experts in practice.

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Appendix A
Criteria for ePortfolio Vendor Selection

Category	Criteria
Design & Development Features & Ease of Use	<input type="checkbox"/> Overall ease of use in creating an e-Portfolio. <input type="checkbox"/> Ease of uploading written work. & other file types. <input type="checkbox"/> Supported file types (video, multimedia, office, etc.). <input type="checkbox"/> How externally created, text based content (Word, PDF, etc.), is displayed; readability of on-screen written work. <input type="checkbox"/> Viewing and commenting features. <input type="checkbox"/> Image editing/cropping/resizing features. <input type="checkbox"/> File size limits for artifacts. <input type="checkbox"/> Integration with online content hosting sites (e.g., YouTube, ScreenCast, Vimeo, Social Media Sites, etc.). <input type="checkbox"/> Ability to write and create content/artifacts from within the ePortfolio (text editing, formatting; audio or video recording).
Managing, Curating & Retaining Access	<input type="checkbox"/> Ability for student to create and keep multiple versions. <input type="checkbox"/> Ability for department or institution to keep time-stamped versions. <input type="checkbox"/> Student access and maintenance of portfolios after graduation (cost, size limits, updatability, time limit). <input type="checkbox"/> Institution access to alumni portfolios. <input type="checkbox"/> Archive features.
Privacy Settings, Sharing & Portfolio Views	<input type="checkbox"/> Student control of public access. <input type="checkbox"/> Ability to lock down/hide sections or individual artifacts. <input type="checkbox"/> Ability to customize views for different audiences (e.g. instructors, institution administrators, other students, employers). <input type="checkbox"/> Ability to work privately and hide content from all parties, including instructor. <input type="checkbox"/> Web 1.0 and 2.0 sharing of portfolios. <input type="checkbox"/> Internal/public commenting features & controls. <input type="checkbox"/> Collaborative editing features.
Writing-Focused Features	<input type="checkbox"/> Writing/editing features. <input type="checkbox"/> Instructor & peer feedback features. <input type="checkbox"/> In-line editing features. <input type="checkbox"/> Ability to keep multiple versions of writing assignment including instructor feedback & revisions. <input type="checkbox"/> Ability for multiple instructors to comment on the same piece of writing. <input type="checkbox"/> Depth/sophistication of content authoring and instructor feedback mechanics.
Instructor Features: Assessment & Collaboration	<input type="checkbox"/> Instructor commenting & feedback on externally created artifacts (written document mark-up; commenting on other artifact types). <input type="checkbox"/> Portfolio & assignment templates. <input type="checkbox"/> Assignment creation & monitoring. <input type="checkbox"/> Ability for multiple instructors to comment on the same artifact. <input type="checkbox"/> Artifact versioning features, including instructor access to versions. <input type="checkbox"/> Batch loading of assessment data (e.g., exam scores) into individual portfolios. <input type="checkbox"/> Program-level/multi-year portfolio capabilities & student access features. <input type="checkbox"/> Competency tracking features.
Systems Integration	<input type="checkbox"/> Student account creation & authentication features <input type="checkbox"/> Integration with enterprise systems (e.g. Banner) <input type="checkbox"/> Integration with LMS (e.g., Blackboard) & grade center. <input type="checkbox"/> Student access mechanisms (within and/or outside of courses). <input type="checkbox"/> Well-developed APIs. <input type="checkbox"/> Integration with LMS Grade Center. <input type="checkbox"/> How does your system integrate with the Grade Center in Bb? <input type="checkbox"/> Portability among LMSs in case of transition. <input type="checkbox"/> Content export functionality (e.g., direct download, export to PDF, etc.)

