Beliefs or Intentionality? Instructor Approaches to ePortfolio Pedagogy

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Abstract
We provide evidence to substantiate the learning potential of eportfolios by focusing on instructor variables that influence eportfolio learning experiences. We conducted a mixed-methods study of over 800 students across 30 courses. Using survey, interview, and focus group data, we argue that instructors' approaches to eportfolio activities play a critical but underappreciated role in whether the eportfolio will be a valued student learning experience. By adapting categorizations of deep, surface, and strategic learning, we argue that an instructor's approach to eportfolios can be classified in a similar manner. We analyze how the instructor adheres to eportfolio best practices, and how the instructor manages student expectations and relays the importance of the eportfolio. As a result, we propose that instructors too can adopt a deep, surface, or strategic approach to eportfolios. Our data show that students generally benefit most when instructors adopt a deep, intentional approach to eportfolios, such as having a long-term investment in the course (e.g., teaching it more than one time), taking a hands-on approach with the administration of the eportfolio, and collaboratively designing the eportfolio activity.

Nous présentons des preuves afin de justifier le potentiel d'apprentissage des ePortfolios en nous concentrant sur les variables des instructeurs qui influencent les expériences d'apprentissage présentées par les ePortfolios. Nous avons mené une étude à méthodologie mixte auprès de plus de 800 étudiants dans 30 cours différents. Nous avons recueilli des données suite à des sondages, des entrevues et des groupes de discussion et nous en avons déduit que les activités préparées pour les ePortfolios par les instructeurs jouent un rôle primordial mais toutefois non apprécié à sa juste valeur pour déterminer si le ePortfolio va être une expérience d'apprentissage enrichissante. En adaptant des catégorisations d'apprentissage profond, de surface et stratégique, nous pensons que l'approche d'un instructeur vis-à-vis du ePortfolio peut être classifiée de la même manière. Nous analysons la manière dont l'instructeur adhère aux meilleures pratiques du ePortfolio ainsi que la manière dont l'instructeur gère les attentes des étudiants et transmet l'importance du ePortfolio. En conséquence, nous proposons que les instructeurs eux aussi peuvent adopter une approche profonde, en surface et stratégique vis-à-vis des ePortfolios. Nos données indiquent qu'en général, les étudiants bénéficient le plus quand les instructeurs adoptent une approche profonde et intentionnelle vis-à-vis des ePortfolios, comme par exemple le fait de consacrer un investissement à long-terme dans le cours (par exemple, le fait de l'enseigner davantage qu'une seule fois), d'adopter une approche pratique vis-à-vis de l'administration du ePortfolio, et en assurant la conception en collaboration des activités du ePortfolio.

ePortfolios are more than just a collection of best practices bound together to ensure success. Research has investigated the ideal development and assessment of eportfolios in higher education (see Joyes, Gray, & Hartnell-Young, 2010; Lambert & Corrin, 2007), and resulting lists of best practices are comprehensive (see Barrett, 2007; Eynon & Gambino, 2017; Lithgow & Penny Light, 2012; Penny Light, Chen, & Ittelson, 2012). ePortfolio activity has been shown to be meaningful and promote student learning when best practices are followed (Catalyst for Learning, 2017; Eynon, Gambino, & Török, 2014; Scholz, Tse, & Lithgow, 2017).

We argue, however, that there are factors that can contribute to the success of eportfolio assignments that transcend best practices. For example, to what extent do the students' expectations of the eportfolio activity align with what the instructor had intended? Biggs and Tang's (2011) theory of constructive alignment can be applied to the shared understanding that instructors and students have about the outcomes of the eportfolio task and how it will be assessed. Our previous research (Scholz et al., 2017) examined alignment of student and instructor expectations about eportfolios at the University of Waterloo using the Connect to Learning (C2L) Core student and instructor surveys (see Eynon et al., 2014). Our results suggested that when these expectations are aligned, the eportfolio generally results in a positive learning experience. Cases of misalignment, where any number of aspects pertaining to the eportfolio task are not agreed upon between instructors and students, are more complex. Whereas in some instances misalignment results in an expectedly poor learning environment, in other cases the students found more value in the eportfolio than the instructor had imagined. In addition, instances arose where a well-designed eportfolio that adhered to best practices inhibited learning. These cases of misalignment were often inconclusive.

The C2L Core surveys focus primarily on outcomes that students might expect by engaging in an eportfolio activity, such as the use of student and instructor feedback, reflection, and integrative learning (see Scholz et al., 2017). However, an important aspect that is underrepresented is the perceived value of the eportfolio by students and instructors. When instructors believe in the value of the eportfolio activity, but are unable to communicate this belief to the students, what impact does this have on the learning experience? Likewise, when an instructor does not adhere to best practices, but is able to communicate to students their belief in the value of the eportfolio and lead students to invest more fully in the eportfolio activity than they otherwise would, is extra value created?

