

College Students' Motivation and Confidence for ePortfolio Use

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Research has consistently demonstrated the benefits of using ePortfolios in higher education and the Association of American Colleges and Universities (AAC&U) added ePortfolios to its High-Impact Practices list (Watson, Kuh, Rhodes, Light, & Chen, 2016). The majority of studies on college students' ePortfolio use have focused on implementation within a specific course or from a faculty perspective. Given the important benefit of ePortfolios for lifelong student learning, it is important to assess factors which impact intrinsic motivation from a student-centered perspective. This paper details a study of college students' motivation and confidence to use an ePortfolio system as part of a university-wide quality enhancement plan that included high-impact, experiential learning activities. This study also explored college students' personal values and their perceived advantages and disadvantages of ePortfolio use within the context of experiential learning and reflection. Data were analyzed from 339 student responses from a survey constructed based on motivational interviewing. Overall, students reported low levels of motivation and moderate levels of confidence to use ePortfolios. In addition, students who had participated in an experiential learning activity through the university's QEP reported higher confidence than those who had not. Factors identified as potentially impacting students' motivation and confidence to use ePortfolios are discussed in terms of how they can support strategies to implement ePortfolio and experiential learning programs in large, 4-year college institutions.

ePortfolio Use in Higher Education

Over the past decade, higher education institutions have increasingly begun to implement ePortfolios across a range of disciplines in undergraduate and graduate courses (Gordon, 2017; Ivanova, 2017; Mason & Williams, 2016; McWhorter, Delello, Roberts, Raisor, & Fowler, 2013; Mihret, Abayadeera, Watty, & McKay, 2017; Munday, 2017). ePortfolios are multi-modal evidence-based, digital learning tools that promote student and faculty collaboration and cultivate meaningful learning experiences in a central place through a tailored compilation of student artifacts that demonstrate specific knowledge, skills, and attitudes (Batson et al., 2017; van Wyk, 2017). A 2012 Authentic, Experiential, and Evidenced-Based Learning survey was administered to educators, practitioners, and ePortfolio technology vendors from 13 countries and 97 institutions (Brown, Chen, & Gordon, 2012). Brown et al. (2012) reported a 13 percentage-point increase in the number of respondents who reported that 90-100% of their students were building ePortfolios as compared to 2011 survey results. A 2013 EDUCAUSE survey found that 57% of higher education campuses across the United States have "made some use" of ePortfolios at the program or course level within their particular institution (Dahlstrom, Walker, & Dziuban, 2013).

The Association of American Colleges and Universities (AAC&U) added ePortfolios to its High-Impact Practices list (Watson et al., 2016) based on a proliferation of research on student ePortfolio use (Kahn, 2014) and its benefits to student learning (Love, McKean, & Gathercoal, 2004), including making learning visible through written reflection, encouraging in-depth thinking (Eynon, Gambino, & Török, 2014),

and enhancing metacognitive strategies (Huang, Yang, Chiang, & Tzeng, 2012). The acknowledgement of ePortfolios as a high-impact practice (HIP) has led to increased application of ePortfolios to promote students' learning across a variety of institutions in different formats. Although ePortfolios generally share basic underlying technologies, these platforms can differ widely in design, openness, sharing capabilities, and learning curve for usage (Morphew, 2012). Additionally, the level of implementation of ePortfolios and the buy-in from users (i.e., educators, administrators, and students) can differ greatly across institutions. Thus, this widespread and divergent application of ePortfolios underscores the importance for continued implementation research.

In the study discussed in this paper, we sought to extend the literature on ePortfolio implementation by examining students' motivation and confidence to use ePortfolios across a university and from a student perspective, an important but relatively under-researched topic (Mobarhan, Majidi, & Abdul Rahman, 2014). Understanding the perspectives of all users and improving the communication among them can enhance what McWhorter, Delello, Roberts, Raisor, and Fowler (2013) described as a virtual community of practice. In other words, data regarding students' ePortfolio use can be shared to promote quality ePortfolio practice and implementation in higher education.

This paper will briefly review the current literature on students' ePortfolio use in higher education and present qualitative and quantitative results from a student-centered survey. We will also describe a university-wide implementation of an ePortfolio system that includes engagement in reflection, student-level assessment, and experiential learning activities for select groups of students.

Literature Review

Benefits of ePortfolio Use for Higher Education Students

ePortfolios have been widely utilized by higher education institutions because of the numerous opportunities for learning, reflection, student collection and management of learning artifacts for their entire college career, and faculty feedback (Bryant & Chittum, 2013; Toner & McDowall, 2018; Roberts, 2018). ePortfolios can serve as a student-centered pedagogy where learners, including English language learners (Ivanova, 2017), are responsible for self-authorship. Learners use ePortfolios to map artifacts and make connections through reflection that is supported by peer and instructor feedback (Kehoe & Goudzwaard, 2015; Yancey, 2015). ePortfolios can also provide valuable support to students as they navigate challenges that arise throughout their college experiences, mediate dissonance that accompanies awareness, and develop confidence across multiple contexts (Buyarski et al, 2015). Additionally, the digital application serves as a mechanism through which educators can facilitate and monitor student learning outcomes (Ellis & Kelder, 2012).

Importantly, ePortfolios not only serve as digital repositories for cataloging ideas, evidence, reflection, experiential learning, achievements, assessments, and feedback throughout students' educational experiences but they also provide students with opportunities to track the process of their learning across time (Gordon & Campbell, 2013; Nguyen & Ikeda, 2015; Roberts, 2018; Volmer, & Sarv, 2018). The ability to store and connect curricular and co-curricular experiences in a central location fosters reflective learning, encourages future planning with purpose, and can be a powerful catalyst for students to develop holistic identity and integration (Kehoe & Goudzwaard, 2015; Kirkham et al., 2009). Furthermore, ePortfolios have shown promise in fostering self-agency and developmentally appropriate strategies for integrating academic, co-curricular, personal, and professional dimensions of self (Kehoe & Goudzwaard, 2015; Munday, Rowley, & Polly, 2017; Rowley & Munday, 2014; Sidebotham, Baird, Walters, & Gamble, 2018).

When applying for education jobs, students who submit ePortfolios may be viewed as more competitive by human resource and school administration staff. This is because applicants with ePortfolios can clearly demonstrate characteristics congruent with the potential job while also displaying a deeper and more complete level of learning (Painter & Wetzel, 2005; Snoeyink, & Meyer, 2007; Yu, 2011). A comprehensive review of the literature on ePortfolio research through 2012 indicates that—when properly implemented with clear guidelines

and expectations, and with adequate technology resources—ePortfolios can make significant contributions to student learning (Bryant & Chittum, 2013).

ePortfolio Use Through the Implementation of a University's Quality Enhancement Plan

The present study's university designated ePortfolio use as a cornerstone of its 2016/26 Quality Enhancement Plan (QEP). In an effort to implement this HIP across campus, the QEP provided all university students with access to the ePortfolio system as soon as they were enrolled. All students had the opportunity to log into their ePortfolios through the university's website and were encouraged, but not required, to use their ePortfolios through faculty promotion and student marketing, training, and resources (e.g., freshman orientation programming; department, faculty, staff, and student trainings; and online resources on ePortfolio use). QEP staff promoted the ePortfolio system as a free resource that students can use—for their entire lifetime, if they graduate from the present study's university—to document and showcase their marketable skills and learnings in and outside of college. University administrators, faculty, and instructional staff also promoted the ePortfolio system as a free resource that faculty can use to develop HIPs (for an explanation of HIPs, see Kuh, 2008) among students. Educational and career development ePortfolio activities were thus integrated into faculty courses and staff programs on a voluntary basis. Such ePortfolio activities included (a) developing online identity pages; (b) using ePortfolios to collect and share products, learnings, or projects from university coursework; and (c) creating job-specific ePortfolio web pages.

