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Abstract. In the era of educational accountability, the push to document and demonstrate student learning increases exponentially. Creating opportunities for students to evidence their learning and, more broadly, the value of a college education, is critically important to both internal and external higher education stakeholders. While ePortfolios are an increasingly common tool used to provide evidence of learning, little is known about their effectiveness in assessing integrated learning experiences. The Bailey Scholars Program, an interdisciplinary, self-directed, student-centered learning community at Michigan State University, fosters creativity among faculty and students. The program explores innovative approaches to documenting and assessing learning that are responsive to student needs for life after the program while also being attentive to the uniqueness of a self-directed learning environment. One approach taken by the program is the community-wide use of ePortfolios. In this article, we argue that learning ePortfolios are a high impact practice that has the potential to change the ways students and programs partner to demonstrate and document student learning. We identify issues to take into account when adopting ePortfolio technology, and we include discussion of the attributes of ePortfolios that document both the learning and the obstacles students face while they are using ePortfolios.

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Introduction

Helping students demonstrate their learning is of critical concern to both internal and external higher education stakeholders. Therefore, creating opportunities for students to document their learning is important, particularly within the critical climate surrounding the value of a college education (Leonhardt 2014). Within experiential-based education, student documentation of the processes and the products of learning can be varied and unpredictable (M. Schwartz 2016). The variability of experiences resulting from the increased use of experiential-based teaching strategies and learning perspectives raises further concerns regarding the value of education. As more higher education programs utilize experiential learning as a method of instruction rather than a theory of how people learn, intentional measures of assessment need to be developed. These method-oriented assessments should be better aligned with content or process learning outcomes, which often differ (Kwong 2013).

Powerful assessments are strategies to evaluate and engage students in the learning cycle. In addition, powerful assessments invite students to use multiple methods of assessment as tools to empower reflective, critical learning (Perrone 1991; Anson & Brown 1991). These assessments could produce a better understanding of the interrelationship between gains in student learning and experiential learning teaching processes, thereby decreasing the concerns over whether colleges are achieving their espoused teaching and learning goals through experiential learning.

As changes in teaching and learning practice occur, colleges and universities will ultimately engage in institutional change processes in ways that align with their institutional and programmatic values (Thornton, Ocasio, & Lounsbury 2012). At Michigan State University (MSU), undergraduate programs are integrating experiential-based teaching as a method to fulfill requirements of the newly adopted Undergraduate Learning Goals (Associate Provost 2017). This initiative has led to the adoption of student learning ePortfolios as an assessment practice to demonstrate and document learning. However, there are no silver bullets to solve the variety of problems associated with documenting and demonstrating student learning. ePortfolios, while potentially powerful tools that can make learning visible, also have their limitations, or as we describe them, attributes and obstacles.

Research Context

MSU is a large, public, research-intensive institution offering over 200 programs of study within 17 degree-granting colleges. The majority of the student population consists of in-state enrollments and the university has experienced growth in international student and domestic student of color population (Michigan State 2016). The Liberty Hyde Bailey Scholars Program (henceforth, the program or BSP) is a non-residential academic learning community housed within MSU's College of Agriculture and Natural Resources. The program is open to students of any major, and students earn a minor in Leadership in Integrated Learning. Representing 51 majors and 11 colleges with 65% students of color (as compared to 18% overall at MSU) and 42% first generation college students, the program is the most diverse at MSU. The program encourages individual growth and exploration with the aspiration of achieving whole-person development ("Bailey Scholars" 2014).

With respect to the curricular aspects of learning, the program emphasizes both curricular and co-curricular aspects of learning by requiring students to take a sequence of three undergraduate core courses guided by the principles of self-directed learning (Hiemstra 1999; Knowles 1975; Roberson 2005). These three courses provide students the opportunity to develop a course of study, determine the course learning outcomes, and develop an assessment plan of their learning. Faculty and graduate fellows convene the core courses, and students within the course are referred to as co-learners. The learning outcomes for these courses are to designed to enhance student capacity in multiple dimensions; these include intellectual development, such as the ability to work well with others, the capacity for eithical decision-making, and the ability to solve problems.

To stimulate whole-student development, the program requires students to complete additional educational experiences driven by the pedagogy of critical education (Keniston & Gerston 1972). Through critical education, the students seek experiences to develop their professional and personal learning journeys that focus on five critical questions: Who am I? What do I value? How do I learn? What is my worldview? and How do these connect? These criteria are met through documented credited experiences (often other academic courses) and co-curricular experiences.

An ongoing requirement for all program participants is the documentation of their individual learning journey (core courses, co-curriculars, and learning integrations) throughout their tenure in the program. The program has always required this documentation to be presented in the form of a physical portfolio; however, considering the changing landscape of technological growth in higher education, students found this requirement in its original form limiting. The physical copy of the student learning portfolio captured specific moments in time, typically the summative result of their learning. With a technology platform, students can document various points of time engaged in the learning cycle.

