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Unifying Experiences: Learner and Instructor Approaches and Reactions to ePortfolio Usage in Higher Education

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This paper explores the alignment of student and instructor experiences when employing ePortfolio activities in a Canadian higher education context. Successful ePortfolio activities are operationalized as exhibiting alignment of expectations between students and instructors, whereas misalignment of expectations is characteristic of a poorer experience for the learners. Our research has shown that although this is typically the case, there exist instances of misalignment where the students still have a positive learning experience, and as a result, we attempt to determine other factors that may contribute to positive or negative ePortfolio experiences. Through a mixed-methods study using focus groups, interviews, and surveys, we examine the experiences of over 800 students across 30 courses over two semesters at the University of Waterloo. Our findings suggest that although current best practices should still be adhered to when designing effective ePortfolio activities, best practices alone cannot ensure that the ePortfolio assignment will be successful.

ePortfolios as a pedagogical strategy have been the subject of much interest in higher education in the last decade; our own context, at the University of Waterloo in Ontario, Canada, is no different. Research conducted by the Catalyst for Learning research group (see http://c2l.mcnrc.org/; Eynon, Gambino, & Török, 2014a) has been influential in spearheading ePortfolio research initiatives across the United States, and the research presented in this paper lends a Canadian perspective. With a decade's worth of ePortfolio usage at our institution, and increased reception towards the central maxims that ePortfolios support—namely, encouraging metacognition and deepening student learning through evidence—we have observed the innovative use of ePortfolios in various disciplines and their successful implementation. We sought to better understand the challenges that inherently come with an educator's initial—and at times continual—adaptation of ePortfolios.

The Catalyst for Learning research group proposes that ePortfolio initiatives support reflection, social pedagogy, and deep learning, advance student success, and catalyze learning-centered institutional change (Eynon et al., 2014a). Yet are these benefits perceived by students and instructors alike? Does each group of ePortfolio users (i.e., student and instructor) approach the ePortfolio assignment similarly? Expectations as to how the assignment will be employed, as well as how it will benefit the learners who are engaging with it, are set by course instructors. To what extent, though, do students understand these expectations and the potential benefits?

The notion of constructive alignment in course design (Biggs & Tang, 2011) underlies our own understanding of alignment and misalignment in ePortfolio task design, where alignment assumes that the outcomes of the ePortfolio assignment are appropriately assessed and that students have opportunities to practice this type of activity before being assessed. Furthermore, we extend the notion of alignment to the student and instructor's shared understanding of the goals of the ePortfolio task. Misalignment, then, occurs when the instructor and student do not share an understanding of the ePortfolio activity, or value components of the activity differently than the instructor does. Misalignment, although often a negative consequence, may in fact be positive for the students in some cases, where they value the ePortfolio activity more than the instructor does.

Our research seeks to explore and document the use of ePortfolios at the University of Waterloo over the course of two semesters. In particular, we examine how the instructor using ePortfolios introduces and supports the ePortfolio activity throughout the course and the impact this has on student learning. To do so, we pose the following research questions:

- Are the expectations of students and intended learning outcomes of instructors aligned, and how does this alignment impact the experience of the student?
- What steps can be taken to better ensure alignment of student and instructor expectations?
- How do student and instructor orientations to ePortfolios change over the course of a semester?

We will address the aforementioned research questions and propose future directions for research in this field.

Literature Review

The benefits of ePortfolios, such as efficiency in terms of saving time and enhancement of skill development and feedback provisions (Joyes, Gray, & Hartnell-Young, 2010) have been frequently highlighted in research concerning the efficacy of this

educational approach. Recently, ePortfolios have been added to the list of high impact practices (Watson, Kuh, Rhodes, Penny Light, & Chen, 2016) and, like all high impact practices, ePortfolios emphasize the social dimension of learning through the formation of learning communities, promoting collaboration, and allowing learners to showcase the work that they have done to employers or external parties with whom the learner may eventually work (e.g., Bass, 2012; Eynon & Gambino, 2017; Eynon, Gambino, & Török, 2014b; Kahn, 2014). Both the field of ePortfolio research, and our understanding of the applicability of high impact practices in higher education are relatively new, and therefore much of what is known of ePortfolio use comes from the users, or the learners, themselves.

To this extent, the majority of studies conducted analyze learners' perceptions as their primary source of data; a meta-analysis of 118 articles analyzing ePortfolio usage and administration found that only 49% of all articles were empirical in their methods design, or included original data on ePortfolio usage (Bryant & Chittum, 2013). Furthermore, the majority of these empirical articles analyzed learner-reported data after having worked with the ePortfolio. Rhodes, Chen, Watson, and Garrison (2014) called for more rigorous ePortfolio research, claiming that "very little research has been published that meets the most rigorous standards expected of educational research" (p. 2).