The second cornerstone of the QEP built on the university's ePortfolio approach by implementing experiential learning, written reflection, and marketable-skills assessment activities through the ePortfolio system. While promoting faculty and students' ePortfolio use in general across the university, the QEP also worked directly and collaboratively with university divisions, departments, faculty, staff, students, and community partners to incorporate experiential learning activities into university curricular and co-curricular courses and programs. QEP staff provided broad-based and department-level marketing and multiple individual- and university-level trainings for faculty and staff regarding the incorporation of experiential and service-learning pedagogies, and ePortfolio reflection and assessment activities, into their courses and assignments. QEP staff also offered grants to fund faculty and staff in developing or redesigning their courses to incorporate experiential learning.

These experiential learning activities provided students with concrete opportunities to engage in

problem-solving and hands-on learning in “real-world” settings such as class or non-credit internships, study abroad, service learning or capstone courses; research, volunteer, or course projects; and on- or off-campus student employment. Additionally, these experiential learning activities targeted and assessed student proficiency in employer-valued marketable skills and required students to document learnings, upload artifacts and projects, and reflect on their experiences in writing through the university’s ePortfolio system (Hart Research Associates, 2018; National Association of Colleges and Employers, 2018).

University faculty and staff used a variety of experiential learning activities or assignments across several disciplines, including food drives and school supply deliveries, upcycling, tax-service support and translation services, social science research, semester-long laboratory work in engineering, museum curation services, public presentations, and providing social support to the elderly. Experiential or service-learning pedagogies guided all assignments where students learned through action and were purposely engaged in both direct experience and focused reflection to increase knowledge, develop skills, and clarify values. For all such assignments, written reflection and individual assessment through the university’s ePortfolio system allowed students to document their acquired skills, reflect on how their experience connected to their knowledge and career interests, and record how they felt about their experience. This practice helped students to solidify the connections made between learning and the application of marketable skills.

Participation in QEP experiential learning activities also allowed students to showcase earned micro-credentials targeting written and oral communication, teamwork, and critical thinking. Students earned a marketable skills micro-credential for the successful completion of each experiential learning activity. Students who earned a micro-credential also had the opportunity to earn a university-backed credential on an alternative transcript if they went on to complete three or more of the same micro-credentials in the future. This transcript can be shared with potential employers.

In order to maximize the success of this QEP within a large and diverse public university, the present study identified and explored factors related to the motivation and confidence to use ePortfolios (as reported by students). We plan to use these factors to inform future strategies for increasing students’ ePortfolio use at this university and other large, four-year universities.

ePortfolio Use from a College Student Perspective: Attitudes and Perceptions

Ample research that focuses on ePortfolio use from a student perspective has only recently been published.

Through 2009, Gerbic, Lewis, and Northover (2009) identified only 18 studies on ePortfolio use from the student perspective. Most of these studies included undergraduate students and the majority were students from teacher education courses. For example, Lin (2008) studied student teachers who reported positive attitudes about their ePortfolio use and several benefits, including learning through reflection, developing assessment skills, receiving feedback from peers, and learning how to organize and synthesize information.

Since 2009, much research has been published on ePortfolio use. Specifically, AAC&U’s Publications on ePortfolio: Archives on the Research Landscape website contains more than 500 published articles on ePortfolio use with the majority published after 2009 (see <https://eportfolio.aacu.org/>). Several of these studies are based on students’ perspectives in higher education and focus on students’ perceptions and attitudes regarding their ePortfolio use or experiences. For example, Toner and McDowall (2018), Rahman and Mohamed (2017), and Ryan (2018) found that student nurses had positive views on ePortfolios because they allow for the collection of student artifacts, the receipt of faculty feedback and student assessment, and the long-term documentation of personal and professional development. Midwifery students who used ePortfolios for self-assessment reported that the practice helped them develop and articulate a personal practice philosophy for their profession (Sidebotham et al., 2018).

Collins and O’Brien (2018) found that nursing students who used ePortfolios to present and assess their clinical work reported the following advantages: the ability to track, reflect on, and share evidence of learning with faculty and future employers; improved learning and security; and the efficient receipt of feedback from faculty. Reported disadvantages of ePortfolio use included technical difficulties with uploading learning artifacts or lack of time or guidance for creating or using student ePortfolios.

Other studies (Birks, Hartin, Woods, Emmanuel, & Hitchins, 2016; Parker, Ndoye, & Ritzhaupt, 2012; von Konsky & Oliver, 2012; Wakeling, Aldred, & Hains-Wesson, 2018) have also examined ePortfolio use from a student perspective in the education, health science, food science, business, or nursing fields. These studies noted that students report similar advantages (e.g., tracking evidence of learning over time, improved employability) and disadvantages (e.g., technical difficulties and the time-consuming effort to create an ePortfolio). Additional studies have indicated that college students’ attitudes towards ePortfolio use is associated with career-commitment status and perception of ePortfolio purpose, technical difficulty, instructor guidance, and students’ willingness to disclose personal information in their ePortfolios (Gaitán, 2012; Tzeng & Chen, 2012).

ePortfolio Use From a College Student Perspective: Motivation and Confidence

Few studies have focused on college students' motivation or confidence to use ePortfolios (Balaban, Mu, & Divjak, 2012; Mobarhan et al., 2014). Our literature through 2018 found less than 25 articles that included motivation and confidence in their discussion of ePortfolio use. Additionally, these 25 identified articles varied in ePortfolio application (e.g., professional, graduate, or undergraduate), program focus (e.g., nursing or teacher education), country, ePortfolio platform, and institution type (e.g., online, public, and private universities). These articles often focused on a specific course or discipline rather than ePortfolio use across an entire institution. Finally, we found no studies that focus on college students' confidence in using ePortfolios. We instead found studies that examined students' confidence in general, confidence in their ability to reflect, or confidence to complete their course work using an ePortfolio or to use technology in general (Chang, 2018; Cheng & Chau, 2009; Kabilan, 2018; Sidebotham et al., 2018; Vachon, Foucault, Giguère, Rochette, Thomas, & Morel, 2017).

Similarly, the majority of studies investigating ePortfolio use and motivation have not focused on students' motivation to use ePortfolios, but on motivation to learn, reflect, work, or read (Beckers, Dolmans, Knapen, & van Merriënboer, 2018; Chittum, 2018; Mohamad, Embi, & Nordin, 2016; Refaei, & Benander, 2016; Weber & Myrick, 2018). The few studies that examined students' motivation to use ePortfolios reported several factors that may be associated with motivation. For example, Tosh, Light, Fleming, and Haywood (2005) examined first-time ePortfolio use among undergraduates from two universities. They found that students reported a number of factors as relevant to their motivation to use ePortfolios. Such factors included students' reported buy-in for using ePortfolios, the perceived value and benefits of using ePortfolios for self-promotion and assessment, difficulties in understanding how to use ePortfolios and the length of time required to learn how to create an ePortfolio.

Tuksinvarajarn and Todd (2009) reported that students' motivation to use an ePortfolio was enhanced by having a quality ePortfolio system design, one that provided feedback and rewards. Klampfer and Köhler (2015) found significant and moderate correlations between motivation to use ePortfolios and a variety of factors such as social norms (e.g., the use of ePortfolios as standard practice), perceived usefulness and benefits of ePortfolios, and the quality, usability, and relevance of the ePortfolio system. Buchem (2012) and Chye, Liao, and Liu (2013) stated that students who reported intrinsic forms of motivation such as receiving value or

enjoyment from ePortfolio use were more likely to report positive views of ePortfolios. Similarly, Chang, Lee, and Millis (2016) found that nursing students' motivation is based on ease of use, the ePortfolio's potential for long-term application, and the likelihood of beneficial outcomes as a result of ePortfolio use.