Additionally, with the diffusion of electronic information, the modes in which students learn are also often digitized. Technology yields opportunities not only to enhance the collection and representation of artifacts of learning but also to afford digital spaces or modes of connecting to learning spaces and collaborators beyond the borders of a classroom, campus, or community. Even though the intended learning outcomes may stay the same, the extension of resources available about any given subject, as well as how students experience information, changes. The process of learning itself, in an era of technological access, may differ from learning in traditional environments and inputs. Affording students the opportunity to learn in new ways through varied digital technologies can lead to more efficient ways for them to experience and document learning (Draves 1997).

Lastly, because reflection is often used as a summative tool and typically takes the form of a written synthesis of the student learning experience, it does not change how a student conceptualizes learning while learning is occurring. A physical portfolio does not allow for peer feedback nor does it capture reflective thought that emerges throughout the learning cycle. By contrast, a virtual space where students can reflect upon their learning in live time and receive feedback shared from their peers could ultimately create a change to the intended learning cycle.

The program administration partnered with student leaders to explore options to document learning processes, methods, and outcomes via learning ePortfolios maintained on learning management systems. The adopted learning ePortfolio requirement took into account the self-directed theoretical foundation of the program and the technological

preferences and abilities of program participants. During the 2014 spring semester, the program adopted Digication[1] and began implementing learning ePortfolios in the three core courses as a pilot program.

After the initial pilot, the program's Faculty Learning Community (FLC) obtained feedback from students about their use of ePortfolios via survey and class discussions. The FLC analyzed this feedback during weekly meetings in order to provide recommendations for future implementation. The majority of feedback from the pilot was implemented the following year. In the fall of 2015, ePortfolios became a program requirement for all program participants—students, faculty, and staff. As a follow-up to the pilot and implementation of feedback, the FLC designed a study to better understand student perceptions of the learning processes utilizing ePortfolios. Specifically, the FLC explored documenting and housing artifacts, interacting virtually with co-learners throughout the learning cycle, and utilizing an ePortfolio platform as a resource. This study focused on two main themes: student-reported attributes of using ePortfolios to document learning, and obstacles students face during usage. How these student perceptions affect learning outcomes, the role of faculty, and the cycles of reflection are discussed throughout this paper.

Review of Literature

Recently, the Association of American Colleges and Universities (AAC&U) identified the use of ePortfolios as a high-impact practice (HIP), or "institutionally-structured student experience inside or outside of the classroom that is associated with elevated performance across multiple engagement activities and desired outcomes" (Watson, et al. 2016). Students participating in HIPs are reportedly more proactive in their educational experiences and tend to apply and reflect on what they are learning, and this application and reflection deepens and integrates their learning experience.

Across institutions, the ePortfolio serves diverse purposes and requires institutional leadership to set clear goals for its use (Tosh, et al. 2005). For example, a traditional teaching portfolio may highlight program learning outcomes demonstrated by student summative work. However, HIP ePortfolios should be self-directed by the student and highlight the process

of their learning. With this type of ePortfolio, the student takes responsibility and leadership of their experiences and determines how to document their learning. Since they are learning with and from their co-learners, course conveners, and faculty instructors, the ePortfolio becomes a live, virtual tool that makes ongoing reflective thought visible and open for feedback. Learning with and from one another are social interactions described as social pedagogy practices (Bass 2017). These pedagogical practices foster students' ability to construct and communicate understanding for an authentic audience. The feedback coming from multiple perspectives may alter how students conceptualize, process, and apply the learning content (Watson, et al. 2016).

With the adoption of the HIP learning ePortfolio, educators hope that students will harness the opportunity to author their own learning by selecting their own work examples, writing thoughtful reflections, and exceeding the requirements of their program to foster lifelong learning (Baxter Magolda 2008; Hiemstra 1999). Educators may assume that students understand the need to balance self-direction and appropriate help-seeking during the process of learning and documenting that learning (Baxter Magolda 2008). However, students often do not have this understanding and may need more detailed guidance in their metacognitive processing related to the development of their ePortfolio (Fadel, Bialik, & Trilling 2015). Because of their assumptions about self-directed learning, educators often neglect to plan properly for integrated framing and reflection (K. Schwartz 2016).

Furthermore, the HIP learning ePortfolio can look unfamiliar to undergraduate students and can be confusing to students when combined with their engagement in other HIPs (Watson, et al. 2016). For example, many first-generation college students or underserved student populations could find the concept of a HIP learning ePortfolio unfamiliar (Finley & McNair 2013).