It is upon this distinction that we base our present study. We seek to go beyond best practices and look to factors that may not be directly related to the eportfolio task itself. Factors such as instructor intentionality, beliefs about the value of eportfolio, and investment in the eportfolio process deserve to be analyzed as fully as the best practices themselves. Furthermore, we recognize that eportfolios are a complex educational process, and as a result, the approach that an instructor takes when implementing an eportfolio activity can vary widely due to numerous contextual factors. With this in mind, we observe similarities with approaches to learning (Biggs, 1987; Entwistle & Tait, 1995), and seek to determine whether similar characteristics can be applied to instructors' approaches to integrating eportfolios. We aim to answer the following questions:

- How can research on student approaches to learning be adapted for instructors using eportfolios?
- What contextual factors play a role in contributing to the success of the eportfolio task?
- To what extent are instructors' beliefs transformed into intentions? Do they ultimately remain just beliefs?

No research that we are aware of has attempted to conceptualize these instructor-specific variables as related to eportfolio activity success.

Literature Review

ePortfolios

The body of research on eportfolios has emphasized numerous features of eportfolios that are argued to be relatively unique to this educational tool, and that directly contribute to the success of eportfolio activities. Drawing from a variety of different tools of analysis—case studies (Landis, Scott, & Kahn, 2015), questionnaires (Bolliger & Shepherd, 2010) and user-experience data (Nguyen & Ikeda, 2015)—scholars have suggested eportfolios can support student learning by encouraging community building and reflection. Other benefits, such as efficiency, and enhancement of skill development and feedback provisions (Joyes et al., 2010) have been highlighted in research concerning the efficacy of this educational approach.

It is perhaps little surprise then that eportfolios are now considered a high impact practice (Watson, Kuh, Rhodes, Penny Light, & Chen, 2016). The social aspects of eportfolios, such as their ability to form learning communities through collaboration and to showcase work to individuals both within and removed from the academic context, are particularly powerful and reinforce their transformative power (see Eynon et al., 2014; Eynon & Gambino, 2017; Kahn, 2014).

ePortfolio research has recently benefited from a concerted effort by collaborative research groups to empirically assess the benefit of eportfolios in higher education contexts. In particular, the Catalyst for Learning: ePortfolio Research and Resources (n.d.) network, comprised of 24 higher education institutions across the United States, has sought to conduct analyses on the efficacy of eportfolios. Using surveys, the C2L group has documented eportfolio impact by analyzing numerous eportfolio implementations across the aforementioned institutions. Over 9000 student responses have been obtained thus far (Eynon et al., 2014).

As a result of this body of research, the C2L research group proposed that eportfolios, when done well, advance student success, support reflection, and can promote learning-centered institutional change (Eynon & Gambino, 2017). Evident amongst these propositions is the clear value of showcasing student work to inspire success and institutional change. Yet even with this expansive body of research, there have been relatively few studies that meet "the most rigorous standards expected of educational research" (Rhodes, Chen, Watson, & Garrison, 2014, p. 2). Most studies emphasize the learning gains that students achieve by engaging with eportfolios (Bryant & Chittum, 2013), but in order to understand the conditions that exist in the design and facilitation of the eportfolio task, it is worthwhile to examine instructor approaches to eportfolios.

Few studies have analyzed the impact that an instructor has on the eportfolio task's success. Instead, most rely only on the adherence to best practices. Kilbane and Milman (2017) found that instructors who actively created eportfolios with students had more positive experiences. Eynon and Gambino (2017) provide tips to support the professional development of eportfolio users, including focusing on the pedagogy behind the tool and rewarding engagement with eportfolios to encourage others to see the value in using eportfolios. Specific opportunities to advance instructor knowledge of eportfolios—such as workshops—are illustrated, but aside from a reference to teaching circles, little attention is placed on what actually happens within the classroom.

Henscheid, Brown, Gordon, and Chen (2014) proposed three teaching belief constructs that reflect how practitioners employ eportfolios, which are also related to other theories of teaching beliefs—teacher-centered, learner-centered, and learning-centered. Learning-centered belief constructs were argued to be most beneficial for student learning, due to the instructor promoting agency and collaboration between learners, or learners and instructors. These constructs were substantiated via consideration of numerous scenarios that asked instructors to reflect on their own teaching practice, and the classification proved useful as it suggested that instructors who adopt a learning-centered belief construct might be well served by utilizing eportfolio activities in the classroom to help foster learner autonomy.

Drawing on the work of the C2L Research Group and the aforementioned studies, we suggest adapting well-established research on learner and teacher characteristics to further our understanding of how instructors approach the use of eportfolios in the classroom.

Learner and Teacher Characteristics

Research has supported classifying students' approaches to learning as deep, strategic, or surface. Biggs' (1987) seminal work details the differing motives and strategies behind deep and surface approaches. A deep learner has an intrinsic interest in the subject matter and will make connections between the material being learnt and prior knowledge. A surface learner, however, learns with the intention to meet the requirements for a particular assignment or course, and the underlying strategies accompanying this approach are rote in nature and involve memorization. Students with a third orientation—referred to as achievers or strategic learners—recognize that achievement is important, but are not intrinsically motivated by a passion in the subject matter, as a deep learner is (Biggs, 1987; Entwistle & Tait, 1995). These three approaches represent a spectrum for learners whereby they decide when and how much effort is exerted for a learning task.

Other researchers argue that students' own approaches to learning are often dictated by how the instructor constructs the learning environment. When an instructor stresses recall of knowledge and rote memorization of course concepts, students adopt a surface approach; instructors who emphasize clear outcomes and encourage students to take an active role in their own learning processes, however, inspire deep approaches to learning (see Prosser & Trigwell, 1997).