All of these motivation-focused studies identified factors that are aligned with the four extrinsic and intrinsic motivational categories for student ePortfolio use as recently posited by Mobarhan, Rahman, and Majidi (2015). Mobarhan et al. (2015) investigated students' experiences with and motivations for using a university's ePortfolio system on the basis of theoretical and empirical support for the relationship between student motivation and learning (Deci, Koestner, & Ryan, 2001; Glynn, Aultman, & Owens, 2005; Maclellan, 2008). These authors administered semi-structured interviews to 15 college students from a Malaysian public university.

Mobarhan et al. (2015) summarized student ePortfolio use as intrinsically or extrinsically motivated and includes various motivational categories, factors, and descriptions that universities, developers, and administrators should include when developing ePortfolios systems for students. Examples of the motivational categories include system (e.g., system and information quality), individual (e.g., competence in ability to navigate ePortfolio technology and prior ePortfolio experience), social (e.g., social norms and the value of positive feedback for continuation of usage), and environmental (e.g., ownership of the ePortfolio technology and the quality of the technology). A similar concept proposed by Helen Barrett (2007) also emphasizes the importance of studying intrinsic and extrinsic motivation. Barret (2007) argued that enhancing learner ownership through scaffolding can ultimately enhance intrinsic motivation and continued lifelong learning.

Purpose of Study

Students' motivation and confidence are arguably important factors for enhancing student learning outcomes through the creation of ePortfolios (Mobarhan et al., 2014; Tosh et al., 2005). Without motivation and confidence, students may not provide much effort in ePortfolio development or any associated learning tasks. The purpose of this study is to understand students' motivation and confidence to use ePortfolios by examining why students use ePortfolios and what they perceive as the advantages and disadvantages of their use. This study builds on the literature in several ways.

Bryant and Chittum (2013), in a major review of existing ePortfolio research through 2012, argued for more empirical research on students' ePortfolio use and

student outcomes, both academic and non-academic (motivation is one such example). In addition, our review of the literature indicates that only two of these studies (Hains-Wesson, Wakeling, & Alfred, 2014; von Konsky & Oliver, 2012) examined students' perceptions of ePortfolios at the university level and across multiple disciplines. The majority of previous ePortfolio studies have included one or only a few particular areas of study, such as teacher education or nursing. Students' motivations and confidence about university-wide ePortfolio use may be notably different from their motivations about ePortfolio use within a single class, school, or major. Additionally, few research studies have thoroughly examined the factors impacting student motivation to use ePortfolios. Educators need to better understand why students are using ePortfolios and what resulting benefits students expect from their use (Mobarhan et al., 2014; Tosh et al., 2005).

The current study also builds on Mobarhan et al.'s (2014) study by applying an analytic framework that results not only in the identification of motivational and confidence factors, but students' reported suggestions for enhancing them. Using a student-centered approach for implementation will help ensure that students remain an active agent in their learning and hopefully increase the likelihood that they maximize the usefulness of the ePortfolio. Finally, using Barrett's (2007) framework, the current study may inform future university-wide ePortfolio adoption efforts by identifying and better understanding the factors that contribute to greater learner ownership and intrinsic motivation for ePortfolio use.

Methodology

Participants and Procedures

This study recruited participants by e-mailing all ePortfolio users enrolled at the present study's university who had at least activated their account by creating a password for their ePortfolio log-in. In February 2018, a link to an online survey was sent out to 6,803 student ePortfolio users. It should be noted that the university encouraged but did not require all students to use their ePortfolios or enroll in courses or programs that had incorporated experiential learning activities. Thus, the present study is limited to students who did actually follow through with their accounts; hereinafter, these participants will simply be referred to as *ePortfolio users*. Students consented electronically by entering their individual student ID before proceeding with the survey. The survey was open for three weeks with weekly reminders to increase response rates. Students were also offered the chance to be included in a drawing for one of five prize bags with an estimated value of \$15 to \$30, upon completion of the survey.

Data Collection Framework

Using a student-centered perspective in the present study, we developed a survey grounded in Miller and Rollnick's (2013) Motivational Interviewing (MI) framework. The primary purpose of this person-centered framework is to strengthen an individual's motivation for change towards specific behaviors by eliciting their own motivation and confidence. Traditionally, MI is a collaborative conversation for strengthening a person's own motivation and commitment to change by supporting personal values and eliciting change talk to address ambivalence (Miller & Rollnick, 2013). We used this underlying framework to gain insight into students' motivation for, and confidence in, using ePortfolios in the context of experiential learning tasks and activities. The most relevant MI principles applied to this study include:

- People are the experts on themselves. No one knows more about them than they do.
- People have their own strengths, motivations, and resources that must be activated in order for change to occur.
- It is important to understand the person's own perspective on the situation, what is needed, and how to accomplish it. (Miller & Rollnick, 2013, p. 23)

Using this framework, we examined motivation and confidence levels of students across a variety of disciplines for using an ePortfolio system in the near future (i.e., over the next week). We also investigated students' personal values associated with the perceived advantages and disadvantages of their ePortfolio use. MI is traditionally used in talk therapy as a goal-directed treatment tailored to each individual; however, MI and motivational enhancement therapy (a more structured protocol adaptation) have also been used in text-based or online applications. Although in the present study we designed the survey around MI principles and utilized MI components (e.g., readiness ruler and values sort), it is not an actual application of talk therapy or MI in its traditional form. Rather, we used MI as a guiding framework to elicit responses from a student-focused perspective with the overall goal of enhancing likelihood of ePortfolio usage based on intrinsic attitudes, motivation, confidence, and guiding values. Below, we discuss each component of the survey and its adaptation from traditional MI tools.

Measures

In this study, we assessed motivation and confidence for using ePortfolios by administering motivation and confidence rulers along a visual analogue scale ranging

from 0 (*Not at all motivated/confident*) to 10 (*Very motivated/confident*). The motivation instructions were: “On a scale of 0 to 10, how motivated are you this week to create or use the ePortfolio?” Confidence instructions were: “On a scale of 0 to 10, how confident are you that you *could* create or use the ePortfolio this week?” The questions were framed to ask about motivation and confidence levels over the next week to gauge real-time likelihood of using the ePortfolio system. The motivation and confidence rulers were adapted from the Importance or Readiness Ruler originally developed by Butler, Rollnick, Cohen, Russell, Bachmann, and Stott (1999). Each ruler quantitatively assessed the participant’s current motivation or confidence separately for using the ePortfolio over the coming week. Display logic altered the presentation of subsequent qualitative items based on the initial motivation response. For example, students who rated their motivation as a 0 subsequently viewed a free-response item: “What led you to choose a 0? Please explain in a few sentences below.” Students who rated 2 or higher viewed the item: “What led you to choose a [rating response] instead of a 0 or 1?” All participants were then asked to explain what it would take to increase their motivation rating, with the exception of those who reported 10, the highest rating. Participants who reported the highest rating were prompted to explain their choice: “Can you explain what led you to choose a 10 for the previous question?” The same process was repeated for the confidence ruler, and all items required responses to progress through the survey.

Next, participants were provided with a description of QEP experiential learning activities that emphasized reflection and ePortfolio use and were asked whether they had “participated in an experiential learning activity before, such as through a course assignment or internship?” and provided with a yes/no forced response. Based on this response, to gauge perceptions of ePortfolio use in conjunction with the experiential learning activity, students were asked to describe the advantages and disadvantages: “What do you imagine would be the advantages/disadvantages of critically reflecting on experiential learning within the ePortfolio?” Online survey instructions and description of experiential learning activities are provided in the Appendix.

Both the advantages and disadvantages responses and the explanation of motivation and confidence ratings were collected in a free text response format. A conventional qualitative content analysis plan was used for all qualitative data. Responses were visually examined by coders and subsequently coding categories were derived from the raw data. Then, the coding categories were used to review responses and derive common themes. Examples of these themes were chosen for illustrative purposes and are presented in the results.