Motivating students to develop a HIP learning ePortfolio may be challenging because, during the K–12 experience, portfolios (paper or electronic) are more commonly used as a teaching and assessment tool. This type of usage emphasizes a portfolio as a placeholder where students can submit work based on teacher discretion rather than a place to document formative learning across curricular and co-curricular experiences as would be seen in

a HIP learning ePortfolio (Chatham-Carpenter, Seawel, & Raschig 2010). Effective HIP learning ePortfolios should be embedded in the curriculum and not stand-alone tools that solely capture student reflection of experiences. Quality HIP learning ePortfolios capture the diverse backgrounds of students and are a platform where the students can make meaning of and document their experiences. Artifacts can capture student inquiry, problem solving abilities, and T-shaped boundary crossing competencies (Amber 2000). In order to maximize the benefits to students, faculty should provide guidance to them and implement technologically-based pedagogical strategies to motivate and educate users about the effective use of HIP learning ePortfolios.

With the integration of technology and education, learning ePortfolios have been viewed as an authentic assessment tool. As a result, more universities and programs have begun to require ePortfolios (Mayowski & Golden 2012). In 2012, the Association for Authentic Experiential and Evidence-Based Learning (AAEEBL) documented a visible shift in ePortfolio usage from early adopter, grassroots, and pilot programs to broader institutional or departmental programs as ePortfolios became an increasingly valuable tool in experiential learning (Brown, Chen, & Gordon 2012). With this shift, new inquiries arose surrounding the application and outcomes of using learning ePortfolios within those new contexts. Today, as ePortfolios are adopted as HIPs, questions continue to arise relative to the experience of users and ePortfolio implementation (Kuh 2008).

Many studies in the ePortfolio field have focused on beginning users, such as institutional adopters, and end users, such as prospective employers. Sometimes, institutions make assumptions about the current generation of college students as "digital natives" who have grown up with computers and the internet. However, these assumptions, which often drive the adoption of digital teaching and learning methods, are false (King 2016). In reality, digitizing teaching and learning practices (such as replacing the physical portfolio with the ePortfolio) actually results from new job demands and the need for these students to meet the reality of the "always on" modern workforce (Bersin 2014). Students are aware that they need to demonstrate proficiency to future employers, but they may be unaware of how it is best to package their learning in an ePortfolio (Yang 2016).

As market demands increasingly require evidence of learning beyond grades and resumes, the use of learning ePortfolios continues to grow exponentially as a method of assessing and exhibiting student learning and learning processes (Barrett 2007; Green & Golden 2013; Gulbahar & Tinmaz 2006). The rapid adoption of learning ePortfolios has occurred at a time when the collective anxiety about demonstrating student learning has increased. Thus, ePortfolios have been, and continue to be, important tools for documenting and demonstrating student learning. However, when considering the value of HIP learning ePortfolios, few studies focus on student perceptions of adoption and utilization (Parker, Ndoye, & Ritzhaupt 2012).

Data and Methods

This project was a mixed-method explanatory study that captured student perceptions of ePortfolio platform usability and usage during the program through surveys supplemented with interviews. The study consisted of two phases, a quantitative and a qualitative.

Data Collection and Analysis

In the quantitative phase of the study, we employed the use of an electronic survey to examine ePortfolio platform usability and explain how student usage captures learning during the BSP (Bailey Scholars Program). We distributed the survey to all active BSP students who had used an ePortfolio in at least one of the BSP core courses (n = 91). Of these students, 89% responded to the survey, which was composed of twelve short-answer questions. Two of the questions confirmed eligibility to participate in the study and the remaining ten questions sought to understand the strengths and weaknesses of the interactions of students in using ePortfolios. To better understand this data, we employed the qualitative phase of the study.

In the qualitative phase of the study, we recruited participants from three BSP courses that used ePortfolios. To initially recruit participants, we first reviewed the student's ePortfolios to evaluate their ePortfolio usage. We used purposeful sampling (Patton 2005) of students based upon their ePortfolio usage and incorporation of content. After reviewing these learning

ePortfolios, we invited four students from each course section for interviews. Ten students (83%) agreed to participate. Of the ten participants, eight participants identified as female and two identified as male. Participant race/ethnicity consisted of two Asian, three Black or African American, and five Caucasian. All participants were between 18–24 years of age.

After students reviewed the informed consent and agreed to participate, we conducted forty 80-minute one-on-one interviews. We used the interviews to explore different aspects of the ePortfolio experience, such as digital presence, self-directed learning readiness, ePortfolio readiness, and peer feedback on learning ePortfolios. All interviews were audio recorded and transcribed verbatim. The initial review was done using Dedoose, where three of the researchers conducted a deductive process for analysis by reviewing and coding each transcript. After the initial review, the full research team discussed and finalized the coding scheme developed by the three reviewers. The team identified emergent areas and developed coding consensus that organized the data into three subgroups - attributes, obstacles, and opposing dialogues.