Various studies have investigated different means by which to categorize an instructor's approach to teaching, such as considering teaching strategies that encourage passive or active learning (see the *Approaches to Teaching Inventory*, Trigwell & Prosser, 2004; Trigwell, Prosser, & Taylor, 1994). The *Teaching Perspectives Inventory* (Pratt & Collins, 2000, 2011) classifies teachers based upon their actions, intentions, and beliefs regarding teaching, positing that they can have five different perspectives—transmission, apprenticeship, developmental, nurturing, or social reform. Richardson (2005) argues that an instructor's approach to teaching consists of disciplinary characteristics that influence conceptions of teaching and situational factors that affect perceptions of the teaching environment.

Common amongst these classifications of approaches to teaching is the connection to how students are being taught. Yet educational technologies such as eportfolios bring an entirely new element into the classroom environment that functions as a mediator between the student and instructor—the technology itself. The ways in which an instructor supports and invests time in learning about the technology are incredibly influential when it comes to students investing their

time with the technology; students who do not see the value in what they are learning will adopt a surface approach, or at best, a strategic approach. Only if the value of the activity is truly understood will a learner approach it in a thoughtful manner.

We therefore suggest that a similar categorization can be attributed to an instructor's approach to using eportfolios as a teaching tool. Just as there is evidence to support that students' approaches to learning are often contingent on an instructor's approach to teaching (Campbell et al., 2001; Trigwell, Prosser, & Waterhouse, 1999), we believe that a student's approach to learning when using eportfolios is impacted by the instructor's approach to teaching with eportfolios. Most importantly, the instructor's approach to using eportfolios goes beyond adhering to best practices, and instead is a reflection of what the instructor contributes to the eportfolio design, administration, and assessment within the classroom in conversation with the students. Research has demonstrated the challenges that arise when adopting a learning activity as potentially complex as the eportfolio (Jafari, 2004). Just as students change learning strategies when using new technologies such as clickers (see Dawson, Meadows, & Haffie, 2010), we argue that instructors approach teaching with eportfolios differently as well. An instructor's approach to eportfolio usage will be detailed in the following section on research methods.

Method

We employed a mixed-methods study to investigate the role of the instructor in the implementation of and students' experiences with the eportfolio, using surveys, student focus groups, and instructor interview data (see Scholz et al., 2017 for a description of this study. The authors conducted a re-analysis of the data for this paper). This study received ethics clearance from the Office of Research Ethics at our institution (ORE # 20087).

Survey Data

We made minor revisions to the survey examining the outcomes of working with eportfolios created by the C2L national eportfolio network (Eynon et al., 2014) to fit our institution's context (see Scholz et al., 2017). Student and instructor participants in 30 courses that employed eportfolios were asked to complete the surveys at the end of the fall 2014 and winter 2015 academic terms. Students ranged from first to fourth year and came from four different faculties: Applied Health Sciences, Arts, Environment, and Science. Class sizes ranged from small (approximately 15 students) to large (over 350 students). Eight hundred and sixty-three undergraduate students (M_{age} = 20.1 years, 64.6% identified as women, 24.4% as men, 11% identified as other or did not indicate their gender) completed the survey. The overall response rate across all courses over the two terms was 21% for students. Seventeen out of the 22 instructors utilizing eportfolios across the two terms completed the survey.

On Likert scales from 1 (strongly disagree/very little/never/extremely unlikely) to 4 (strongly agree/very much/very often/extremely likely) student participants rated their experiences and outcomes of working with the eportfolio in their course. We created seven subscales (reliability was calculated using Cronbach's alpha or Spearman's correlation) representing distinct student outcomes that we identified prior to data analysis (see Table 1 for student outcomes and corresponding sample survey items).

Table 1
Sample Survey Items for Students' Outcomes and Experiences With the ePortfolio

Student Outcome	Outcome Description	Sample Item	No. of Items	Reliability
Instructor and student feedback	Feedback is provided on ePortfolio by either fellow students or instructor.	My instructor provided useful feedback on my ePortfolio.	4	$\alpha = .75$
Reflection	The extent to which reflection was incorporated or valued in the ePorfolio.	Building my ePortfolio helped me to think more deeply about the content of my course.	5	$\alpha = .92$
Showcasing	The ability to share the ePortfolio with other classmates or individuals outside the university.	I'd like to use my ePortfolio to show what I've learned and what I can do, to others, such as potential employers and professors at another university.	2	*rs* = .70
Positive attitude	The student's or instructor's satisfaction with the ePortfolio experience.	I enjoyed building my ePortfolio.	3	$\alpha = .85$
Going beyond	Doing more than was asked in the ePortfolio assignment.	I included information or experience from other courses I am taking or have taken.	4	$\alpha = .86$
Integrative learning	Incorporating learning experiences outside of the current class context.	How often have you combined ideas from different courses when completing assignments?	5	$\alpha = .86$
Future use	Willingness to use the ePortfolio after academia.	How likely are you to voluntarily continue to use your ePortfolio in other courses?	3	$\alpha = .89$

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Student Focus Group and Instructor Interview Data

We collected qualitative data from the open-ended responses from the survey, student focus groups, and individual interviews with the instructors. The focus groups and interviews were

conducted with three courses that employed eportfolios and took place at the beginning, middle, and end of term. The focus groups and interviews provided us with in-depth information on how the eportfolio was being used in each course and the students' and instructors' perspectives on the progress of the eportfolio activity throughout the term.