In line with MI principles, a personal value activity list was included to connect students’ motivation and confidence with their reported intrinsic values. In the present study, we sought to include this tool to gain a better understanding of what student values are ranked as most important overall in an effort to align marketing messages and instructional materials with what is most important to students. The value list was adapted from Miller’s Values Card Sorting activity for the electronic survey platform (Miller & Rollnick, 2013). Eighty-three personal value words and their descriptions (plus an “other” option) were presented in a list. Participants were asked to “review each word and choose at least 10 words that are very important to you by selecting the checkbox next to those words.” On the subsequent page, participants were prompted to “rank value words in order of importance” using a rank-order feature with first order indicating the *most important value*, the second indicating the *next most important*, and so on.

Results

Demographics and Response Rate

Of the 6,803 e-mails sent out to student ePortfolio users, 527 surveys were initiated and 362 survey responses were received. Survey responses were then matched with university demographic data using student ID numbers. Some survey responses did not include active or accurate student ID numbers, so to ensure that survey responders were current students, only the responses for existing ID numbers on file were used ($N = 339$), resulting in about a 5% percent response rate. Detailed demographic data are provided in Table 1. This study’s analytic sample had more females (76.1%) than males (23.94%). About 90% of survey responders were classified as undergraduates and the average age was 22.14 years ($SD = 6.74$). Figure 1 shows the frequency distribution of students across different schools and colleges ($n = 14$), with the largest representation coming from the College of Liberal Arts and Social Sciences (25.7%).

Out of the 339 ePortfolio users, almost 20% of students ($n = 67$) indicated that they had participated in an experiential learning activity (e.g., through a course assignment or internship), 64% percent ($n = 217$) reported that they had not participated in an experiential learning activity, and 16.2% ($n = 55$) did not respond.

Motivation and Confidence to Use ePortfolios

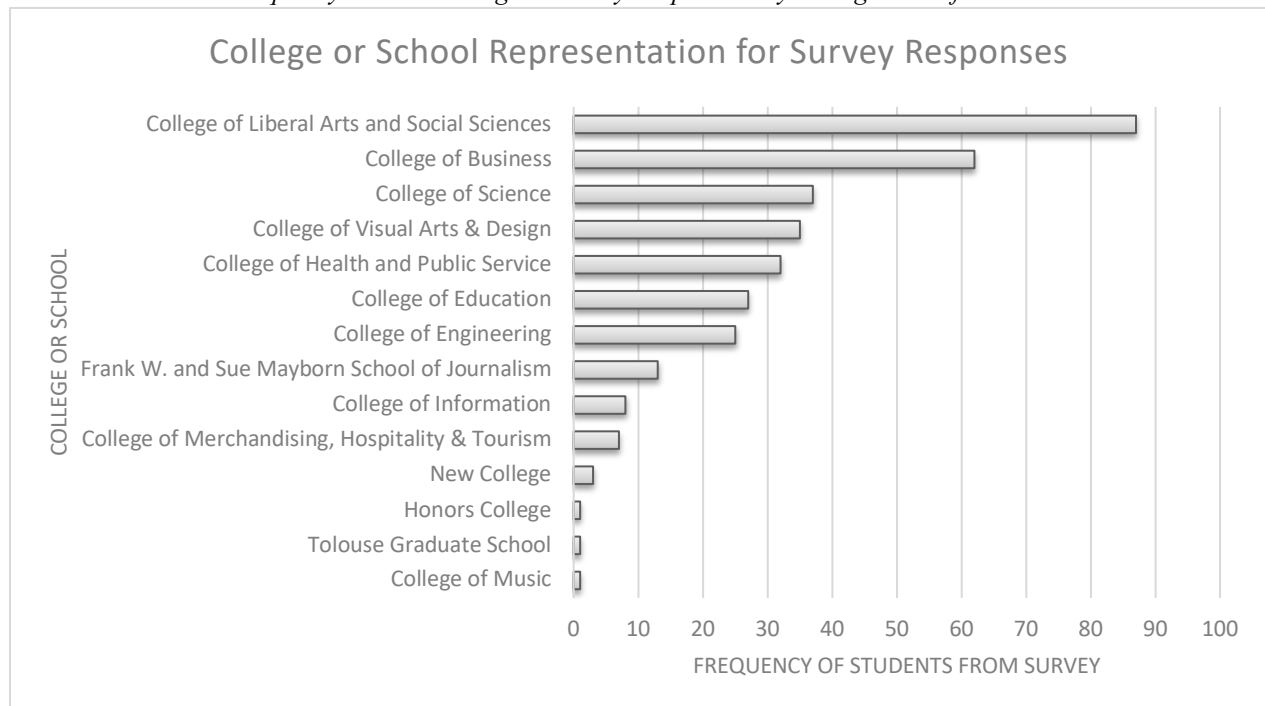
The average rating for the motivation ruler was 3.43 ($SD = 2.75$) and the average confidence rating was 5.85 ($SD = 3.40$). Independent samples t tests were run to determine if there were differences in motivation and confidence based on whether or not students had

Table 1
Sample Characteristics

		Frequency	Percentage
Gender	Women	258	76.10
	Men	81	23.94
Ethnicity	White	148	43.70
	Hispanic	86	25.40
	African-American	39	11.50
	Asian/Pacific Islander	30	8.80
	Non-Resident	30	8.80
	American Indian	5	1.50
	Other	1	0.30
Classification	Senior	87	25.70
	Junior	80	23.60
	Sophomore	71	20.90
	Freshman	69	20.40
	Master's	22	6.50
	Doctoral	6	1.80
	Post-Bac	4	1.20

Note. N = 339.

Figure 1
Frequency Chart Showing the Survey Responders by College Classification



Note. New College is the present study's university new off-site instructional facility that focuses on providing a workforce of business and tech leaders and problem-solvers.

participated in an experiential learning activity. Results indicated no statistically significant difference in motivation ratings between those who had ($M = 3.45$) and had not participated ($M = 3.24$) in an experiential learning activity, $t = 0.526$, $df = 282$, $p = .599$. Conversely, a statistically significant difference was found for confidence, $t = 2.17$, $df = 282$, $p = .030$. Students who participated in an experiential learning activity (compared to those who did not) reported higher confidence ratings for using the ePortfolio ($M = 6.66$ and $M = 5.63$, respectively).

Reasons for Motivation and Confidence

We also conducted content analysis of qualitative responses to ascertain the rationale for why students chose their motivation and confidence level ratings to identify emerging themes; the reported reasons or factors were organized by the following rating groups: low motivation, high motivation, 10-level motivation, low confidence, high confidence, and 10-level confidence. Low motivation and confidence rating responses were clustered based on rating responses less than or equal to 4 ($n = 182$), high motivation users were clustered based on ratings between 5 and 9 ($n = 146$), and those who chose a 10 (the highest possible rating; $n = 10$) were labeled as 10-level. Table 2 presents the main factors associated with why users chose a low,

high or, 10-level motivation rating, and it also presents what low, high, and 10-level users believed would enhance their motivation. The same results for confidence ratings are presented in Table 3.

Advantages and Disadvantages of ePortfolio Use

Content analysis was also completed on student responses to a question about experienced or anticipated advantages ($n = 269$) and disadvantages ($n = 265$) of participating in experiential learning activities that require student creation and use of ePortfolios for documenting their learning. Results are presented next and are grouped by overall advantages and disadvantages. Students commonly reported advantages such as benefits derived from documenting, reflecting on, and showcasing student learning experiences. Commonly reported disadvantages included technological challenges and too much time invested to complete an ePortfolio.