Recent studies have begun to address this criticism; robust, empirical analyses employing diverse methodologies such as analyzing user-experience data (Nguyen & Ikeda, 2015), mixed-method analyses of questionnaires and discussions (Bolliger & Shepherd, 2010), and case studies (Landis, Scott, & Kahn, 2015) all emphasize the utility of ePortfolios as a pedagogy to support self-regulation, build online community, and encourage reflection. Of particular interest is research conducted by the Catalyst for Learning research group and the development of the C2L Core Survey, designed to facilitate rigorous data collection on the use of ePortfolios amongst a group of 24 selected partner campuses. Amongst the survey's many goals is its attempt to document evidence of the impact of ePortfolio implementations and construct a common data set to help substantiate the effectiveness of future ePortfolio initiatives (Chen, 2013). With 24 distinct institutions undertaking research to various degrees, over 9000 student responses were obtained (Eynon et al., 2014b). Substantial findings amongst the many institutions include the benefits of "reflective and social pedagogies [that] make learning visible, helping students to link different parts of their learning and connect their own learning to others" (Eynon et al., 2014b, p. 103).

Yet even with the evidence supporting the use of ePortfolios, lack of awareness on behalf of instructors emerges as a recurring theme. Instructors may be unaware of how ePortfolios align with course objectives or developed competencies (Appling et al., 2015), which may be due to the many individual and institutional challenges—such as technological limitations, lack of educational support, poorly-designed ePortfolio activities—that come with ePortfolio design and implementation (e.g., Gaitán, 2012). Landis et al. (2015) specifically identified a need for faculty professional development concerning ePortfolio usage, as many instructors expressed surprise at the importance of reflection and the ways in which reflection can and should be assessed in ePortfolio activities. Joyes et al. (2010) conceptualized this within a threshold concepts framework, whereby the process of understanding the key concepts related to ePortfolio usage simply takes time. Once understood, a threshold is crossed where the instructor's perspective regarding ePortfolios is forever altered; yet with this framework, they also recognize that rigorous, well-thought out implementation may actually impede the adoption of ePortfolios.

Research has expressed, perhaps unsurprisingly, the challenges that arise when adopting a tool or learning activity as potentially complex as the ePortfolio. Habron (2015) noted that unless specifically instructed to focus on personal development, students tend to focus on the content of the course and aspects directly related to the curriculum, and not the more relevant and beneficial aspects of ePortfolios that are consistently lauded (Eynon et al., 2014b). Our research aims to provide additional empirical evidence that can help substantiate the research already conducted in this field, while also proposing methods for future analysis that these current studies do not yet actively consider.

Methods and Results

The data for this project was collected at the University of Waterloo, a research-intensive university in Southern Ontario, and took place over the course of two four-month semesters. Our institution uses Desire2Learn's ePortfolio tool that is built into the learning management system. Data was collected from both students and instructors by employing a mixed-methods methodology, incorporating both quantitative analyses of survey results and a grounded theory analysis of focus group discussions. For the purposes of this paper, we concentrate on the student data due to the resulting interactions between students and instructor expectations leading to findings that do not fit within the confines of this paper, but will be alluded to and explored in a future study.

Survey Data

We made minor revisions to the surveys created by the Connect to Learning (C2L) national ePortfolio

Table 1
List of Goals for the ePortfolio Activity and Sample Corresponding Items From the Student Survey

Goals	Item
1. Course content	To help me deepen my understanding of key course content or concepts
2. Learner identity	To help me understand myself and grow as a learner
3. Reflection	To help me reflect on my learning
4. Course connections	To help me see the connections between this course and other courses
5. Outside School	To help me see the connections between this course and other experiences outside of school
6. Community building	To help me build community with other students
7. Education planning	To help me develop my own educational goals and plans
8. Career planning	To help me develop my career plans
9. Synthesizing ideas	Synthesize and organize ideas, information, or experiences in new ways
10. Applying theories	Emphasize applying theories or concepts to practical problems or in new situations
11. Writing	Contribute to students' knowledge, skills, and personal development in writing clearly and effectively
12. Understanding themselves	Contribute to students' knowledge, skills, and personal development in understanding themselves
13. Teamwork	Contribute to students' knowledge, skills, and personal development in working effectively with others
14. Problem-solving	Contribute to students' skills in exploring and solving complex, real world problems such as those they might face in their lives, including their careers

network (Eynon et al., 2014b) to fit the context of our institution, and adapted the questions to ask about students' and instructors' experiences with the ePortfolio activity specifically rather than their overall course experience. The adapted surveys were administered at the end of the fall 2014 and winter 2015 academic semesters to all instructors and students in 30 courses that used ePortfolios. The courses included students from first to fourth year and came from four different faculties: Applied Health Sciences, Arts, Environment, and Science. Class size ranged from small (15 students) to large (over 350 students).