At the first focus group, students were asked about their initial exposure to the eportfolio activity and their previous experiences working with eportfolios. During the second focus group, students indicated their progress on their eportfolios, the type of feedback received, and what they perceived the instructor's goals were for the eportfolio activity. At the final focus group, students reflected on their experiences working with the eportfolio over the course of the term.

During the first interview, instructors were asked about the design of the eportfolio activity, the ways they introduced the activity, and the support they provided for the eportfolio. At the second interview, instructors were asked about students' progress with the eportfolio, feedback given to students, and steps taken to discuss the relevance of the eportfolio. In the last interview, instructors were asked to reflect on how they believe the eportfolio activity went over the term and the quality of students' work.

Instructor Coding

Prior to data analysis, we developed a set of criteria that we theorized to reflect a surface, strategic, or deep approach to eportfolios (see Table 2). These criteria encompass factors such as the extent to which the instructor has control over their course, levels of comfort and investment in the eportfolio, type of feedback given to students, and use of best practices for eportfolios (Lithgow & Penny Light, 2012) in their course. These criteria arose from our extensive experience working with eportfolio users on the design, implementation, and assessment of eportfolio assignments, as well as taking into consideration best practices for incorporating teaching innovations into courses.

We assigned codes to each instructor based on our knowledge of working with them on the eportfolio activity and from examining their course syllabus. We coded the instructors on a binary basis where 0 = no and 1 = yes for each criterion. Scores were then summed across all criteria and instructors were categorized accordingly: surface instructors typically scored 0-9, strategic instructors scored 10-14, and deep instructors scored 15-19. How each instructor was coded depended largely on the context of the course and the experience of the instructor. Our classification does not mean that surface instructors, for example, must score a certain number for each coding criterion.

Table 2

Coding Criteria used to Differentiate Between Instructors with Surface, Strategic, and Deep Approaches to the ePortfolio

Coding Criteria
Instructor control
The instructor has control over the design of the course.
The instructor has a long-term investment in the course (teaching it more than one term).
Instructor's comfort with the eportfolio
This is not the first time the instructor has used the eportfolio.
The instructor is generally comfortable with the eportfolio technology.
The instructor takes a hands-on approach to the technology.
The instructor provides technical support to the students.
The instructor created a mock-up of an eportfolio.
Instructor's level of investment in the eportfolio
The instructor has attended (a) workshop(s) on using the eportfolio.
The instructor has spent time working with teaching centre staff on design of the eportfolio activity.
The instructor has spent time in advance of the course offering to prepare for eportfolio integration into course (e.g., posting instructions for students, engaged in logistics of setting up the eportfolio).
Feedback
Students received feedback throughout the term.
Peers viewed each other's eportfolios and provided feedback.
The instructor viewed the students' eportfolios.

Coding Criteria

Best practices

The instructor clearly communicated expectations to students.

The instructor introduced the eportfolio activity early in the term.

The eportfolio activity encouraged interaction between peers and faculty.

The instructor provided periodic and structured opportunities for students to reflect on and integrate learning.

The instructor provided opportunities for real-world application.

The instructor incorporated public demonstration of competencies in the eportfolio activity.

Results

We conducted a one-way ANOVA and post-hoc Tukey HSD tests on the students' survey data to examine differences in students' outcomes and experiences with the eportfolio activity as a function of the instructors' approach to the eportfolio. Because of uneven sample sizes between different instructor approaches, Levene's tests were employed. Welch's ANOVA and Games-Howell post-hoc tests were used to report differences between instructor approaches if there were unequal variances between groups.