Advantages. Overall, perceived and imagined advantages of ePortfolio use were summarized as providing a convenient platform to host and exhibit experiences (e.g., “It allows us to put on record what we learned and what we accomplished.”), enhancing reflection of experiential learning (e.g., “The task makes me reflect on what I did wrong and what I did

Table 2
Examples of Student Responses for Using the ePortfolio by Motivation Rating Level

	Rationale	Enhancement
Low	Don't know how/ understand Useless/ Irrelevant Schedule/ time constraints Difficult to use Use another ePortfolio	Information about benefits/ use Have a reason to use it (e.g., extra credit) Electronic features (attractiveness) One-on-one assistance Required by classes More time or reduced workload
High	Don't know how/ understand Haven't used it yet, but willing Looking for jobs or internships Course requirement	One-on-one assistance Explanation of purpose and benefits External motivation (closer to graduation) Better advertisement External reminders (e.g., e-mails) More time or reduced workload
10-level	Enhances abilities and motivation Assignment due this week Assists with project sharing Utilized for student teaching Had previous experience with ePortfolio Required by degree program	

Note. Sample sizes differed for each group: low motivation (ratings less than or equal to 4) $n = 182$, high motivation (ratings between 5 and 9) $n = 146$, 10-rating $n = 10$, and 1 user did not respond. $N = 339$.

Table 3
Examples of Student Responses for Using the ePortfolio by Confidence Rating Level

	Rationale	Enhancement
Low	Don't know how/ understand Irrelevant Schedule/ time constraints Lack of experience or preparation Prefer to use different platforms	Course or degree requirement More interesting or novel features Explanation of purpose and benefits Additional instruction or explanation More time or reduced workload Video tutorial
High	Prior experiences Course or degree requirement Has received instructions Self-efficacy for use	Course or degree requirement Video tutorial Explanation of purpose and benefits Evidence of benefits/ outcomes Additional instruction or explanation Better features (e.g., visual appeal) More time or reduced workload
10-level	Ease of task Prior instructions or experience with ePortfolio Technology self-efficacy Regular utilization Past course or degree requirement	

Note. Sample sizes differed for each group: low confidence (ratings less than or equal to 4) $n = 104$, high confidence (ratings between 5 and 9) $n = 130$, 10-rating $n = 63$, and 42 users did not respond. $N = 339$.

right. It makes me reflect on how the activity benefited me, and how I could improve.”), preparing for interviews or job applications (e.g., “Prepare myself for any possible questions in an interview and understand how I can better myself to employers.”), and solidifying identity and growth, for example:

I feel that participating in something like that might be an eye-opener to the individual. I realized some things about myself that I might not have paid attention to previously, that could in turn make me more marketable should I choose to shine a little more light on those skills.

Additionally, some imagined advantages echoed the sentiments expressed in the motivation and confidence responses; for example, one student said participating (e.g., “might help me better understand the purpose”).

Disadvantages. Disadvantages included the amount of time (e.g., “It takes time to complete them.”) and problems with the technology interface (e.g., “Sometimes ePortfolio [shows] an error such as asking me to verify something, and that confuses me. ePortfolio is more confusing than Blackboard.”). Many students also explained how perceived disadvantages might be a benefit (“It is a double-edged sword...it could make that individual question...[his/her] motivation for a career/education switch, for fear of starting from scratch to learn a new or quite possibly, more rewarding skill.”). About one-third of students who had no previous participation reported no perceived disadvantages.

Value-words that were chosen by students at the end of the survey were collated into the top 10 frequently endorsed value words out of the 83 possible words and the “other” option. The ten most frequently endorsed items were as follows: self-acceptance ($n = 128$), caring ($n = 125$), adventure ($n = 124$), achievement ($n = 122$), dependability ($n = 121$), compassion ($n = 117$), purpose ($n = 112$), comfort ($n = 107$), family ($N = 107$), and friendship ($N = 105$).

Discussion

Study results indicate that students who used the ePortfolio system across a large and diverse public university also reported low motivation and moderate confidence to use ePortfolios. Several factors may be related to these outcomes. These factors, identified from a student-centered perspective, could be targeted by universities that wish to implement ePortfolio systems; they include: (a) participation in experiential learning activities; (b) understanding of, prior experience with, competence in, and social norms regarding students' ePortfolio use; (c) the quality of the ePortfolio system and the usefulness of the guidance or instructions for using it; (d) perceived advantages of ePortfolio use and its capabilities, including the benefits derived from documenting, reflecting on, and showcasing students' career-identities and learning experiences for potential job opportunities; and (e) perceived disadvantages of ePortfolio use such as technical difficulties and the high-

level of time commitment. Many of these factors (e.g., prior experience with ePortfolio systems, academic and career benefits, social norms, ePortfolio system quality, technical difficulties, and time burdens) are supported by existing literature as being associated with or as relevant to students' motivation to use ePortfolios (Birks et al., 2016; Collins & O'Brien, 2018; Garrett, Thoms, Alrushiedat, & Ryan, 2009; Klampfer & Köhler, 2015; Parker et al., 2012; Ryan, 2018; Tosh et al., 2005; Tuksinvarajarn & Todd, 2009; Yu, 2011). Moreover, these factors are theoretically supported by the four extrinsic and intrinsic motivational categories identified by Mobarhan et al. (2015) as beneficial for universities, developers, and administrators to include when promoting ePortfolios systems for students. The system (e.g., the capabilities and quality of ePortfolio system), individual (e.g., technological self-efficacy), and social (e.g., utilized by faculty for teaching) categories were well represented in the current study's results.

Study results also helped to address if students' motivations regarding university-wide ePortfolio use may differ from their motivations for ePortfolio use within a class, school, or major. These current results, and results from other studies that also examined ePortfolio use at the university level from a researcher, faculty, or student perspective (Hains-Wesson et al., 2014; von Kinsky & Oliver, 2012), suggest similarities in the factors that motivate students to use ePortfolios within and across university colleges or departments. The one exception was students' preference to use a different ePortfolio system. Students' preference to use a different ePortfolio system was identified as a factor associated with motivation in the current study, but has not been identified or identified frequently in the previous literature. This individual-level factor may be unique to large and diverse colleges or populations such as the one in this study.

Findings on students' confidence to use ePortfolios are unique to the literature because few, if any, published studies to date have directly examined students' confidence to use ePortfolios, especially within the context of a large and diverse student population. The present study indicates similarities in the factors that students reported as influencing both their motivation and confidence to use ePortfolios. That is, most identified factors for confidence could be grouped within the four extrinsic and intrinsic motivational categories recently recommended by Mobarhan et al. (2015) for university-wide ePortfolio initiatives. The exception to these similarities was students' participation in experiential learning, which made a significant difference in students' reported levels of confidence, but not in their reported levels of motivation.

One reason for this exception could be attributed to the lack of full implementation and marketing of the participating university's ePortfolio, experiential

learning, and student-level assessment activities through its QEP. To explain, a cornerstone of this 2016/26 QEP is its experiential learning activities, which require student-level assessment and allow students to earn marketable skills micro-credentials by documenting and uploading student artifacts within their ePortfolios. These student artifacts are developed from their engagement in experiential learning activities and are independently rated within their ePortfolios. Artifacts are scored for proficiency by staff or faculty who use marketable skills rubrics adapted from AAC&U (2019). Arguably, students' participation and assessment within these experiential learning activities should have made a difference in their reported level of motivation to use ePortfolios (Tosh et al., 2005; Tuksinvarajarn & Todd, 2009; von Kinsky & Oliver, 2012).

However, at the time of this study, the 2016/26 QEP was in its first year of implementing and marketing its experiential learning and individual assessment activities, which are not required for all university students. Only about half of the university's departments incorporated experiential learning activities into one or more of their courses or programs. Therefore, it is possible that many students who used their ePortfolios within experiential learning activities were not aware of, or did not engage in the required assessment components and opportunities to earn micro-credentials in marketable skills. This may have been why participation in experiential learning activities did not make a difference in students' reported level of motivation to use ePortfolios.

Lack of awareness and lack of knowledge concerning the assessment component of the QEP may also explain why all students who used the ePortfolio, regardless of whether they participated in experiential learning activities, reported low overall levels of motivation. As the QEP continues to expand its implementation and its marketing of the assessment component through ePortfolio and credentialing systems across the university, students' awareness and engagement are likely to increase, which may lead to higher levels of reported motivation to use ePortfolios. We plan to test this assumption by replicating this study for the QEP annually. Since the current study's survey administration, the number of departments participating in the university's QEP has increased, and the number of student ePortfolio users within the university has more than doubled.