863 undergraduate students (M_{age} = 20.1 years, 64.6% identified as female, 24.4% as male, 11% identified as other or did not indicate their gender), the majority of which were full-time students (87.6% full-time students, 2.5% part-time students, 9.8% unidentified), completed the survey for a chance to win $50 cash. Overall response rates across all courses were 21% for students and 77% for instructors.

The students and instructors completed slightly different versions of the survey: Students were asked about their perceived goals of the ePortfolio activity, their attitudes towards the activity, and outcomes (e.g., Did they engage in reflection and integrative learning?) as a result of completing the ePortfolio activity. Instructors were asked about their goals for the ePortfolio activity in their course, their experience with ePortfolios in general (e.g., Are they first time users?), and the parameters (e.g., Is the ePortfolio part of students' final grades?) of the ePortfolio activity. Each had opportunities to answer open-ended questions as well to express their thoughts about the ePortfolio, and in particular, what the best and most challenging parts of working with ePortfolios were.

Survey Measures

Alignment between students' and instructors' goals. To analyze the alignment between students' and instructors' goals for the ePortfolio activity in the course, we examined the parallel items from the surveys completed by the students and instructors that were related to the goals for the ePortfolio. Students were given a list of goals (see Table 1 for the list of goals and corresponding items from the survey for students) and asked to indicate on a Likert-item scale, based on what they knew or what they were told by their instructor, the extent to which they agreed on each goal of the ePortfolio or the extent to which the ePortfolio contributed to each goal. Instructors were shown parallel items, but were asked to indicate how important each goal was, or the extent to which the ePortfolio was designed to meet each goal.

Students' experiences and outcomes. To assess students' experiences and outcomes with ePortfolios, students were asked to indicate on a Likert-item scale the extent to which they agreed or disagreed with a series of statements pertaining to their experience with ePortfolios in the course. Prior to data analysis, we created different subscales representing seven different student outcomes and assigned relevant items from the

Table 2
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	α = .75
Reflection	The extent to which reflection was incorporated or valued in the ePortfolio.	Building my ePortfolio helped me to think more deeply about the content of my course.	5	α = .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	*r* = .70
Positive attitude	The student or instructor's satisfaction with the ePortfolio experience.	I enjoyed building my ePortfolio.	3	α = .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	α = .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	α = .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	α = .89

Table 3
Correlations Among Factors Influencing Students' Experiences and Outcomes With the ePortfolio

	Instructor and peer feedback	Reflection	Showing ePortfolio	Positive attitude	Going beyond	Integrative learning	Future use
Ease of ePortfolio technology	.25**	.44**	.36**	.47**	.10*	.24**	.40**
Discussion of ePortfolio pedagogy	.43**	.42**	.29**	.39**	.05	.19**	.27**
Misalignment	-.47**	-.62**	-.40**	-.58**	-.20**	-.46**	-.41**

Notes. The variables above represent a sample of items from the survey.
* $p < .01$.
** $p < .001$.

survey to the appropriate subscale (see student outcomes in Table 2). The reliability of the subscales were calculated using Cronbach's alpha or Spearman's correlation where appropriate.

Survey Analysis

ePortfolio technology's impact on students' experiences. We conducted a correlational analysis to examine the relationship between the ePortfolio technology (one item) and students' experiences. As shown in Table 3, students reported more positive experiences (e.g., wanting to use the ePortfolio in future courses) and achieved greater positive outcomes (e.g., students engaged in more integrative learning) across all seven indicators when they found that the ePortfolio environment easy to use.

In the open-ended survey questions, students also commented on ePortfolio technology. Qualitative coding showed that when asked to comment on the challenges of

the ePortfolio, 50% of students reported negative experiences with the technology. When asked to comment on the benefits of the ePortfolio, only 5% of students reported positive experiences with the technology.

Alignment of expectations between students and instructors. Using a correlational analysis, our data shows that overall alignment in students' and instructors' expectations for the ePortfolio is related to positive experiences and outcomes with the ePortfolio for students. As shown in Table 3, ratings of the extent to which instructors who discussed the ways the ePortfolio helps students learn was positively correlated with students' experiences and outcomes with the ePortfolio with six of the seven indicators.