Our analyses indicated that instructor approach influenced students' ratings of instructor and student feedback, $F(2, 255.93) = 58.00$, $p < .001$, $\eta_p^2 = .11$. Post-hoc tests revealed higher feedback ratings when students had instructors with deep ($M = 2.81$, $SD = .62$) and strategic ($M = 2.86$, $SD = .65$) approaches to the eportfolio activity compared to those who had instructors with a surface approach ($M = 2.30$, $SD = .73$; see Figure 1). The same pattern of data applied to students' ratings of reflection, $F(2, 232.55) = 5.12$, $p = .007$, $\eta_p^2 = .01$. Students reported greater levels of reflection when they had instructors with deep ($M = 2.49$, $SD = .68$) and strategic ($M = 2.57$, $SD = .89$) approaches compared to students who had instructors with surface approach ($M = 2.35$, $SD = .73$). Similarly, instructor approach also had a statistically significant effect on students' positive attitude, $F(2, 848) = 8.30$, $p < .001$, $\eta_p^2 = .02$. Ratings were highest for students with instructors with deep ($M = 2.56$, $SD = .80$) and strategic ($M = 2.71$, $SD = .89$) approaches compared to students who had instructors with a surface approach ($M = 2.38$, $SD = .86$).
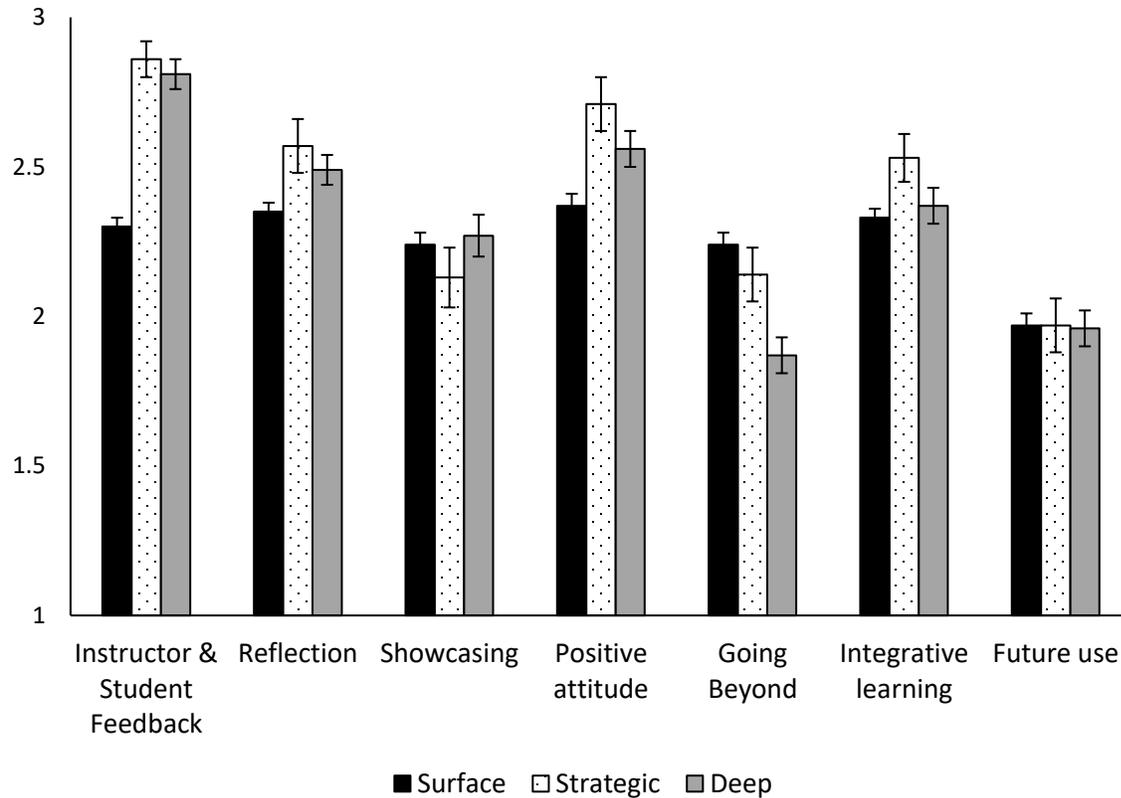
Figure 1. Students' averaged ratings of their eportfolio activity experience as a function of the instructors' approach to the eportfolio. Error bars represent ± 1 SE.

This pattern of data shows that instructors taking a deep approach or a strategic approach to the eportfolio are intentional in their design of the eportfolio assignment, and students' self-reported ratings reflect this (e.g., instructors and peers provided valuable feedback on their assignment). It appears that instructors are putting effort into areas that could impact student learning the most, such as giving constructive feedback to students or instituting peer feedback so that students are able to improve upon their work throughout the term, and providing opportunities for students to reflect on their work.

There were no statistically significant differences for these variables between instructors with deep and strategic approaches to eportfolio integration. According to our classification, instructors with a deep approach are meeting the criteria that we have established for successful implementation for eportfolios, such as investing time in the design of the eportfolios and providing support and feedback to students. Instructors with a strategic approach may miss some of the criteria, but these data show that taking a strategic approach does not appear to impact the quality of students' experiences with the eportfolio. Taking into consideration barriers such as time, and whether the instructor has control over the design the course, it may not be realistic for all instructors to take a deep approach to eportfolios. However, teaching support staff can encourage instructors to design the eportfolio assignments to be personally meaningful to students even if the instructor may not have time to build his or her own eportfolio or provide feedback on students' work. We refer to one such case in the qualitative data to further address the distinction between deep and strategic instructors.

Instructor approach had a statistically significant effect on students going beyond $F(2, 226.44) = 12.72$, $p < .001$, $\eta_p^2 = .03$. Post-hoc tests revealed that ratings were highest for students with instructors taking a surface ($M = 2.24$, $SD = .88$) or strategic ($M = 2.14$, $SD = .87$) approach compared to those adopting a deep approach ($M = 1.87$, $SD = .78$). Instructor approach had a marginally significant effect on students' integrative learning, $F(2, 768) = 3.00$, $p = .05$, $\eta_p^2 = .01$. The pattern of data showed that ratings were highest for students with strategic instructors ($M = 2.53$, $SD = .77$) compared to deep ($M = 2.37$, $SD = .69$) and surface ($M = 2.33$, $SD = .73$) instructors.

Interestingly, these results indicate that when an instructor takes a surface or strategic approach to eportfolio integration, students are more willing to go beyond the confines of the eportfolio activity. We hypothesize that while instructors with a deep approach are more likely to engage in best practices, and intentionally design and scaffold their eportfolio assignments to promote feedback and reflection, this structure may incidentally give students fewer opportunities to be creative in the assignment. Alternatively, those instructors taking a surface approach may have set such minimal expectations that that students feel like they could easily go beyond these task guidelines. This construct needs further research addressing whether or not it describes a meaningful student outcome, given our findings and other contributing factors such as instructors' expectations for the eportfolio activity. It will be revisited by drawing on the qualitative data.