Trustworthiness and Credibility

We followed Guba's (1981) criteria for assessing trustworthiness to evaluate high quality qualitative research studies: credibility, transferability, dependability, and confirmability. More specifically, we engaged in the following practices:

Credibility

- We reviewed the interview questions for content, accuracy, biases, quality, and objective reasoning.

Transferability

- We reviewed the interview questions to ensure that they did not involve broad claims that could have the potential to limit the interviewee and the reader's ability to connect the study questions with their own experiences.

Dependability

- We conducted a dependability audit in which an outside auditor reviewed the activities of the research study to justify that the research methods we employed were credible and appropriate, and that our findings could be transferable to other scholars researching ePortfolios.

Confirmability

- We were able to confirm that our interpretation of the data either supported or added to the scholarship about ePortfolios by connecting our findings to extant literature.

Limitations

There are three limitations to this study. First, the study participants came from a purposeful sample and are not representative of the entire student population within the BSP or of the broader university. Second, because of the small population of learners in this specialized program, this study has a relatively small sample size and produced results representative of a population positively affected by the use of ePortfolios. Finally, the interview participants are members of a specialized, self-directed learning program and may not represent the typical student participating in postsecondary education.

Student performance is greatly influenced by active learner engagement in, responsibility for, and ownership of learning, which is supported by their reflection about the process and artifacts selected to document their learning (Eyon & Gambino 2017). All of the limits of this study may be heightened for the BSP population due to the inherent nature of being a self-directed learning program. It also consists of a large population of students from historically underrepresented racial and ethnic groups. Therefore, the results of this study may not be generalizable to a broader population of students or ePortfolio users.

Findings

Many of the findings discovered about ePortfolio attributes and obstacles align with extant literature (Chatham-Carpenter, Seawel, & Raschig 2010; Light, Chen, & Ittelson 2011; Peet, et al. 2011). This section reports

findings from the study that affirm existing research; it also discusses tensions, or opposing dialogues, which arose between the programmatic goals of fostering self-directed learning and the skill-building necessary to successfully implement learning ePortfolio requirements.

Overcoming ePortfolio Obstacles

Findings included obstacles that were defined as technological and non-technological barriers. These barriers, related to learning behaviors, have the potential to hinder successful and effective implementation of learning ePortfolios to assess student learning. Analyses of data identified five emerging themes: (1) compartmentalization, (2) copyright/intellectual property, (3) communication reluctance, (4) technological barriers, and (5) assumptions and expectations.

Compartmentalization

An emergent pattern was students' desires to keep their personal and academic identities separate. Frequently, students indicated the use of ePortfolios solely to capture their learning surrounding their academic experiences, as opposed to linking or referencing connections to social media. For example, one student indicated compartmentalization in terms of various social media platforms: "Facebook is for non-academic purposes." Students indicated separation of their social media presence for multiple reasons; however, they most frequently cited privacy. They desired to keep their personal lives outside of academia for fear that their social media presence could be potentially detrimental to their grades and/or future employability. Another identified reason for compartmentalization was that students felt that particular software or applications should be used to complete specific tasks or purposes. One example was from a student who was an avid user of Pinterest. Their primary use of Pinterest was to organize social aspects of their life (e.g., wedding planning) as compared to organizing academic priorities of their life (e.g., physics notes). Overall, there was not a mindset of flexibility for students to repurpose certain software or application for new purposes. This lack of flexibility was also illustrated through students' resistance to use the university's learning management system (LMS) to socially engage with classroom peers, even though the LMS encouraged student interaction.

Copyright/Intellectual Property

Two main concerns emerged within the data: (1) visibility and ownership of students' ePortfolios and (2) the use of copyrighted materials. Students are required to make their learning ePortfolios visible to the rest of the program community. This programmatic decision was made during the process of adopting learning ePortfolios as a means for students to learn from and with one another as part of their learning. Course conveners encouraged reciprocity through the commenting feature embedded in the ePortfolio software. However, there was resistance and hesitation from students to share or post their work publicly in a "nebulous cloud."

Concerns related to questions of intellectual property also arose, such as "Who owns my work once I post it, me or the program?" "What if someone else in the class copies my work and uses it as their own?" And "How do I protect my ideas or work in this public forum?" These statements emphasize the overall lack of knowledge about the rules and norms of digital voice in ePortfolio usage. Additionally, students expressed concerns about copyright regulations. Students wanted to use multiple electronic sources creatively to enhance their artifacts, but they were hesitant. For example, some wondered, "What happens if I post a work of art or a song that I like as part of my reflective artifact without a citation?" "Will I get into trouble if I don't seek permission first?" And "Will I get a $250,000 fine for posting excerpts from a movie without permission?" The lack of knowledge surrounding the legality of using certain materials was an obstacle for participant buy-in.