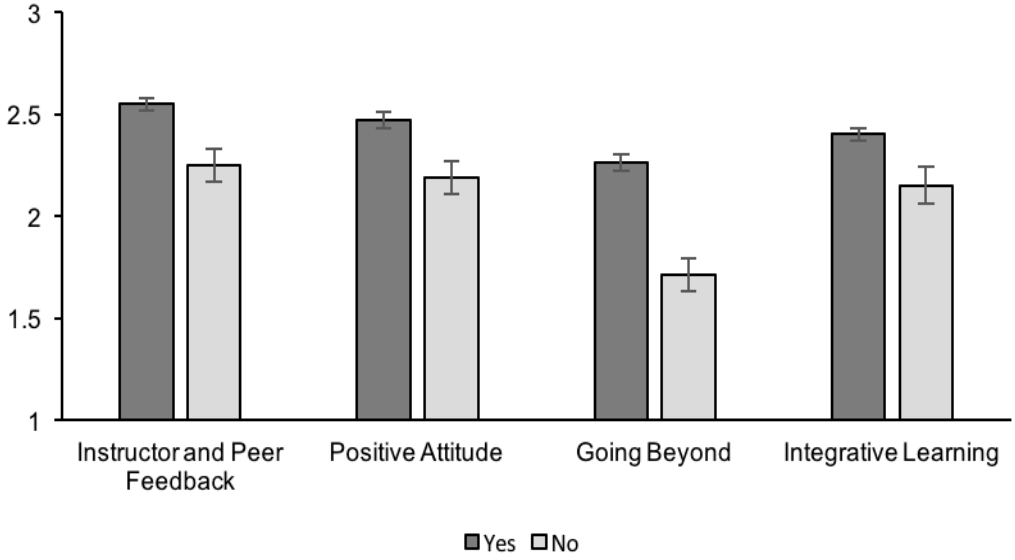
To directly compare students' and instructors' expectations for the ePortfolio activity in their course, we examined aggregated data for 18 courses in which both instructors and their students completed the survey. We operationalized alignment between students' and instructors' expectations by examining differences between instructors' and students' ratings on the different possible goals of the ePortfolio activity in their course. A difference score was calculated for all the goals, and the absolute value of the difference scores was taken as a general measure of misalignment in students' and instructors' goals and perceptions of the ePortfolio. The higher this value, the more misaligned the expectations were between students and instructors for the ePortfolio. These difference scores were then aggregated across all courses in which instructors and students completed the survey. As shown in Table 3, the extent to which the instructors' and students' expectations for the ePortfolio were misaligned (i.e., the extent to which the instructors and students disagreed on the goals of the ePortfolio activity in their course) was negatively correlated with students' experiences and outcomes with the ePortfolio activity across all seven indicators.

When examining each of the 14 individual potential goals for the ePortfolio activity (see Table 1), a similar pattern was observed for most goals except for course content, making course connections, fostering community, and working with others, in which the pattern of data is less inconsistent or not statistically significant. This pattern of findings illustrates one of the challenges of using aggregated data as courses had vastly different goals for the ePortfolio—ranging from personal and career development to increasing understanding of course content.

We also conducted the above analyses for nine individual courses in which there was sufficiently large sample size (N > 20 student participants). The pattern of data for the relationship between misalignment and students' experiences is less consistent. Four out of nine courses showed a consistently negative correlation between misalignment of students' and instructors'

Figure 1

Students' Averaged Ratings of Their ePortfolio Activity Experience in Their Course as a Function of Whether or Not the ePortfolio Activity was Part of Students' Grades



expectations and students' experiences. However, the pattern of data was less consistent for five courses. For example, in a first-year arts course and a first-year biology course in which students' experiences and outcomes with the ePortfolio were positive, misalignment in expectations was not related to students' outcomes. For some goals, misalignment was actually related to greater positivity and achievement of outcomes with the ePortfolio. This finding suggests that the success of the ePortfolio does not rely solely on the alignment of expectations—other factors undoubtedly contribute, a point that will be explored later.

To this end, we examined whether students' experiences and outcomes with the ePortfolio were impacted by instructors' engagement in best practices for using ePortfolios. One such best practice is to give students' grades for the ePortfolio activity (Kuh, 2008). Independent samples t-tests were used to examine differences in students' experiences and outcomes if the ePortfolio activity was or was not part of the students' grade for the course. Because of the large sample size difference between courses that gave students grades for the ePortfolio activity, Levene's tests were employed and degrees of freedom were adjusted if there were unequal variances between groups.

Figure 1 demonstrates that students' experiences with the ePortfolio are more positive and their learning outcomes are higher when the ePortfolio activity is part of students' grades. Our analyses indicated that that students' ratings for instructor and peer feedback were higher if the ePortfolio activity was part of the students' grades for course (M = 2.55, SD = .73) than if they were not (M = 2.24, SD = .79), $t(678) = 3.84$, $p < .001$, $d = 0.40$. Students also reported more positive attitudes about the ePortfolio when the activity was part of the students' grades (M = 2.47, SD = .86) than if it was not (M = 2.19, SD = .81), $t(692) = 3.13$, $p = .002$, $d = 0.34$. Students also scored higher on going beyond if the activity was part of the students' grades (M = 2.26, SD = .89) than if it was not (M = 1.71, SD = .74), $t(141) = 6.34$, $p < .001$, $d = 0.67$. Lastly, students reported greater integrative learning when the activity was part of the students' grades (M = 2.40, SD = .70) than if it was not (M = 2.15, SD = .84), $t(117) = 2.67$, $p = .009$, $d = 0.32$. These effects were replicated when the ePortfolio activity was a mandatory activity for the course.