Lastly, there were no statistically significant differences between instructor approaches in terms of the extent to which students wanted to showcase or use the eportfolio in the future. We hypothesize that this has more to do with the students' overall negative reaction to the eportfolio platform used at our institution at the time of the study than with the instructor's approach to the eportfolio activity. Students felt that the tool was not intuitive to use and the presentation was very outdated (see Scholz et al., 2017 for a discussion on the impact of the ease of eportfolio technology on students' experiences). Nonetheless, students' experiences with the eportfolio varied greatly, from students expressing frustration with the platform which in turn affected their experience with the eportfolio activity, to students fully embracing the eportfolio activity despite their negative reaction to the eportfolio technology.

Discussion

We analyzed three case examples, which describe instructors with surface, deep, and strategic approaches to eportfolios, respectively. We will explore through student- and instructor-reported qualitative data the characteristics of their eportfolio application that resulted in our classification of their eportfolio use.

Surface Approach

A surface approach to eportfolio usage suggests that although an instructor may strongly believe in the value of eportfolios, there are opportunities for them to implement eportfolios more effectively. In part, this results from lack of attention to current best practices, but is also due to factors that demonstrate an instructor's willingness to be intentional about the adoption of eportfolio thinking in the classroom.

Instructor A serves as an example of embodying a surface approach to integrating eportfolios. Teaching a fourth-year Arts course, this instructor had taught this cohort of students in their earlier years and integrated eportfolios in their courses. The current course is a culminating experience whereby students complete a business simulation and design a website (the eportfolio)

for their business. Despite having many characteristics that contribute to successful eportfolio implementation—control over the design of the course, multiple times teaching the course, eportfolio workshop attendance—the instructor exhibits other behaviours that could be detrimental to the success of the eportfolio activity. While professing a belief in the value of eportfolios, the instructor had not taken full advantage of expertise from teaching centre staff with respect to eportfolio implementation, nor had the instructor created an eportfolio using the platform. Many students became frustrated with the experience; as one individual explained: "[I] would not continue using this system or implementing this as an assignment...unless the professors actually know how to use the system themselves and provide adequate training for the system" (focus group participant). This reaction likely reflects more the students' frustration with the eportfolio technology; had the instructor been more familiar with the eportfolio platform, they would have appreciated the challenges associated with completing the eportfolio assignment. The student's comment therefore speaks to the importance of having instructors demonstrate a working knowledge of the eportfolio platform to instill the necessary confidence in their students.

The instructor intentionally outlined the assignment broadly, providing little to no scaffolding, as they wished to prepare their students for real world experiences. The lack of clear expectations, combined with the instructor's perceived lack of a knowledge regarding the eportfolio platform, undermined the learning experience for some. Many students reported being uncertain and confused about the assignment expectations. The instructor's combination of behaviours prevented many students from effectively engaging with the learning experience regardless of how strongly the instructor expressed their belief in the value of eportfolios.

There nonetheless remained a group of students in the course that viewed this hands-off approach as a challenge and were thus motivated to succeed. One learner argued that:

> I drew a lot of skills through this. Not just web designing skills, but I learned how to implement things. And like there was like graphic design, web design, and like analyst stuff, like financial stuff, and like they all mixed in together and of course you never get to mix them all together unless like you're done school and you go into the workplace, and they expect that of you...it's like interdisciplinary…and I've never been able to do that in any other class. (focus group participant)

This population of students viewed the broad instructions as an opportunity to integrate their learning and define for themselves how to approach the assignment. They embraced the opportunity to "go beyond" and make the assignment a personally meaningful and motivating learning experience. This attitude may explain the quantitative results (reported above) where the "going beyond" variable emerged as more positive in courses with instructors who had taken a surface approach to eportfolios. There may be situations where scaffolding the eportfolio assignment, a characteristic attributed to instructors taking a deep approach to eportfolios, may, in fact, inhibit students' ability to integrate their learning in a personally meaningful manner. In this situation, a surface approach to eportfolios might be warranted. However, it is important to keep in mind instructors' expectations for students, as students may find it easier to exceed a surface instructor's minimal expectations for the activity. Furthermore, in instances where both the instructor and the student take a surface approach to teaching and learning, it is not surprising that the student experience is less than optimal. This variable requires further research with consideration of other contributing factors (e.g., instructors' expectations, type of eportfolio activity).

Deep Approach

Deep approaches to eportfolio use suggest that an instructor has translated his or her beliefs about eportfolio use into actual intentions, as reflected in their own practice and behaviour, and has become fully invested in reflective eportfolio practice.

Instructor B serves as an example. The instructor teaches a first-year Biology course. Students are asked to find a relevant news article or piece of media related to the course, share the information in the eportfolio, and then comment on one another's findings. The assignment itself is worth only five percent of the final grade in the course and is completed at the beginning of term. Feedback came in the form of peer feedback rather than instructor feedback. Although the assignment did not abide by commonly accepted eportfolio best practices—the eportfolio was not integrated throughout the course and instead was used just once near the beginning of the term—the assignment was received positively by the learners. We argue this is largely a result of the instructor and the first year biology students being fully invested in the course.