Communication Reluctance

As noted in the previous section, the program strives to foster an environment where students learn from and with one another. To encourage this kind of learning in a virtual setting, the "commenting" feature of ePortfolios is used as a way for students to engage in dialogue. Since the learning ePortfolios are publicly viewable for all program community members, students were reluctant to communicate. This was notable through three main student fears: (1) fear of misinterpretation or of being misunderstood, (2) fear of being critical or critiquing others' work publicly, and (3) fear that constructive criticism or critique would violate or impede the artistic freedom and creativity of the creator. One student indicated, "I tried to be critical and ask questions about the reflection but [another student] took [my comment] a different way and became defensive. So now I'm less likely to comment on

their portfolio." Other students perceived that their written comments on others' ePortfolios were lost in translation. They expressed a preference for face-to-face, real-time dialogue to limit misinterpretation in the digital public platform.

Technology Barrier

Another obstacle was student discontentment with specific components of the ePortfolio platform. Though commonly found among publishing platforms, students were unfamiliar with and frustrated by the multi-step process of saving and publishing created materials. Many students were irritated with the failure of their materials to appear live on their ePortfolio pages after they saved their content. This irritation was merely a result of students forgetting to take a final step of publishing the saved materials. The angst of students stemmed from their lack of familiarity in requiring additional steps beyond saving. Typically, they would not have to publish in software commonly used by students, such as Google Docs.

Most students expressed some difficulties with computer usage. One participant admitted, "Through my ePortfolio experience, I have learned that I'm very bad at using computers." Others expressed that they encountered obstacles, including difficulties with software flow and lack of training or experience with the tools necessary to make a learning ePortfolio that authentically represents their learning experience. Comment functions within the platform posed another challenge as they were "often difficult to find," which made it hard to "follow the conversations occurring between various comments." These barriers meant that students did not always perform within the ePortfolio environment as well as they thought they could, particularly if they had stronger skills related to graphics, video editing, and computers in general.

Assumptions and Expectations

When the program required learning ePortfolios as a component of the minor of study, a set of expectations was developed for the students to follow so that they could integrate ePortfolios into their learning to help document their cycles of reflection. For example, one expectation in three of the courses was to integrate the use of a learning ePortfolio in all aspects of the learning cycle. So, while syllabi in the courses were created collaboratively by all learners, students felt limited by the requirements surrounding ePortfolios in terms

of their creative expression and documentation of learning. Moreover, in some courses, students were required to make a minimum number of posts or comments on co-learners' posts. Even though posting requirements were collaboratively established by co-learners, they often distracted from creative or multiple modes of communication, which are possible within learning ePortfolios.

Digication integrates a range of media options (i.e., video, picture, diagram) which can be uploaded at the click of a button. However, students indicated a preference for using more familiar and simplistic modes of communication (essay, narrative) to meet posting requirements in a seemingly more timely manner. Students' emphasis was on saving time, even at the expense of posting more preferred or creative options.

Additionally, some students made assumptions about the purpose of the platform's commenting feature, making direct connections between similar features on social media sites/mobile applications like Facebook or Instagram. Assumptions included similar functionality and engagement of the commenting features of the ePortfolio platform as a method to show "affirmation," "agreement," or "discontentment." This assumption shadowed the importance of the opportunity to learn from and with other learners throughout the artifact-reflecting portions of the learning cycle. Students also failed to use the commenting feature as a place to share critical and constructive feedback to their co-learners.

Recognizing ePortfolio Attributes

For this study, attributes or "possibilities" of learning ePortfolios were also identified as factors that contributed to the successful and effective implementation of ePortfolios. Attributes that emerged were (1) transferable technology skills, (2) learning interdependence, and (3) technology for learning.

Transferable Technology Skills

A pattern emerged from participant interviews linking the skills for using the ePortfolio platform as transferable from skills developed using other existing online platforms. Supporting this link, students expressed a range of comfort levels with documenting ideas electronically, indicating variability

in the frequency of digital space usage (e.g., number of hours a day) and the number of digital space platforms. The students who stated that transferring their skills was easy described themselves as "tech-savvy" or "digital-aged." Participants indicated the use of multiple social media platforms, including Facebook, Instagram, Pinterest, Snapchat, and Twitter. Participant use of multiple social media platforms and large amounts of time spent on social media reinforced many students' abilities to transfer their skills to the ePortfolio context.

