

# Journal on Empowering Teaching Excellence

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Volume 3  
Issue 2 *Journal on Empowering Teaching  
Excellence, Volume 3, Issue 2, Fall 2019*

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Article 1

December 2019

## Full Issue: Journal on Empowering Teaching Excellence, Volume 3, Issue 2

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(2019) "Full Issue: Journal on Empowering Teaching Excellence, Volume 3, Issue 2," *Journal on Empowering Teaching Excellence*: Vol. 3 : Iss. 2 , Article 1.

DOI: <https://doi.org/10.15142/t80z-0w48>

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# THE JOURNAL ON EMPOWERING TEACHING EXCELLENCE



**VOLUME 3, ISSUE 2**  
**FALL 2019**

**UtahStateUniversity™**  
CENTER FOR INNOVATIVE DESIGN & INSTRUCTION

The Journal on Empowering Teaching Excellence is a bi-annual publication released in the Fall and Spring. We accept articles and multimedia submissions from higher education professionals who have practical, experience-based insights to share with their peers. We value material that is up-to-date, proven, and easy to implement in today's teaching environments.

JETE is a publication from the Center for Innovative Design and Instruction, and Academic and Instructional Services at Utah State University. It is produced in connection with the Empowering Teaching Excellence faculty development program.

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# About this issue,

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*Kim Hales, Editor in Chief  
Utah State University*

It is with great pride that we present the Fall 2019 issue of The Journal on Empowering Teaching Excellence. This issue has interesting articles, case studies, and a book review, all focused on cultivating excellence in education from a variety of strategies.

Mingzhen Bao, Adam L. Selhorst, Teresa Taylor Moore, and Andrea Dilworth (2019) from Ashford University present a case study titled “Enhanced teaching requirements: A case study of instructional growth on student academic performance and satisfaction in an online classroom.” In this study, Bao, et al. take a close look at the outcomes (GPA, course completion, and pass rate) for students when online instructors are presented with enhanced requirements. By focusing on increasing faculty communication, subject-matter expertise, mentoring, and more, researchers documented improved student outcomes. This is great news for students as well as for instructors who have long advocated for better support in their online teaching.

Jennifer Hunter and Brayden Ross (2019) from Southern Utah University spent over three years analyzing more than 1200 online courses and documented the results in their article, “Does increased online interaction between instructors and students positively affect a student’s perception of quality for an online course?” The overall linear relationship between interactions and perception of quality in the case studies are notable, suggesting that value of increasing student-to-instructor interaction in online learning. The article further engages in important dialogue about the importance of personalized education and the impact it has.

In the article “Assessing community-engaged learning impacts using ripple effects mapping,” Benjamin J. Muhlestein and Roslynn McCann from Utah State University studied the impact of an upper-level, undergraduate, service-learning course. This course was created to help students “gain critical skills in communicating and participating in local sustainability efforts”. The article documents powerful impacts on student learning, clear benefits for community partners, as well as other benefits. The discussion on how to apply ripple effects mapping has application for teaching excellence across delivery methods.

In the article “Reflective practice: The impact of self-identified learning gaps on professional development,” Joanna C. Weaver, Matthew Ryan Lavery, and Sarah Heineken of Bowling Green State University present the idea that “not every topic nor instructional scenario can be addressed in the program coursework”. They examine the usefulness of professional development as a means to offer pre-service teachers opportunities to self-select instructional content. Their findings are especially interesting, and suggest that self-selecting professional development activities based on self-reflection has potential to increase the value of the professional development and help pre-service candidates transition to teaching professionals.

Finally, Karin deJong-Kannan (2019) from Utah State University shares a review of Joshua Eyler’s book *How Humans Learn: The Science and Stories behind Effective College Teaching* (West Virginia University Press, 2018). In her review, she examines Eyler’s writing regarding student engagement and how it impacts the quantity and quality of student learning. Dr. deJong-Kannan describes Eyler’s synthesis of findings across a wide-range of fields, culminating in five factors that drive student engagement: curiosity, sociality, emotion, authenticity, and failure. Book reviews will continue to be a feature in future issues of the Journal on Empowering Teaching Excellence, providing an opportunity for educators to share insights into books informing the field of education and teaching excellence. We welcome other book review submissions.