	<input type="checkbox"/> IOS friendly.
Accessibility of Portfolio System & Artifacts	<input type="checkbox"/> Accessibility of the portfolio's UI. <input type="checkbox"/> Accessibility of user created content in the portfolio. <input type="checkbox"/> Accessibility of artifacts in the portfolio. <input type="checkbox"/> Adherence to accessibility standards.
Accreditation	<input type="checkbox"/> Features to support evidence of student achievement for accreditation. <input type="checkbox"/> Ability to create customized reports based on variables (e.g., grades, competencies met, instructor comments, time spent, tagged artifact type). <input type="checkbox"/> Ability to export complete ePortfolios and components of ePortfolios for accreditor to review. <input type="checkbox"/> Ability to export all student instances of a single assignment. <input type="checkbox"/> Competency tagging features. <input type="checkbox"/> Support for long-term archives.
Support	<input type="checkbox"/> Technical support for students. <input type="checkbox"/> Technical support for instructors. <input type="checkbox"/> "Live support" (e.g., online, on-site, phone). <input type="checkbox"/> "Self-help" (documentation, videos, blogs, chats, etc.). <input type="checkbox"/> Dedicated "shared space" for portfolio templates, advice, model portfolios, etc. (for use by administrators). <input type="checkbox"/> Integration of ePortfolio support with other institutional technology support.
End Product/ Public Facing e-Portfolio	<input type="checkbox"/> Diverse examples of successful "finished portfolios" created product (e.g., undergraduate, graduate, leadership, career development). <input type="checkbox"/> Aesthetics: examples of great visual design with the product. <input type="checkbox"/> Navigability: examples of great user experience designed with the product. <input type="checkbox"/> Ability for institutions to "curate" portfolios for viewing by prospective students, faculty and the general public.

Appendix B
Student Survey

Included on Pre- and Post-Surveys:

1. I am a . . .

- New graduate student at GW
- Continuing graduate student at GW (degree or certificate program)
- Nondegree seeking student
- Freshman at GW
- Continuing undergraduate student at GW

Please rate your level of agreement or disagreement with each of the following statements pertaining to how you received feedback on work you completed for the program or course for which the ePortfolio has been used.

2. In this program, I frequently receive written comments from my instructors/advisers/program staff.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

3. I think that the feedback I receive is very helpful.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

4. I usually take time to review the written comments I receive.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

5. I think the feedback/comments I receive are helpful.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

6. On average, how long did you spend reviewing written feedback you receive on an assignment or project for the program for which you will be using ePortfolios (excluding automatically graded/Scantron tests)?

7. In 2013-14, did you track your learning progress across all classes and semesters in your program of study?

- Yes
- No
- I don't track my program

8. How did you track your learning progress across all classes and semesters in your program?

9. How satisfied are you with your method for tracking your progress across your

program of study?

- Very Dissatisfied
- Dissatisfied
- Not Satisfied or Dissatisfied
- Satisfied
- Very Satisfied

10. Do you ever look back at work you produced in previous courses and reflect on your growth or how you have changed?

- Yes
- No

11. Regardless of how you answered the previous question, do you think it can be helpful to look back at work you produced in previous courses?

- Yes
- No

12. I think that using an ePortfolio makes it easier for me to reflect on and make sense of my own learning.

13. What is the most common way you store the work you produce for courses/programs in which you have participated, once the course/program is completed?

- Paper Files
- Files on my computer
- GW Google Drive
- Other cloud storage that GW does not provide
- ePortfolio system – Digication
- ePortfolio system – other (e.g., Blackboard)
- I don't keep work once a course is finished
- Other

14. Do you anticipate sharing your academic or professional work with other potential employers of other educational programs

- Yes
- No
- Don't Know

15. I anticipate sharing my work with other via the following vehicles (Select all that apply)

- By e-mail
- LinkedIn
- Facebook
- Personal website or blog
- ePortfolio
- Hard copy portfolio
- In-person presentation or interview
- Other

16. Provide any additional comments related to this survey.

17. Please indicate the GW program in which you participate.

Additional Post-Survey Questions:

18. Please rate your level of agreement or disagreement with each of the following statements pertaining to Digication (5 Pt Scale = Strongly Disagree to Strongly Agree)

- I found the Digication system easy to use overall.
- I needed significant assistance at the start in order to begin using the Digication system.
- I think students would learn to use the Digication system very quickly.
- I received technical support from Digication when I needed it while using the platform (example: Trouble shooting how to access Digication when the system went down).
- I think Digication is a useful tool for students.
- I found it easy to format text content in the Digication system.
- I found it easy to integrate multimedia into the Digication system.
- I was satisfied with the look and feel of the ePortfolio I created.
- The Digication system will be useful for tracking my learning and achievements across a program or course.
- I would recommend the Digication platform to others.

Besides being a repository for your work in your course or program, what else did you do with your ePortfolio this past semester? (Select all that apply)

- Received feedback from instructors
- Tracked my own progress across my program of study
- Maintained all of my course work in one place
- Shared with fellow classmates
- Shared with potential internship supervisors
- Shared with potential employers
- Shared with graduate schools as part of an application for further study
- Other (please specify)

Had you previously used another ePortfolio tool?

- Yes
- No

If yes, what is your preference?