Learning Interdependence

All co-learners within the program's community are required to make their learning ePortfolios visible to the entire community, including those in their classes. The goal of this sharing was to encourage peer-to-peer learning to enhance the learning cycle. One student indicated "once I had a chance to survey and review my peers' ePortfolio, I would go back and redo my portfolio to improve on some features I liked in my peers' portfolio." Students highlighted the usefulness of a collaborative approach to creating learning ePortfolios, discussing issues like photos and videos as well as depth and quality of reflective practices. Relying on others' ePortfolios to generate ideas for their own posts demonstrated interdependence in the learning process. Also, participants described interdependence in troubleshooting difficulties with the ePortfolio platform by consulting with peers who experienced and overcame similar challenges. Finding inspiration in the work of others and seeking peer assistance with technological difficulties were positive attributes that increased learning interdependence.

Technology for Learning

Participants in this study identified many attributes of the use of a learning ePortfolio as a technology to support learning and engagement. Though some students found certain features within the ePortfolio platform to be rigid and prohibitive (e.g., commenting), they also viewed the technology-related challenges as opportunities to learn. Students shared some important contributions regarding the ePortfolio platform with Digication to enhance and refine the quality and value of the platform (e.g., improved dialogue between students online). As a response to student suggestions, improvements were made by Digication for ease in usability, including the addition of new commenting and tagging features, and features specific to the programmatic

context. For example, one participant suggested that a "string comment" function, in which one comment could be attached to a reply, would foster a more continuous and sustained dialogue among co-learners. The majority of students shared a strong sentiment that improvements in the ePortfolio technology would greatly enhance their learning, create positive spaces to foster co-learning, and facilitate learner engagement.

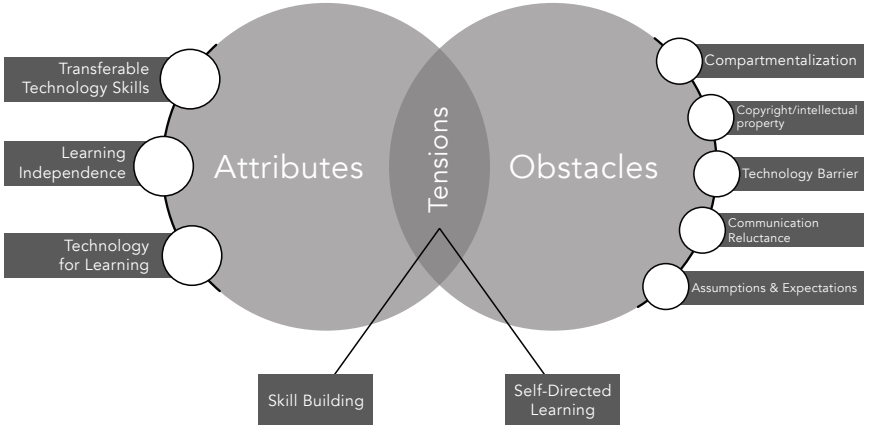
Opposing Dialogues Between Obstacles and Attributes

Though identified obstacles and attributes of ePortfolio usage were salient throughout the interview data, tensions arose within individuals and co-learners, primarily around the issues of self-directed learning and skill building (see Figure 1).

Self-directed Learning

Most students identified themselves as self-directed learners with direct statements such as, "I am a self-directed learner", "I'm very self-motivated" or "I've taught myself along the way and eventually figured it out." Students positively attributed the learning ePortfolio as an opportunity to creatively,

Figure 1. ePortfolio attributes and obstacles identified in the program



independently, and collaboratively portray and reflect on and share their learning experiences within a private, yet public, platform. Furthermore, students highlighted the opportunities of being able to review and edit their work within their ePortfolio, reflect on the process of articulating their learning in a single location, and interact with the work of their peers. Students found the ePortfolio platform to be a more useful tool for integrating their self-directed learning as opposed to their experience with other learning management systems.

However, while students directly identified themselves as self-directed learners, they had difficulty providing specific examples in which the learning ePortfolio enhanced self-directed learning or deepened their reflective processes. This was attributed to the lack of motivation to self-direct their learning of how to use ePortfolios effectively. One student elaborated, "It's not hard [learning ePortfolio]. . . . It was easy, but in a way, I would have loved to learn by having someone teach me everything." This student indicated that while they were motivated to learn how to use the available tools, they preferred additional guidance on how to improve their ePortfolio skills. Other participants lacked the motivation to explore ways to improve their ePortfolio skills. Even though Digication offers a help desk and multiple online tutorials, some students did not utilize these self-directed methods to improve their ePortfolio skills. Therein lies the tension between self-directed learning and the ePortfolios of these students. Though students identified themselves as self-directed, and highlighted the usefulness of an ePortfolio for learning, these same students were not motivated to seek assistance or independently explore options to maximize their use of ePortfolios.