This pattern of findings demonstrates that employing best practices for the ePortfolio—in this case, giving students grades for their work—are beneficial for students' learning and their experiences with the ePortfolio activity. However, other factors, such as lack of alignment in instructors' and students' expectations, can impede the effectiveness of the ePortfolio even when the instructor follows best practices.

Focus Groups Methods

Our quantitative analysis of the survey results was combined with student focus groups and interviews, with the instructors from three of the courses employing ePortfolios in the fall 2014 term (see Table 4). The courses were chosen due to factors such as the instructors' willingness to participate, familiarity with ePortfolios, class size, and the importance placed upon the ePortfolio in terms of its assessment. We intended to compare numerous variables that may impact the success of the ePortfolio activity, such as instructor experience level and the impact of whether or not the assignment was mandatory. The focus groups and interviews, each lasting approximately one hour, took place at regular intervals throughout the term: beginning, middle, and end of term. The instructors were interviewed individually and did not attend any of the student focus groups.

Focus groups were held to discern the extent to which the ePortfolio assignment was being worked on actively, how well each learner understood the goals of the assignment, and what their expectations were for the assignment going forward. During the first focus group, students were asked to reflect on the initial orientation to the ePortfolio assignment and their experience with ePortfolios. During the second focus group, students described how they worked on their ePortfolio, what they perceived to be the instructor's rationale for having them complete the activity, and the type and quality of feedback thus far received. In the third focus group, students summarized their experience working on the ePortfolio activity throughout the term and their thoughts relating to its effectiveness in the course.

A grounded theory analysis (Glaser & Strauss, 1967; Strauss & Corbin, 1990) was employed to code the responses obtained through the focus groups and interviews, with a shared set of codes developed for all qualitative data collected. Grounded theory can perhaps best be explained as the "collection, coding and analysis of qualitative data for the generation of theory" (Glaser & Strauss, 1967, p. 18). Due to ePortfolio user experience being contingent upon multiple variables, such as technology, assignment design, instructor attitude, and the institution's culture, we chose to use grounded theory because the conversations that emerged in discussions with participants reflected the diversity of ePortfolio experience itself. Our codes were initially developed by all three researchers watching the video recordings of the first focus groups together multiple times, during which a set of emergent codes was produced to ensure inter-rater reliability (Table 5). Once satisfied with the quality of the developed codes, the third researcher assigned these codes to the data

Table 4
Focus Group Course Information

Course	Class size	ePortfolio assignment and marks allotted	Instructor experience	Focus group *n*
First-year Women's Studies	137 (first-fourth year students)	Weekly reflections on contemporary issues, feedback provided weekly, worth 80% of final grade, students shared ePortfolio assignment with one another	Graduate student sessional instructor with no ePortfolio experience	3
First-year Accounting and Finance	397 (first year incoming students in a professional program)	End of term reflection on peer/team work, feedback provided by industry partner, voluntary (no associated grade), ePortfolios were shared between students	Instructor used ePortfolios in large first-year courses several times	8
Fourth-year Arts and Business Capstone	119 (fourth year students—majority of whom had participated in ePortfolios activities in each year of the curriculum)	Design a professional portfolio/webpage for a business throughout term, builds upon work done in previous courses, worth 20% of final grade, ePortfolios were shared between students	Instructor an experienced ePortfolio user	2

Table 5
Emergent Coding Results From Grounded Theory Analysis

Code		Definition
Feedback	Positive	Received positive feedback from instructor; useful feedback; feedback applicable to learning
	Negative	Useless feedback; not applicable to assignment or learning goals; peer feedback not helpful
Workload	Positive	Manageable workload; not stressed
	Negative	Challenging workload; time-consuming assignments
Technology	Positive	Technology perceived as beneficial; supported learning
	Negative	Technology perceived as an impediment; restrictive; better tools available
Enjoyment	Positive	Allows creativity; convenient to use; enjoyed constructing the ePortfolio
	Negative	Did not enjoy the experience; lack of enjoyment NOT a result of technology
Promoting learning	Positive	Helped develop skills; connected to course content; worth a sufficient grade; motivating
	Negative	Perceived as a necessity; something that has to be done; not connected to course content
Preparation to use ePortfolios	Positive	Expectations were clear; clear instructions; examples shown in class; support provided
	Negative	Unclear of purpose of ePortfolio; no previous experience using ePortfolio; lack of expectations; confusion as to its purpose; similar to LMS; repository
Social	Positive	Understand the benefits of sharing ePortfolios; learn from each other's work; want to show it to others
	Negative	Don't understand why it is worth sharing; would not want to share it
Authenticity	Employment	Discuss the ePortfolio in relation to potential employment
	Real-world connection	Understand the ability of the ePortfolio to connect to personal experiences or real-world application
	Will not use beyond academia	No desire to use the ePortfolio after academia