- No preference – they are about the same
- I prefer Digication
- I prefer the other ePortfolio tool (please name)

Faculty/Administrator Survey

Pre-survey Questions:

1. Did you/your program use ePortfolios in the previous (2013-2014) academic year?

- Yes
- No

2. Did you use the ePortfolio to (select all that apply):

- Provide feedback on student coursework
- Track student performance
- Store student work
- Facilitate student reflection
- Document achievement for accreditation purposes

3. What platform did you use for your ePortfolio during AY 2013/2014

- Blackboard
- Taskstream
- Digication

- Other (Please specify)

4. To what degree were you satisfied with the functionality of that ePortfolio system?

- Very Dissatisfied
 Dissatisfied
 Not Satisfied or Dissatisfied
 Satisfied
 Very Satisfied

5. Typically, how do you provide feedback on student assignments or projects (excluding electronically graded or Scantron tests)? Please rank from 1-6, 1 being the most common and 6 the least. Use the "NA" option for any method of feedback you do not use with any regularity.

- Handwritten comments
 Electronic comments (e.g., via MS Word)
 Comments through Blackboard gradebook
 Written comments through an ePortfolio system
 Verbally via an individual student meeting
 Verbally in class
 Other

6. Do you have a method embedded in your course that allows your students to reflect on the feedback you give them?

- Yes
 No

7. If you answered "Yes" above please explain how here.

8. Overall, I was satisfied that students were able to reflect on and make sense of what they were learning on their own, without specific feedback from faculty.

- Very Dissatisfied
 Dissatisfied
 Not Satisfied or Dissatisfied
 Satisfied
 Very Satisfied

9. Typically, what is the main way you store work or projects that students complete for your course?

- Paper files
 Files on my computer
 GW Google Drive
 Other cloud storage that GW does not provide
 CD or flash drive
 Blackboard Gradebook
 ePortfolio system – other, such as Blackboard
 I don't keep my students work, I ask them to store it
 Other (please specify)

10. Overall, I am satisfied with my method of storing student work.

- Strongly Disagree
 Disagree
 Neither Disagree or Agree
 Agree
 Strongly Agree

11. I think that students in my department/program have a good sense of how they are developing in our program.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

12. It think that faculty/staff in my department/program have a good sense of what students are learning.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

13. Provide any additional comments related to the questions asked in this survey.

Additional Post-Survey Questions

14. Over the duration of the course or program with the ePortfolio, how many hours would you estimate you spent providing feedback on student assignments or projects in fall 2014 (excluding Scantron tests)?

15. Did you have a method embedded in your course that allowed your students to reflect on the feedback you gave them?

- Yes
- No

16. If you answered Yes above, please explain how.

17. I feel that reflection is important and there is much to be gained from asking students to look back and reflect on their work across their program of study or project.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

18. I believe that using an ePortfolio approach did a particularly good job of encouraging student reflection.

- Strongly Disagree
- Disagree
- Neither Disagree or Agree
- Agree
- Strongly Agree

19. Evaluate the Following Statements (Strongly Disagree to Strongly Agree)

- I found the Digication system easy to use overall
- I needed significant assistance at the start in order to begin using the Digication system
- I think faculty/staff would learn to use the Digication system very quickly
- I think students would learn to use the Digication system very quickly
- I received technical support from Digication when I needed it while using the platform
- I found Digication to be a useful tool for my students
- I found Digication to be a useful tool for me as a faculty/staff member
- I found it easy to format text content in the Digication system
- I found it easy to integrate multi-media into the Digication system
- I was satisfied with the look and feel of the ePortfolios produced in my courses/programs
- The Digication system will be useful for tracking student achievement across my program or course

- The Digication system will be useful for generating reports of student achievement for accreditation and other purposes
- I would recommend the Digication platform to others

20. Please provide additional comments you have on the Digication System.

21. Had you previously used another ePortfolio tool?

- Yes
- No

22. If yes, what is your preference?

- No preference – they are about the same
- I prefer Digication
- I prefer the other ePortfolio tool (please name)

Please indicate the GW program in which you work or teach that is using or used an ePortfolio.

Which of the following describes your primary role/job at GW

- In-person classroom instructor (Faculty)
- Online instructor (Faculty)
- Practicum or internship supervisor (Faculty)
- Practicum or internship supervisor (Staff)
- Academic advisor (Faculty)
- Program director or coordinator (Faculty)
- Program director or coordinator (Staff)
- Staff providing instructional design support for ePortfolio program implementation
- Other (please specify)