Implications

This study extends the literature by helping to address Bryant and Chittum's (2013) call for more research on students' ePortfolio use and non-academic outcomes such as motivation and confidence, and Mobarhan et al.'s (2014) call for more research on

factors associated with students' motivation to use ePortfolios.

The current study's findings can also help other universities identify student motivational and confidence factors that need to be included when implementing ePortfolio initiatives across their campuses (Mobarhan et al., 2015). For example, many of these factors are currently targeted by the large, four-year university that participated in this study. Their campus-wide QEP works to enhance student learning outcomes and increase students' motivation and confidence to use ePortfolios by engaging them in experiential learning, ePortfolio, reflection, and assessment activities as previously described in this study.

Given that many published studies have reported student benefits from both using ePortfolios as a HIP (Watson et al., 2016) and from engaging in experiential learning activities (Helle, Tynjälä, Olkinuora, & Lonka, 2007; Svinicki & McKeachie, 2014), other universities might consider combining these approaches to enhance not only confidence and motivation to use ePortfolios but also student learning outcomes in general. Student and faculty educational approaches, professional training, or skills workshops that combine these approaches and target the factors identified in this study may boost students' motivation and confidence to use ePortfolios while also resulting in a myriad of other positive student learning outcomes. Such approaches to ePortfolio use can significantly enhance student learning outcomes if they are implemented with sufficient technology resources as well as clear guidelines and expectations for ePortfolio use (Bryant & Chittum, 2013).

Such combined approaches could also address students' reported disadvantages of ePortfolio use by providing easily accessible and user-friendly information about how to use ePortfolios (e.g., how-to-videos and one-on-one assistance). Marketing messages could focus on how quick and easy it is to use ePortfolios so that students are not intimidated by the technology or the time commitment. Marketing messages can also be framed to emphasize the student values reported in this study, such as self-acceptance through reflection and student caring through service-learning activities. Other marketing messages that emphasize study abroad and travel-related experiences outside of the classroom may resonate with additional student values reported in this study: adventure, achievement, dependability, and family or friendship.

Such combined approaches may also resonate with students' reported value of achievement by awarding credentials based on assessed experiential learning activities. For example, as part of the aforementioned QEP, students receive credentials when they are rated by university faculty or staff as proficient in a

marketable skill across three separate experiential learning activities. This credentialing strategy simultaneously awards students for working on their ePortfolios every semester and discourages them from waiting until impending graduation to complete ePortfolio work.

Limitations and Future Directions

Limitations of the study sample included having a higher respondent rate for women and freshman, compared to women and freshman enrolled across the entire university from which the study sample was drawn (University of North Texas, 2018). Chi-square goodness of fit tests identified significant differences in gender ($\chi^2 [1, n = 339] = 72.65, p < .001$) and class level ($\chi^2 [6, n = 339] = 57.06, p < .001$) between the two samples. Women comprised 76% of the study sample compared to 53% for the entire university. About 20% of the study sample was composed of freshman, compared to about 10% for the entire university. The current study also had a low overall response rate (5% of total e-mails). These limitations may decrease the generalizability of study results. Generalizability of results for other learning institutions also may be limited because students were asked about their experience with the ePortfolio used at the present study's university. Both qualitative and quantitative results, particularly those related to functionality, will likely differ based on variations among platforms or systems. Additionally, six colleges were represented by fewer than 10 students, so our findings may not be representative of those colleges.

Another limitation is sampling bias. Although an external incentive was offered, the nature of the e-mailed anonymous survey might have been biased towards individuals who felt strongly one way or another about using ePortfolios in general. Further, the data are cross-sectional in nature; future studies could examine the feasibility of increasing students' motivation and confidence ratings across the semesters by engaging students in ePortfolio and experiential learning experiences. The aforementioned QEP may provide such longitudinal evidence as we test this relationship over the next two to three years.

Despite these sampling limitations, the sample's reported ethnicity and age were similar to that of the entire university from which it was drawn (University of North Texas, 2018). A chi-square goodness of fit test for ethnicity, ($\chi^2 [1, n = 339] = 11.54, p = .073$) and a one-sample *t* test for age ($t_{(338)} = -5.09, p = 1.00$) did not identify significant differences between the two samples. Therefore, the present findings may assist other large, higher education institutions with similar ethnographic and age characteristics who wish to implement ePortfolios at their own institutions by

providing additional, relative motivational context from the student perspective. To our knowledge, this is the first survey of its kind to report on student perspectives of both motivation and confidence for ePortfolio use, particularly within experiential learning activities and at the university level. Future directions include intentionally targeted marketing strategies that correspond with the values of students as a way to increase motivation and confidence to use ePortfolios. Additional research could also test findings from the present study by assessing students' motivation and confidence to use ePortfolios before and after using the ePortfolio system in their courses, and then examining data across different course samples rather than relying on cross-sectional data interpretation.

References

- Association of American Colleges and Universities (AAC&U). (2019). *Value rubrics*. Retrieved from <https://www.aacu.org/value-rubrics>
- Balaban, I., Mu, E., & Divjak, B. (2012). Development of an electronic portfolio system success model: An information systems approach. *Computers & Education, 60*(1), 396-411. doi:10.1016/j.compedu.2012.06.013
- Barrett, H. C. (2007). Researching electronic portfolios and learner engagement: The REFLECT initiative. *Journal of Adolescent & Adult Literacy, 50*(6), 436-449. doi:10.1598/JAAL.50.6.2
- Batson, T., Coleman, K. S., Chen, H. L., Watson, C. E., Rhodes, T. L., & Harver, A. (2017). *Field guide to ePortfolio*. Washington, DC: Association of American Colleges and Universities.
- Beckers, J., Dolmans, D. H. J. M., Knapen, M. M. H., & van Merriënboer, J. J. G. (2018). Walking the tightrope with an e-portfolio: Imbalance between support and autonomy hampers self-directed learning. *Journal of Vocational Education and Training, Advance online publication*, 1-29. doi:10.1080/13636820.2018.1481448
- Birks, M., Hartin, P., Woods, C., Emmanuel, E., & Hitchins, M. (2016). Students' perceptions of the use of ePortfolios in nursing and midwifery education. *Nurse Education in Practice, 18*, 46-51. doi:10.1016/j.nepr.2016.03.003
- Brown, G., Chen, H., & Gordon, A. (2012). The annual AAEEBL survey at two: Looking back and looking ahead. *International Journal of EPortfolio, 2*(2), 129-138. Retrieved from <http://www.theijep.com/pdf/IJEP93.pdf>
- Bryant, L. H., & Chittum, J. R. (2013). ePortfolio effectiveness: A(n Ill-Fated) search for empirical support. *International Journal of ePortfolio, 3*(2), 189-198. Retrieved from <http://www.theijep.com/pdf/IJEP108.pdf>
- Buchem, I. (2012, July). *Psychological ownership and personal learning environments: Do sense of ownership and control really matter?* Paper presented at the 3rd PLE Conference, Aveiro, Portugal.
- Butler, C. C., Rollnick, S., Cohen, D., Bachmann, M., Russell, I., & Stott, N. (1999). Motivational consulting versus brief advice for smokers in general practice: A randomized trial. *British Journal of General Practice, 49*, 611-616.
- Buyarski, C. A., Aaron, R. W., Hollingsworth, C. D., Johnson, C. A., Kahn, S. Landis, C. M. Powell, A. A. (2015). Purpose and pedagogy: A conceptual model for an ePortfolio. *Theory Into Practice, 54*, 283-291. doi:10.1080/00405841.2015.1076691
- Chang, C. P. (2018). Undergraduate student nurses' functional requirements for e-portfolios: A research study. *Studies in Health Technology and Informatics, 250*, 83-84. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/29857389>
- Chang, C. P., Lee, T. T., & Mills, M. E. (2016). Clinical nurse preceptors' perception of e-portfolio use for undergraduate students. *Journal of Professional Nursing, 33*(4), 276-281. doi:10.1016/j.profnurs.2016.11.001
- Cheng, G., & Chau, J. (2009). Digital video for fostering self-reflection in an ePortfolio environment. *Learning, Media and Technology, 34*(4), 337-350. doi:10.1080/17439880903338614
- Chittum, J. R. (2018). The Theory-to-Practice ePortfolio: An assignment to facilitate motivation and higher order thinking. *International Journal of ePortfolio, 8*(1), 27-42. Retrieved from <http://www.theijep.com/pdf/IJEP297.pdf>
- Chye, S. Y., Liau, A. K., & Liu, W. C. (2013). Student teachers' motivation and perceptions of e-portfolio in the context of problem-based learning. *Asia-Pacific Education Researcher, 22*(4), 367-375. doi:10.1007/s40299-012-0022-4
- Collins, E., & O'Brien, R. (2018). Highly structured ePortfolio platform for bachelor of nursing students: Lessons learned in implementation. *International Journal of ePortfolio, 8*(1), 43-55. Retrieved from <http://www.theijep.com/pdf/IJEP274.pdf>
- Dahlstrom, E., Walker, J. D., & Dziuban, C. (2013). The ECAR study of undergraduate students and information technology, 2013. Boulder, CO: EDUCAUSE Center for Applied Research. Retrieved from <http://www.educause.edu/ecar>
- Deci, E. L., Koestner, R., & Ryan, R. M. (2001). Extrinsic rewards and intrinsic motivation in education: Reconsidered once again. *Review of Educational Research, 71*(1), 1-27. doi:10.3102/00346543071001001
- Ellis, L., & Kelder, J. (2012). Individualized marks for group work: Embedding an ePortfolio criterion in a