Skill-building

Another tension that surfaced surrounded skill-building. Even though students identified strong technology skills and social media presence, they lacked ability or motivation to transfer those skills to the learning ePortfolio. A perfect example is when one student argued an inability to upload an image to their ePortfolio despite the multiple images they uploaded onto Facebook. Another example is students' resistance to learn how to transfer skills used and implemented in a face-to-face class environment to the online learning spaces. "I'm not very comfortable and not very good at this [working in online spaces]," indicated one student, who was typically a vocal leader throughout the core classes. Students' comfort and confidence in working

in online spaces influences their capacity to build skills specifically related to learning ePortfolios.

Despite these limitations, many students recognized the accumulation of skills from using multiple platforms as providing applicable skills in other contexts such as an ePortfolio. For at least one participant, this skill-building was an ongoing process: "I'm beginning to connect my learning by transferring the knowledge I obtained from one platform to another platform." The ability to transfer existing knowledge and build new capacities for working within a learning ePortfolio became an important aspect of the implementation process. This transferability fosters comfort and skill-building necessary to engage with the mechanisms in a learning ePortfolio developed to help students cultivate lifelong, sustainable skills.

Discussion and Implications for Research and Practice

Through this study, we identified five obstacles in the ePortfolio implementation process: compartmentalization, copyright/intellectual property, communication reluctance, technology barriers, and students' assumptions and expectations. We also identified three attributes of ePortfolios: technology transfer skills, learning interdependence, and technology for learning. Within these categories merged two tensions: self-directed learning and skill building. We found that overcoming the obstacles and strengthening the attributes requires prior planning and learning from both the instructors and students. We recommend that educators allocate time to assess students' understanding of the learning cycle and their actual technological skills prior to the introduction of the ePortfolio. By conducting assessment of these skills, educators can better understand actual technological ability and be able to construct and scaffold guidance and teaching surrounding desired media expectations for ePortfolio use.

Technology Skill Building

Having transferable skills does not always equate to students being able to effectively integrate those skills within an ePortfolio. To put it in context, it is similar to students being familiar with the individual applications of Microsoft Office® such as Word, Excel, and PowerPoint but not being able to integrate the interconnected functions of each program to present a

completed presentation, report, or portfolio. Moreover, while the majority of today's college students are digital natives, technology is ever-evolving. The applications we perceive students to be comfortable using because they have had a long shelf life (i.e., Facebook) may not be the applications that students are using today. To meet student's requests to not have to learn an entirely new technological platform, the program decided to choose an ePortfolio that best resembled commonly used social media applications. However, instructors failed to recognize the possibility that not all students fully understand how to use popular social media programs, nor did it consider if the associated applications were used by the student population. For example, when an instructor referred to the process of posting a comment in the ePortfolio as being the same to posting a comment on Facebook, students could not relate to this analogy stating, "We don't understand. Facebook is for our parents." This disconnect often left students feeling frustrated with having to learn and use the new platform.

Therefore, it is imperative that instructors allocate time in their courses to provide clear guidance and structure to intentionally teach how to engage in the learning cycle while reviewing and engaging in the various functions within the ePortfolio platform and model usage and application. This scaffolding can be conducive for developing student skills and abilities to transfer their technological skills and best accommodate student learning preferences.

Copyright

Existing literature identified some obstacles in using ePortfolios, such as technology barriers (Meyer & Latham 2008; Tosh, et al. 2005). Our findings represent new issues to consider when planning to implement programmatic ePortfolios, particularly issues of copyright and compartmentalization. For example, instructors could integrate a lesson on licensing with students to clarify any concerns about copyright and intellectual property as a part of implementation. Additionally, instructors could emphasize institutional policies and expectations for copyrighting, citing, and plagiarism, as should be outlined in course syllabi. As technology becomes the norm within higher education, many universities have established intellectual property policies and resources to guide instructors and students. Stemming from this study, another suggestion is for instructors to adopt or to create a quick reference guide that highlights how to cite most commonly used artifacts which may be used in student learning ePortfolios.

Software

Software, like most forms of technology, has a limited shelf-life. There is a need for upgrades and improvements, or it can quickly become outdated. While ePortfolios are not new, there has been a tremendous increase in the number of applications one can use to develop an ePortfolio. As an educator, it is beneficial to consider thoroughly why a particular ePortfolio platform is able to best meet programmatic needs and support student learning. There is no one best solution to support learning via ePortfolios; however, there is value in adopting a platform that is responsive to both educator and student needs as they evolve over time. We not only encourage practitioners to solicit ongoing feedback from students about the tools they are using, but to share that feedback with software developers of the selected platform.