collected. As can be observed in Table 5, these codes in many ways mirror the outcomes in Table 2. Furthermore, the focus group questions that were generated were constructed with best practices in mind. Similarities between the emergent codes and the best practices are therefore to be expected, and reinforce the general nature of the C2L core survey. One exception is the instructor's role in promoting learning or preparing students to use the ePortfolio tool which, although captured in the C2L survey, was focused more on the ePortfolio itself and less on how the instructor positions the ePortfolio, which emerged often in these focus groups.

Focus Group Results

Each focus group tells a distinct story with regard to their ePortfolio experience. The students in the first-year Women's Studies course were initially weary of the ePortfolio task because the course had originally been designed for the online environment; the focus group participants struggled to understand how the ePortfolio task was relevant or necessary for use in their large, on-campus offering of the course. Negative perceptions related to their preparation to use ePortfolios and the ePortfolio's ability to promote learning dominated the discussion, with 40% of all discussion being represented by these two codes. As the course continued, the participants' opposition only grew as they became increasingly dismayed with the ePortfolio task, as well as the way in which the course was being taught. Coding of the focus groups reflected this, with 80% of all identified codes for the second focus group, and 72% for the third, being negative. It became evident that the purpose of the ePortfolio was to help students connect contemporary issues to real-world application (in the form of the ePortfolio). Unfortunately, the focus group students perceived this as being disconnected from the core content of the course and unrelated to the material presented in the course textbook. These issues were compounded by a sessional instructor who, despite her best efforts, was thrown into the course with little preparation and ability to change its structure.

In the first-year Accounting and Finance course, a different narrative emerged. Whereas the first-year Women's Studies course participants were initially skeptical, the first-year Accounting and Finance participants were confused; they had not been introduced to the ePortfolio activity prior to the first focus group meeting. As a result, 100% of the coding pertaining to their preparation to use ePortfolios was negative. By the second focus group, held mid-way through the term, the focus group students still had not been introduced to the ePortfolio task. After completing the ePortfolio task, participants indicated in the final focus group that although aspects of the process were certainly helpful, they remained relatively unsure as to why they completed the ePortfolio, and could not see its applicability beyond this course. Interestingly, many participants were able to hypothesize the utility of the ePortfolio assignment, indicating that it could be useful for tracking development of skills over time. More than 50% of the codes pertaining to the ePortfolio promoting learning were positive in the final focus group, yet when probed to share how they developed a better understanding of the ePortfolio, they admitted that their participation in the focus group, not the course or its instructor, encouraged them to think about the ePortfolio.

The third group was comprised of students from a fourth-year Arts and Business Capstone course. As a result of ePortfolios being incorporated into the design of the Arts and Business program, these students had used them previously and came to the first focus group with an awareness of the tool (54% of coding pertaining to preparation to use ePortfolios was positive). Yet despite having an awareness of ePortfolios, they were already skeptical of them due to technological issues that emerged during their previous use (70% negative technology coding). In this course, however, students were encouraged to use whatever ePortfolio platform they preferred to complete this ePortfolio activity—a notable distinction from the vast majority of cases at the University of Waterloo, where the ePortfolio embedded in the learning management system was being used. As a result, technological hurdles that had impeded the success of participants in the previous focus groups were not an issue, and the participants in this group found the experience meaningful (82% of coding relating to the ePortfolios ability to promote learning was positive in the final focus group). This impression may also have been aided by the fact that the design of the activity itself aligned well with goals and outcomes for the Arts and Business degree program, i.e., through their eportfolios, students were expected to market themselves to future employers.

Analyzing the results across all focus groups, we can observe some distinct trends with respect to the types of codes that emerged most frequently in discussions (see Table 6). Negative comments dominated the discussion across all focus groups. In particular, the focus group participants in the first-year Women's Studies course had very negative experiences, and the resulting negative discourse was pervasive in the focus group conversations. However, as was noted above, negative comments concerning the ePortfolio experience, and especially the role of technology, dominated the open-ended responses in the C2L Core Student Survey as well, suggesting that the

Table 6
Frequency of Codes Across all Focus Groups

Codes		Tally	Percentage
Feedback	Positive	18	2%
	Negative	35	4%
Workload	Positive	23	3%
	Negative	47	6%
Technology	Positive	30	4%
	Negative	59	7%
Enjoyment	Positive	25	3%
	Negative	42	5%
Promoting Learning	Positive	97	12%
	Negative	119	15%
Preparation to use ePortfolios	Positive	54	7%
	Negative	119	15%
Social	Positive	28	3%
	Negative	47	6%
Authenticity	Employment	32	4%
	Real-world connection	24	3%
	Will not use beyond academia	15	2%
Total		814	100%

focus group conversations provided an elevated platform upon which students could relate and share their challenges, rather than be coerced into commiserating with their peers. To this extent, even when alignment did exist, numerous factors such as those discussed by the participants impeded the learning potential of the ePortfolio despite the best efforts of the instructor. This suggests that we require more in-depth understanding of the learners' and instructors' entire experience with the course, not just the ePortfolio.