- criterion referenced assessment (CRA) rubric for group-work assessment. *Education for Information*, 29, 219-227. doi:10.3233/EFI-130935
- Eynon, B., Gambino, L. M., & Török, J. (2014). *Reflection, integration, and ePortfolio pedagogy*. Retrieved from <http://c21.mcncr.org/pedagogy/ped-analysis/>
- Gaitán, A. (2012). Understanding students' experiences of e-PDP and the factors that shape their attitudes. *International Journal of ePortfolio*, 2(1), 29-38. Retrieved from <http://www.theijep.com/pdf/IJEP61.pdf>
- Garrett, N., Thoms, B., Alrushiedat, N., & Ryan, T. (2009). Social ePortfolios as the new course management system. *On the Horizon*, 17(3), 197-207. doi:10.1108/10748120910993222
- Gerbic, P., Lewis, L., & Northover, M. (2009). Student perspectives of ePortfolios: A longitudinal study of growth and development. *Proceedings of the ASCILITE Conference, Auckland, New Zealand*, 327-331. Retrieved from <http://www.ascilite.org/conferences/auckland09/proc/gerbic.pdf>
- Glynn, S. M., Aultman, L. P., & Owens, A. M. (2005). Motivation to learn in general education programs. *Journal of General Education*, 54(2), 150-170. doi:10.1353/jge.2005.0021
- Gordon, J. A., & Campbell, C. M. (2013). The role of ePortfolios in supporting continuing professional development in practice. *Medical Teacher*, 35, 287-294. doi:10.3109/0142159X.2013.773995
- Gordon, L. (2017). Students as co-designers: Peer and instructional resources for novice users of ePortfolio. *International Journal of ePortfolio*, 7(2), 113-127. Retrieved from <http://theijep.com/pdf/IJEP279.pdf>
- Hains-Wesson, R., Wakeling, L., & Aldred, P. (2014). A university-wide ePortfolio initiative at federation university Australia: Software analysis, test-to-production, and evaluation phases. *International Journal of ePortfolio*, 4(2), 143-156. Retrieved from <http://www.theijep.com/pdf/IJEP147.pdf>
- Hart Research Associates. (2018). *Fulfilling the American dream: Liberal education and the future of work. Selected findings from online surveys of business executives and hiring managers*. Washington, DC: Association of American Colleges and Universities. Retrieved from <https://www.aacu.org/sites/default/files/files/LEAP/2018EmployerResearchReport.pdf>
- Helle, L., Tynjälä, P., Olkinuora, E., & Lonka, K. (2007). "Ain't nothing like the real thing." Motivation and study processes on a work-based project course in information systems design. *British Journal of Educational Psychology*, 77(2), 397-411.
- Huang, J., Yang, S., Chiang, P., & Tzeng, L. (2012). Building an e-portfolio learning model: Goal orientation and metacognitive strategies. *Knowledge Management & E-Learning: An International Journal*, 4(1), 16-36. Retrieved from <http://www.kmel-journal.org/ojs/index.php/online-publication/article/viewArticle/163>
- Ivanova, O. I. (2017). The use of e-portfolio to develop English language learners' autonomy and independence. *Informacijni Tehnologij i Zasobi Navčanná*, 60(4), 155-165. Retrieved from <https://journal.iitta.gov.ua/index.php/itlt/article/view/1677>
- Kabilan, M. (2016). Using Facebook as an e-portfolio in enhancing pre-service teachers' professional development. *Australasian Journal of Educational Technology*, 32(1), 19-31. Retrieved from <http://ajet.org.au/index.php/AJET/article/view/2052/1333>
- Kahn, S. (2014). E-portfolios: A look at where we've been, where we are now, and where we're (possibly) going. *Peer Review*, 16(1), 4-7.
- Kehoe, A., & Goudzwaard, M. (2015). ePortfolios, badges, and the whole digital self: How evidence-based learning pedagogies and technologies can support integrative learning and identity development. *Theory Into Practice*, 54, 343-351. doi:10.1080/00405841.2015.1077628
- Kirkham, T., Winfield, S., Smallwood, A., Coolin, K., Wood, S., & Searchwell, L. (2009). Introducing live ePortfolios to support self-organized learning. *Educational Technology & Society*, 12(3), 107-114.
- Klampfer, A., & Köhler, T. (2015). Learners' and teachers' motivation toward using e-portfolios. An empirical investigation. *International Journal of Continuing Engineering Education and Life-Long Learning*, 25(2), 189-207. doi:10.1504/IJCEELL.2015.069867
- Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges and Universities.
- Lin, Q. (2008). Preservice teachers' learning experiences of constructing e-portfolios online. *Internet and Higher Education*, 11, 194-200. doi:10.1016/j.iheduc.2008.07.002
- Love, D., McKean, G., & Gathercoal, P. (2004). Portfolios to webfolios and beyond: Levels of maturation. *Educause Quarterly*, 27(2), 24-37. Retrieved from <https://www.learntechlib.org/p/103757/>
- MacLellan, E. (2008). The significance of motivation in student-centered learning: A reflective case study. *Teaching in Higher Education*, 13(4), 411-421.
- Mason, R., & Williams, B. (2016). Using ePortfolio's to assess undergraduate paramedic students: A