This instructor embodies many of the characteristics attributed to those taking a deep approach to eportfolios, such as having control over the design of course, having taught it in the past, and being able to adapt the course to integrate the eportfolio activity. To design the eportfolio assignment, the instructor relied on pre-existing knowledge of eportfolios (with some guidance from teaching support staff) and a genuine investment in constructing an assignment that would motivate students to engage with the task. Instructor B sees the following benefits associated with the eportfolio:

> Being motivated to think about the material outside of the class setting. Thinking about the broader role of the material in the greater world. I think the eportfolio concept has a great potential to move students from bodies in seats, to motivated learners that will continue to engage with the topic past the final exam. (Instructor B, C2L Instructor Survey)

The instructor also took a hands-on approach to the eportfolio activity by investing time in becoming familiar with the eportfolio platform, and taking time during class to explain the relevance of the task to the students. As a result, when students experienced technical issues with the eportfolio platform, they viewed the instructor as a valuable resource. Many other learners commented that the ability to comment on each other's work motivated them to work on the assignment, despite the otherwise relatively low assessment value. One praised the assignment, saying:

> I got to explore many aspects that were involved in the field that I wanted to, or could potentially, work in. I got more experience in article search, as well as improving my writing skills. Reading other people's assignments helped broaden my perspective as well. (C2L Student Survey participant)

Another discussed the value in assessing one another's work, writing that the most beneficial aspect of the eportfolio assignment was "the sharing feature and the ability to assess other classmates' work as they worked on their eportfolios" (C2L Student Survey participant). When criticism did arise, it was not due to the value of the assignment, but rather largely directed at their own work processes.

Even if an instructor does not adhere perfectly to commonly accepted eportfolio best practices, taking steps to help make students confident that this will be a valuable learning experience can mediate some of the potential challenges that would otherwise arise.

Strategic Approach

The strategic approach to eportfolio use, compared to surface and deep approaches, is more complex and nuanced in its definition. There is no single defining characteristic of a strategic approach to eportfolio use. Instead, instructors in this category tend to have either good intentions, but lack the resources to be fully invested in the activity, or have strong beliefs about the use of eportfolios, but cannot transform these beliefs into behaviours, or into the design of effective eportfolio activities.

Instructor C is a prime example of an instructor who used a strategic approach to adapt to circumstances beyond their control. Instructor C was a sessional instructor who had never used eportfolios and was assigned to teach a first-year Arts course which had been designed with eportfolio assignments integrated throughout. The students in the course ranged from first year to fourth year level students. The instructor had limited time to become familiar with the course and the eportfolio, and had limited control over the design of the course—a situation common to many sessional instructors. Despite a lack of knowledge about eportfolios, the instructor invested in the eportfolio process. The instructor met with teaching support staff to discuss the course and the eportfolio activity, achieved a basic technological competency with the eportfolio platform, and as much as possible, employed eportfolio best practices to deliver the eportfolio assignment.

Students were expected to reflect on topics in the course on a weekly basis, at which point the instructor provided feedback on each reflection to guide students' subsequent work. Towards the end of the course, students shared written feedback on their eportfolios with their peers. The assignment itself was worth a substantial amount of their final grade (80%). Yet, despite the steps taken by the instructor to invest in the eportfolio activities and to create a supportive learning environment, the eportfolio assignment was met with resistance from students.

Early in the course, the instructor explained to students that the eportfolio assignment had been adapted from an online version of the same course. Students interpreted this to mean that there was no rationale for using the eportfolio for their on-campus cohort. This assumption, combined with the students' perception that the instructor lacked teaching experience, plagued course dynamics. Students saw little value in the eportfolio activity, claiming the task lacked connection to the course content.

This situation is understandable, as Instructor C had not designed the eportfolio task, and had no prior knowledge of, or experience working with, eportfolios. It is no wonder that the instructor could not easily speak to the rationale for using eportfolios. The instructor also admitted that it was difficult to stress what the function of the eportfolio activity was, claiming "It was a challenge making it clear that it needed to be academic and reflective. So the majority [of students] didn't actually engage with the text when they were doing their reflections" (Instructor C, Interview 3). A focus group participant tried to rationalize her frustration, pointing to the inexperience of the instructor as the reason why the course was ineffective:

> That was frustrating but I also think just the actual instructions to fulfill the assignment took more time than I think [the instructor had] realized, which, you know, isn't necessarily

[the instructor's] fault because it was [the instructor's] first time teaching the course and it was designed to be online. (focus group participant)

Regardless of how effective the design of the activity may have been, Instructor C's inability to effectively relay the importance of the task to the students, combined with the technical challenges that come with eportfolios, proved to be an early deciding factor that limited the efficacy of this task. The instructor made a similar observation, explaining that there were many challenges, primary amongst them "just being a new instructor. So I had all the other learning curves as well as the eportfolio issues" (Instructor C, Interview 3). Even after having sought out professional development—a crucial step necessary to support successful eportfolio implementation (see Landis et al., 2015)—this instructor still faced a challenging scenario where lack of conviction in the rationale for using the tool resulted in students having difficulty accepting the task as worthwhile. The instructor's lack of confidence, combined with having students from different years, with differing expectations and varied academic experiences, negatively impacted the learning experience for both the instructor and many of the students.