Discussion

Our data highlight three facets of ePortfolio use at the University of Waterloo. First, alignment matters. When students' expectations are aligned with instructors' intended learning outcomes, and if best practices are followed, students' experiences are largely positive, as was expressed many times in the open-ended questions found in the C2L Core Student survey:

> It [the ePortfolio assignment] allowed me to connect with course material and explain my thoughts in an organized visual manner. It also allowed me to view other classmates' work and opinions and see how their thoughts were similar or different to my own. (C2L Core Student Survey response)

This sentiment was common among many students, but does not represent the entire scope of ePortfolio experience. There are instances of misalignment that emerged from the data collected from the C2L Core Student Survey. This can be seen in cases such as the aforementioned first-year Biology course, where few best practices were adhered to, and yet students found that the integrated activity was extremely rewarding and helped to improve their understanding of the course material. Second, the experiences shared in the focus groups conflicted with the obvious efforts that the corresponding instructors invested in their courses. In the case of the first-year Women's Studies course, the instructor invested generous time preparing the course and followed many of the best practices associated with ePortfolio use, yet the students were unable to look past their preconceived notions of what the course should be and were constantly inhibited by the underlying technology of the ePortfolio. The fourth-year Arts and Business Capstone course, and to a lesser degree the first-year Accounting and Finance course, both struggled to prepare or support students adequately early in their use of ePortfolios, and yet in both instances students finished the ePortfolio activity demonstrating a better understanding of themselves through reflection and application.

We would argue that the data collected by the C2L Core Student Survey focuses primarily—by design—on the construction of the ePortfolio assignment, and as a result, other variables or factors that may facilitate or impede the success of the ePortfolio are not addressed. The role that the instructor plays with regard to how he or she positions the ePortfolio activity, his or her own beliefs concerning the utility of the ePortfolio, how the activity is explained in class, and how involved the instructor is with the administration and technical

support of the ePortfolio all may play a role. The extent to which these various factors influence the ePortfolio activity, however, needs to be further researched.

Our second research question, discussing the steps that can be taken to ensure alignment of student and instructor expectations, is more difficult to answer due to the variability in what constitutes a good learning experience. As discussed in the results of the C2L Core Student Survey, when students received grades for their work, students experienced a more positive attitude towards the assignment and were more willing to go beyond what was expected of them. One focus group participant reflected that:

> My other friend in [the program], I asked if he completed [the assignment], and he said he wasn't even going to do it because it wasn't being marked . . . he saw no value in that . . . so I'm assuming that a lot of people didn't do it because of that reason. (Participant 1, Focus Group 3)

We should therefore still encourage instructors to adhere to the best practices associated with ePortfolio usage, but best practices alone cannot ensure positive experiences. When misalignment occurs and best practices are not followed, the experience can be productive and encourage learning due to other likely factors, such as how the instructor encourages the use of ePortfolios.

Our final research question concerning student and instructor orientations to ePortfolios and how they may change over time proved difficult to assess accurately. In the case of the first-year Women's Studies course, perceptions generally degraded over time; this was likely a reflection of misalignment of expectations between students and instructors, as the students believed the course would focus on course content rather than application of that content. As one participant exclaimed:

> I think my expectations were pretty high going into it because, like, recently I've gotten really interested in, like, [course content] and that kind of thing, and so I was really excited to do this and like, learning about the historical point of view and activism and all that kind of stuff. So that was really exciting. But throughout the course, I really don't think that I learned all that much about it, and if I did, it was kind of through my own research or through other people's presentations, and I don't think I will retain it for a very long time. (Participant 4, Focus Group 3)

Evidently, this learner focused on trying to remediate what she perceived to be the *correct* learning experience by neglecting the actual ePortfolio task that was intended to help synthesize course content. The technology itself also served as an impediment to positive change, resulting in frustration and continued animosity towards the tool.

In the first-year Accounting and Finance course, change could not be measured, due to the students being completely unaware of the intention of the ePortfolio until the very end of the semester. As was discussed previously, those students participating in the focus group were able to see the benefit of completing an ePortfolio, and in that respect, positive change was evident, but the majority of students in this course were left confused as to the intention of the assignment, with no opportunity to reconcile these feelings.