- proof of concept evaluation. *International Journal of Higher Education*, 5(3), 146-154. doi:10.5430/ijhe.v5n3p146
- McWhorter, R. R., Delello, J. A., Roberts, P. B., Raisor, C. M., & Fowler, D. A. (2013). A cross-case analysis of the use of web-based ePortfolios in higher education. *Journal of Information Technology Education*, 12, 1-34. Retrieved from <http://www.jite.informingscience.org/documents/Vol12/JITEv12IIPp253-286McWhorter1238.pdf>
- Mihret, D., Abayadeera, N., Watty, K., & McKay, J. (2017). Teaching auditing using cases in an online learning environment: The role of ePortfolio assessment. *Accounting Education*, 26(4), 335-357. doi:10.1080/09639284.2017.1292466
- Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change* (3rd ed.). New York, NY: Guilford Press.
- Mobarhan, R., Majidi, M., & Abdul Rahman, A. (2014). Motivation in electronic portfolio usage for higher education institutions. In H. Rahman & R. D. de Sousa (Eds.), *Information systems and technology for organizational agility, intelligence, and resilience* (pp. 224-243). Hershey, PA: Business Science Reference.
- Mobarhan, R., Rahman, A. A., & Majidi, M. (2015). Electronic portfolio motivational factors from students' perspective: A qualitative study. *Knowledge Management & E-Learning*, 7(2), 265-279.
- Mohamad, S. N. A., Embi, M. A., & Nordin, N. M. (2016). Designing e-portfolio with ARCS motivational design strategies to enhance self-directed learning. *Higher Education Studies*, 6(4), 138. doi:10.5539/hes.v6n4p138
- Morphew, V. N. (2012). *A constructivist approach to the national educational technology standards for teachers*. Eugene, OR: International Society for Technology in Education.
- Munday, J. (2017). An embedded ePortfolio in a master's degree: Is it working? *International Journal of ePortfolio*, 7(2), 175-185. Retrieved from <http://theijep.com/pdf/IJEP251.pdf>
- Munday, J., Rowley, J., & Polly, P. (2017). The use of visual images in building professional self-identities. *International Journal of ePortfolio*, 7(1), 53-65. Retrieved from <http://www.theijep.com/pdf/IJEP238.pdf>
- National Association of Colleges and Employers. (2018). *Job outlook 2018 spring update*. Bethlehem, PA: NACE International Foundation. Retrieved from https://nace-foundation.org/wp-content/uploads/2018/07/CS947-2018_Foundation_AnnualReport_WEB.pdf
- Nguyen, L. T., & Ikeda, M. (2015). The effects of ePortfolio-based learning model on student self-regulated learning. *Active Learning in Higher Education*, 16(3), 197-209. doi:10.1177/1469787415589532
- Painter, S., & Wetzel, K. (2005). School administrators' perceptions of the use of electronic portfolios in K-8 teacher hiring. *Journal of Computing in Teacher Education*, 22(1), 23-29. Retrieved from <https://files.eric.ed.gov/fulltext/EJ876896.pdf>
- Parker, M., Ndoye, A., & Ritzhaupt, A. D. (2012). Qualitative analysis of student perceptions of E-Portfolios in a teacher education program. *Journal of Digital Learning in Teacher Education*, 28(3), 99-107. doi:10.1080/21532974.2012.10784687
- Rahman, A. A. R. A., & Mohamed, A. H. (2017). Evaluating nursing students' perception toward use of e-portfolio as an innovative learning strategy for student assessment. *American Journal of Nursing Research*, 5(3), 86-95.
- Refaei, B., & Benander, R. (2016). How authors and readers of ePortfolios make collaborative Meaning. *International Journal of ePortfolio*, 6(2), 71-84. Retrieved from <http://www.theijep.com/pdf/IJEP244.pdf>
- Roberts, P. (2018). Developing reflection through an ePortfolio-based learning environment: design principles for further implementation. *Technology, Pedagogy and Education*, 27(3), 313-326. doi:10.1080/1475939X.2018.1447989
- Rowley, J., & Munday, J. (2014). A "sense of self" through reflective thinking in ePortfolios. *International Journal of Humanities Social Sciences and Education*, 1(7), 78-85. Retrieved from <https://www.arcjournals.org/pdfs/ijhsse/v1-i7/9.pdf>
- Ryan, J. A. (2018). Which resources are most helpful to support development of an ePortfolio? *British Journal of Nursing*, 27(5), 266-271. doi:10.12968/bjon.2018.27.5.266
- Sidebotham, M., Baird, K., Walters, C., & Gamble, J. (2018). Preparing student midwives for professional practice: Evaluation of a student e-portfolio assessment item. *Nurse Education in Practice*, 32, 84-89. doi:10.1016/j.nepr.2018.07.008
- Snoeyink, R., & Meyer, J. (2007). Shaping teacher candidates' digital portfolios: What administrators want for hiring. *Journal of Computing in Teacher Education*, 23(3), 89-96. doi:10.1080/10402454.2007.10784567
- Svinicki, M. D., & McKeachie, W. J. (2014). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers* (14th ed.). Belmont, CA: Wadsworth Cengage Learning.
- Toner, A., & McDowall, K. J. (2018). ePortfolio for mental health students: Evaluation of a paper

- exercise. *British Journal of Mental Health*, 7(1). doi:10.12968/bjmh.2018.7.1.33
- Tosh, D., Light, T., Fleming, K., Haywood, J., & Haywood, J. (2005). Engagement with electronic portfolios: Challenges from the student perspective. *Canadian Journal of Learning and Technology*, 31(3). Retrieved from <https://www.learnlib.org/p/43170/>
- Tuksinvarajarn, A., & Todd, R. W. (2009). The e-pet: Enhancing motivation in e-portfolios. *English Teaching Forum*, 47(1), 22-25.
- Tzeng, J.-Y., & Chen, S.-H. (2012). College students' intentions to use e-portfolios: From the perspectives of career-commitment status and weblog-publication behaviours: E-portfolio and career commitment. *British Journal of Educational Technology*, 43(1), 163-176. doi:10.1111/j.1467-8535.2010.01165.x
- University of North Texas. (2018). *UNT fact book*. Retrieved from <https://institutionalresearch.unt.edu/fact-book/enrollment>
- Vachon, B., Foucault, M.-L., Giguère, C.-É., Rochette, A., Thomas, A., & Morel, M. (2017). Factors influencing acceptability and perceived impacts of a mandatory ePortfolio implemented by an occupational therapy regulatory organization. *Journal of Continuing Education in the Health Professions*, 38(1), 25-31. doi:10.1097/CEH.0000000000000182
- van Wyk, M. M. (2017). Student teachers' views regarding the usefulness of reflective journal writing as an ePortfolio alternative assessment strategy: An interpretive phenomenological analysis. *Gender and Behaviour*, 15(4), 10208-10219.
- Volmer, D., & Sarv, A. (2018). E-portfolio as an effective tool for self-directed and reflective learning in social pharmacy. *Research in Social and Administrative Pharmacy*, 14(8), e43-e44. doi:10.1016/j.sapharm.2018.05.084
- von Konsky, B., & Oliver, B. (2012). The iPortfolio: Measuring uptake and effective use of an institutional electronic portfolio in higher education. *Australasian Journal of Educational Technology*, 28(1), 67-90. Retrieved from <http://ajet.org.au/index.php/AJET/article/view/884/162>
- Wakeling, L., Aldred, P., & Hains-Wesson, R. (2018). ePortfolios and reflective practice for food science students. *Journal of Food Science Education*, 17(2), 52-59. doi:10.1111/1541-4329.12137
- Watson, C. E., Kuh, G. D., Rhodes, T., Light, T. P., and Chen, H. L. (2016). Editorial: ePortfolios: The eleventh high-impact practice. *International Journal of ePortfolio*, 6(2), 65-69. <http://www.theijep.com/pdf/IJEP254.pdf>
- Weber, K., & Myrick, K. (2018). Reflecting on reflecting: Summer undergraduate research students' experiences in developing electronic portfolios, a meta-high impact practice. *International Journal of ePortfolio*, 8(1), 13-25. Retrieved from <http://www.theijep.com/pdf/IJEP287.pdf>
- Yancey, K. (2015). Grading ePortfolios: Tracing two approaches, their advantages, and their disadvantages. *Theory Into Practice*, 54, 301-308. doi:10.1080/00405851.2015.1076693
- Yu, T. (2011). E-portfolio, a valuable job search tool for college students. *Campus-Wide Information Systems*, 29(1), 70-76. doi:10.1108/10650741211192064

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