Considerations and Recommendations

Instructor approaches to eportfolio use illustrate a means by which we can better understand some of the conditions which support instructors in their eportfolio endeavours, and others that lead to challenging learning experiences. Yet it is imperative to note that we do not assume that only deep approaches to eportfolio use are beneficial or warranted. Similar to differences between strategic and deep learners, strategic users of eportfolios can at times construct eportfolio tasks and activities that resonate as well with learners as do deep approaches. Based on the findings of this study, we do not necessarily find this surprising; an instructor adopting a deep approach to eportfolio use is fully invested in the course and can be focused on constructing a scaffolded learning experience that ensures learners know exactly what is expected of them. A surface or strategic approach to eportfolios, however, may neglect to provide this scaffolded experience, and as a result, learners—if sufficiently encouraged and motivated—seek opportunities to do more than what is expected due to their own interest in the subject, because the instructor has designed the task to be worth investing time in, or because the instructor had minimal expectations for students.

Our findings illustrate a more complex picture of how instructors can approach eportfolios. There may be many contextual factors (e.g., level of the course and experience of the students, the purpose of the eportfolio activity, the instructor's overall teaching experience) that play a role in the successful implementation of the eportfolio. Nonetheless, we believe that these findings warrant further research the draws on a wider range of courses.

What is telling is that adherence to best practices alone is insufficient. When best practices are adhered to, but the onus of control is removed from the instructor, or the instructor does not invest in the eportfolio task, then success with the eportfolio activity cannot be guaranteed. An instructor can adapt many characteristics of a deep approach to eportfolio use by following best practices, and can be sufficiently engaged in a course, but if the instructor cannot empower students to want to invest themselves in the activity, then students may be unwilling to dedicate the necessary time into the task. This resonates with what we know of deep and strategic learners; a strategic learner can be a stronger student than a deep learner should the motivation to invest time into the task be strong enough. Additionally, other contextual factors, such as the level of the

course and the academic year of the students, may affect students' experiences and how the instructor approaches the eportfolio activity. For example, Instructor A was teaching students in an upper level course where students were already familiar with the eportfolio, whereas Instructor C was new to the course and teaching first year and senior level students who were using eportfolios for the first time. Perhaps a deep approach to teaching eportfolios is not necessary in senior level courses where students may need less guidance, or in courses where students are familiar with eportfolios, as we observed in the relative success of the activity for Instructor A.

Taken altogether, to what extent should we envision a process similar to one identified by Joyes et al. (2010), with an evaluation, synthesis, and communication strategy for all eportfolio projects? In their study, all eportfolio practitioners are encouraged to complete regular reports of their progress, create a website describing their project, attend workshops, and converse with eportfolio consultants—all as part of implementing an eportfolio activity. ePortfolios are recognized for their complexity and there is understandably great value in having structured support mechanisms in place. Encouraging intentional thinking about eportfolios before adapting them to one's own classroom is intriguing. Educators like Instructor C, if adhering to a similar set of guidelines, would be encouraged to reconsider using eportfolios in their teaching because they are unable to spend sufficient time preparing themselves to effectively incorporate them. Educators like Instructor A, who have strong beliefs but lack intentionality, would be forced to be more intentional in their use of eportfolios, and may be more inclined to provide additional guidance to their students.

Yet is such a comprehensive model appropriate? Alternatively, should eportfolios be employed in the same way that other learning management system (LMS) educational technologies are, where many instructors explore the technology through trial and error? Due to the complexity inherent in eportfolio pedagogy, we argue that the ramifications are larger when eportfolio users are not given guidance than they are when this is the case for other LMS-integrated educational technologies. We therefore suggest instructors be cognizant of the constraints that may inhibit their ability to implement effective eportfolio tasks. When an instructor does not have the time to be fully invested in eportfolios, does not understand the technical aspects of the technology, or simply does not have sufficient control of the course, it may be better to find another means by which to accomplish the learning outcomes of the course.

More data are needed to make an argument to support either approach. Future work could involve data collection over several years to have more robust quantitative data pertaining to the differences in student outcomes when different instructor approaches are taken. In addition, the surveys that we adapted only measured students' perceptions of the eportfolio. Future research should move beyond this type of data to measuring the impact on student learning gains within courses or programs empirically (e.g., examining the direct impact of eportfolios on student learning outcomes, conducting larger-scale, multi-institutional investigations). Furthermore, it would be fruitful to investigate whether some eportfolio activities are valued more by students from particular disciplines, or at particular times throughout their program compared to others, as well as whether certain types of activities (e.g., focusing on skills development versus deepening course content) receive more student buy-in and are more likely to impact learning.

Summary

This study provides a starting framework for instructors and educational developers to use during the course design process to assess whether the instructor should incorporate eportfolio

activities into their course. This work focused on eportfolio usage, but the framework of surface, strategic, and deep approaches to instruction can apply well to other teaching innovations, such as the use of high impact practices, which require significant investment for the instructor. Viewing instructors holistically and considering contextual factors may help to better translate instructors' beliefs about teaching innovations into intentions and behaviours in the classroom that best support student learning.

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