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# Enhanced Teaching Requirements: A Case Study of Instructional Growth on Student Academic Performance and Satisfaction in an Online Classroom

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*By Mingzhen Bao, Ph.D., Adam L. Selhorst, Ph.D., Teresa Taylor Moore, Ph.D., and Andrea Dilworth, Ph.D.  
Ashford University*

## Abstract

Online and brick-and-mortar universities are continually looking for a model that maximizes the student experience with the goal of enhancing retention and graduation rates among all student populations. Online education with its asynchronous nature and adult student populations need to hold faculty accountable for student performance in the classroom. This case study examined the effect of enhanced faculty requirements developed for online teaching on student academic performance and satisfaction. The enhanced requirements focused on increased faculty communication, subject-matter expertise, discipline mentoring, immediate assistance, and relationship building. Researchers compared student performance and satisfaction in courses taught under regular requirements with those taught by the same instructor under enhanced requirements. Results indicated that the enhanced requirements increased student satisfaction and performance measured by the end-of-course survey and the course academic metrics (e.g., GPA, course completion rate, and pass rate).

## Introduction

Online education (OE) began as a supplement to aid traditional classroom experiences. Today, with the advent of online degrees, OE is becoming the most sought after form of learning in adult student populations (Allen & Seaman, 2011, 2013; Gannon-Cook, 2010; Harasim, 2000; Mueller, Mandernach, & Sanderson, 2013; National Center for Education Statistics, 2016). Regardless of modality, faculty seem to be a key factor of student academic performance in higher education, and faculty expectations and delivery can vary greatly across instructors (Coppola, Hiltz, & Rotter, 2002; Umbach & Wawrzynski, 2005). The conveniences

and flexibility of OE are evident, but due to the asynchronous nature of the student-faculty relationship, challenges are presented in online faculty expectation-setting (Kennedy, 2005; Liu, Bonk, Magjuka, Lee, & Su, 2013; Smith, 2009; Taylor-Massey, 2015; Trotter, 2008). As universities are continually looking for a model that maximizes the student experience with the goal of enhancing retention and graduation rates among all student populations, OE needs to hold faculty accountable for student performance in the classroom. This case study will examine the effect of enhanced faculty requirements developed for online teaching on student academic performance and satisfaction.

To address the challenges in faculty teaching expectations, the Quality Matters Higher Education Rubric that supports the continuous improvement of course design includes general instructor-related standards. The instructor's self-introduction needs to be professional and available online, and the instructor's plan for interacting with learners during the course needs to be clearly stated (Standards from the Quality Matters Higher Education Rubric, 6<sup>th</sup> Edition). Hilke (2012) developed an online instructor skill set which described online instruction in the areas of content expertise, teaching strategies, social presence, and communications through writing, audio, and video. Similarly, Bailie (2014) stated that online instruction fell into three pillars: significant communication, presence, and timeliness. Universities formed committees consisting of professors, administrators, and policymakers to alter their faculty roles, including teaching expectations, to better serve students, programs, and institutions (Bell-Rose, 2016; Fogg, 2004). Shaw, Clowes, and Burrus (2017) compared faculty expectations from student and institutional perspectives and found that many of them were not aligned. Students appreciated faculty sharing expert knowledge and indicated that the institution should do more to promote a more standardized experience for students with all instructors held accountable to the same high standards. Students appreciated faculty accessibility and responsiveness. While institutions did state requirements for timeliness of responses from faculty to students, students indicated that because of the nature of online education, they wanted faculty to be available outside of the typical academic schedule. This was further supported by research from Bao, Selhorst, Moore, and Dilworth (2018) illustrating improved student achievement and satisfaction when instructors were contractually required to enhance their communications, engagement, and responsiveness.