Finally, in the fourth-year Arts and Business capstone course, the overall experience with the ePortfolio was largely positive, but students referred back to their experience using it throughout their program, supporting arguments that innovative tools such as ePortfolios require an adaptation time to allow for the user to become accustomed to the tool. The students also spoke very positively about the instructor of the course, both due to the instructor himself and his ability to encourage learning, but also as a result of having had the same instructor in past courses and knowing how he assesses work and what he expects. Due to these variables, it remains challenging to assess the impact of the ePortfolio on a program level, speaking to the necessity for future research to concentrate on ePortfolio usage beyond the course-level in order to see the real impact and effect that ePortfolios can have.

The importance of technology also cannot be overlooked. Although there has been research conducted on the importance of the ePortfolio technology itself (e.g., Brown, 2015; Chau, & Cheng, 2010; Tzeng, 2011), much research either reports that technology did not pose an impediment (e.g., Bowman, Lowe, Sabourin, & Salomon Sweet, 2016) or chose not to discuss the technology (e.g., Chang, Tseng, Liang, & Chen, 2013; Nguyen & Ikeda, 2015; Yancey, 2015). As shown in Table 3, we determined that the ePortfolio environment's ease of use was integral to ensuring positive experiences and achieved learning outcomes, and as evidenced in our grounded theory analysis; when not addressed specifically, technology created complications for many individuals. One participant suggested:

> I kind of think of the ePortfolio as telling someone who rides a bicycle to school every day that now they have to ride a unicycle . . . Like, if I can get there, I don't need to learn how to ride a unicycle, which is more difficult anyway, just to get there. (Participant 2, Focus Group 3)

Others discussed the frustrating limitations of poor technology. For example, "While the reasoning behind

ePortfolio assignments are sound, the execution/design of the actual ePortfolio software is horrible. It is extremely counter-intuitive to use, and has very limited design potential" (C2L Core Student Survey response). If ePortfolios are to accomplish what many ePortfolio educators and researchers claim they can, technology must be given specific attention. Admittedly, this is largely dependent on the platform being used, yet with institutions investing an increasingly large sum of money on learning management systems with integrated ePortfolio technologies, many institutions likely have to work with what is available. As a result, educators must be aware of the limitations that do exist and find means by which to mitigate, rather than simply ignore them.

Limitations

The composition of our focus groups, which were limited to students in three courses from the Faculty of Arts, could be one limitation to our research. Variability between courses did exist, however, with instructor experiences, student demographics, and the weighting of the ePortfolio assignment all differing. While we had hoped to have between eight to twelve participants for each focus group, various factors limited our uptake (e.g., the lack of awareness of the ePortfolio activity), and therefore we had fewer total participants across all three focus groups.

A second limitation emerged as results were collected and misalignment was observed. As instructional developers, we are often very involved in the design of the ePortfolio activity but have little knowledge of how that design is deployed during the term. Due to our inability to observe how the instructor introduced the task or engaged the students with the ePortfolio throughout the term, we did not benefit from understanding the entire picture, and cannot accurately pinpoint why misalignment occurred. Although we have argued in the preceding discussion that numerous variables likely played a role in how the ePortfolio activity was received, more data would be beneficial to substantiate these claims.

Summary

ePortfolios, as previous research has demonstrated, can indeed be effective pedagogical strategies to support integrative and experiential learning. Alignment of expectations between students and the instructor is relevant and worthwhile to consider, and as can be expected, cases of good alignment result in beneficial ePortfolio experiences for both students and instructors—although this is not always the case. Alignment is indeed a predictor of success in ePortfolio design, and instructors should continue to strive towards ensuring that the ePortfolio task, its associated intended learning outcomes, and relevance to the course, are aligned. Misalignment, which may be caused by such factors as unclear assignment instructions or outcomes, a lack of instructor support, or technology that supports learning, may at times detract from the ePortfolio learning experience, yet we must be equally aware that alignment and misalignment do not result unequivocally in successful or unsuccessful experiences for students.

As has been discussed, future research should begin to incorporate all aspects of the task design, with a closer analysis of what the instructor is doing before, during, and after the administration of the ePortfolio activity. Instances of misalignment, as we have explored, can likely only be understood with this approach. To this extent, longitudinal, mixed-method studies should be adopted so as to understand the complexities that arise with an educational strategy and technology like the ePortfolio. Furthermore, the role of the instructor which was mentioned previously is indeed critical to ensuring successful ePortfolio activity implementation, and must be given equal priority as adhering to best practices; we must ultimately take greater care to ensure that well thought-out, intentional ePortfolio task designs are being considered by invested instructors who fully understand the implications that arise when implementing ePortfolios.

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