Build Understanding of Reflection in ePortfolios

When considering the assumptions and expectations surrounding student ability to use a learning ePortfolio, it is essential to discuss, define, and clarify common jargon that may not seamlessly transfer in a digital world. For example, *commenting* in a majority of social media platforms is viewed as an affirmation or informal communication method versus a more formal, constructive, and reciprocal function within an ePortfolio. Another example encompasses the word *reflection*. Every so often, when discussing what reflection means to students, it is quite variable, with definitions of summative, formative, or personal insights, or reiteration of activities or actions. However, through the learning ePortfolio, the role of reflection engages thoughtful perspectives on the learning process, inputs for learning, artifacts of learning, thought processes, or other steps in the learning cycle.

To encourage ongoing reflection throughout the learning cycle, we recommend that the instructors provide clear guidelines and prompts for students. Specific guidance strengthens the process of reflection and encourages students to move beyond documenting the *what* to a more descriptive account of the *how, why, when, where,* and *what is next*. Reflection, then, is realized as an embedded process throughout the learning cycle. With access to an ePortfolio, the reflection process can be relayed through multiple modes (i.e., video, text, photos).

Social Pedagogy of ePortfolio

Students compartmentalize their online behaviors into two main boxes—social and academic. Most students indicated that sharing and having a virtual social presence is a normative behavior in social platforms but were resistant to and questioned the value of sharing their academic online presence with others outside the institution. This belief can contradict established learning outcomes for ePortfolio use as an integrative social pedagogy. While students acknowledge the value of receiving authentic feedback, their comfort with openly sharing beyond their secure classroom is still a factor preventing them from communicating their reflection and academic learning. Students have been instructed over time to censor their internet presence and to maintain a professional image. This discretion affects student comfort in presenting learning as unpolished or as a work in progress.

Through effective planning, educators can intentionally facilitate and encourage interdependent learning amongst their students. When developing a learning ePortfolio in isolation, we found that students do not typically engage with peers for guidance or feedback. However, engagement changed when approaches were defined to explain the how and why of peer-to-peer and community-based interaction within an ePortfolio. With greater understanding of the purpose of interactive functions, students felt more comfortable embracing interdependent interactions and were more willing to share practices and work with others to support learning.

Another suggestion to help students overcome this perspective is to discuss the purpose of a learning ePortfolio in comparison to other portfolios, such as a professional portfolio, and to establish community expectations for sharing and feedback. Additionally, instructors can establish methods with students to assess and document learning outcomes using reflective practices in a virtual setting. Clarifying the importance of a social core can foster student comfort to reflect on and co-create learning within a virtual community space that is not solely public or private. It is also important for instructors to guide students on how to share with external audiences to invite valuable feedback.

Self-Directed Learning with ePortfolios

One of the main objectives of our program is to foster self-directed learning and whole-person development. Our courses are designed to provide a space where students can choose what they want to learn, how they want to learn, and how to best assess their learning. While the ePortfolio is useful as a virtual space to capture these learning experiences, students also claimed that the integration of technology became a barrier in the learning process. Removing this barrier moving forward will require additional guidance from instructors about creating successful, virtual self-directed spaces. In a large number of traditional college courses, instructors purposely think about how and when to teach to achieve student understanding. They are aware of when to use different modalities to encourage comprehension. This is typically a foreign concept for students that becomes even more confounded in a virtual platform. Assisting students with the functionality of the ePortfolio and learning in virtual spaces can increase learning outcomes and student framing of the learning design (i.e., a student knows when to listen to and share a Ted Talk lecture to further understanding).

As a result of this study, we have identified three recommendations for future research. First, we encourage continued exploration of student motivation to engage in the what and how of self-directed learning when using ePortfolios. This exploration increases understanding about how students engage in metacognitive processes in ePortfolios. Next, given the sustained interest in implementing learning ePortfolios, it is essential to better understand best practices to deepen students' engagement with ePortfolios. This is particularly important if documented artifacts will be used to assess the quality of student learning at a given institution. Finally, a further understanding of the transferability of technology skills could enhance how educators approach effective implementation of and maximize learning through ePortfolio use.

Conclusion

Within the era of educational accountability, the push to document and demonstrate student learning increases exponentially. Creating opportunities for students to indicate learning, and ultimately the value of a college education, is critically important to both internal and external higher education stakeholders. In this paper, we argued that learning ePortfolios are a HIP practice that has the potential to change the ways that students and programs partner to demonstrate and document student learning. While prior literature identified several issues to consider in ePortfolio implementation processes, we identified additional issues for consideration. When adopting ePortfolio technology to capture and enhance student learning, ePortfolios can be powerful tools for some students or barriers that impede learning for others. This study reinforced this dichotomy. Educators should be aware of these attributes, obstacles, and tensions when adopting ePortfolios. Awareness to action can only enhance student learning using the learning ePortfolio.

Note

1. Digication is a widely used ePortfolio platform that can be used in a variety of ways; within our program, the primary purpose is for students to create learning ePortfolios to reflect on and document their learning. Digication can also be an assessment tool and course management software.

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