It must be noted that institutions use various titles under which the responsibilities of online faculty are published. Universities such as Penn State World Campus, Purdue Online Learning, and Arizona State University offer instructor performance best practices and expectations that online faculty are encouraged to implement in the classroom. Washington State University's Global Campus has produced a memorandum of understanding (WSU Global Campus Teaching Standards, 2018). Part of the document is specifically geared toward faculty interaction, stating that faculty should access the courses a minimum of three times per

week and respond to student questions and concerns within 24 hours. As it relates to this study, the authors consider best practices and faculty expectations to be mostly interchangeable. While general information is provided, best practices encompass activities in which faculty are encouraged to engage. Oftentimes, best practices are subjective and loosely understood by faculty as recommendations in online courses. There is no specific set of rules such as time frame for responses to communications, number of responses to students, or how often faculty should be engaging with students in the course. On the other hand, faculty requirements are objectively stated and clearly defined with specific criteria that faculty must follow in their online teaching.

In this study, faculty teaching requirements will be examined, and requirement changes surrounding increased presence, communication, and feedback are expected to facilitate discipline mentoring, immediate assistance, and relationship building, which ultimately increase student academic performance and satisfaction in online courses. Examining teaching requirements in the context of three broad categories of presence, communication, and feedback helps conceptualize the requirement changes. Instructor presence is concerned with how visible instructors are to students in the course and their availability to students. Instructor communication encompasses contact with the students in the course. This can be one-to-one communication, one-to-many, and include tools such as emails, chats, and phone conversations. Instructor feedback focuses on the responses to students from instructors regarding their work in the course.

## **Instructor Presence**

The social presence theory, posited by Short, Williams, and Christie (1976), discusses the salience with which people interact. The theory notes that the medium used as an impact on social presence may impact students utilizing OE (Schutt, Allen, & Laumakis, 2009). Baker (2010) used the social presence theory to investigate the impact of instructor immediacy and presence in online courses. He discovered that student learning cognition and motivation were impacted by instructor immediacy and presence in the online classroom. Similarly, Skramstad, Schlosser, and Orellana (2012) examined student perceptions of their instructors' presence and timeliness in online communications. He found that, in online classrooms, positive student perceptions were illustrated in the majority of tests groups.

Furthermore, Ladyshevsky (2013) suggested that social presence in the online classroom had implications on student retention. He found that an increase in the instructor postings resulted in increased student course satisfaction. Lehman and Conceicao (2014) noted the importance of instructors to create presence, community, and trust in a course. While research

illustrates the importance of instructor presence, many faculty are not trained on methods of enhancing presence in the online environment. Paquette (2016) found that when instructors were trained, they were better able to use social presence cues in the classroom. Additionally, this led to the enhanced use of social presence cues by the students in these courses.

## Instructor Communication

Easton (2003) found the role of online instructors to be ambiguous and ill-defined. She posited that while communication skills of online instructors mirror those of traditional faculty, the expectations from students varied between the faculty populations. Instructor communication in OE traditionally takes place through interactions in discussion boards, announcements, written guidance, online lectures, emails, office hours, and asynchronous videos. In the online environment, these communication strategies are used not only to educate but also to build a more personalized relationship with each student.

Instructor outreach is a vital expectation for online faculty due to the asynchronous nature of course delivery. Whether through discussions, announcements, or more personalized emails, student-faculty interaction has a significant impact on student performance (Lundberg & Schreiner, 2004). Outreach serves not only to educate but also to identify students not engaged or those lacking understanding. Traditionally, students have been expected to initiate contact with instructors. However, due to the adult population of online students, proactive faculty may be able to foster stronger student relationships and create a level of comfort necessary for the online classroom.

Online office hours also provide a venue for student-faculty communication in OE. However, due to the various challenges associated with distance students, Rees (2016) claimed that traditional office hours did not seem effective. As most adult learners select OE for its flexibility, creating rigid office hours seems to impede that goal. Lowenthal, Snelson, and Dunlap (2017) suggested that the creation of live synchronous web meetings could create a viable alternative for students enrolled in asynchronous courses and enhance student performance in the classroom. Their study found that student participation increased from 10% to 50% in virtual office hours with flexible options over traditional methods.

Instructor-created audio and video messages are another way online instructors attempt to enhance the interpersonal element of communication. Ice, Curtis, Phillips, and Wells (2007) studied the effectiveness of audio feedback on the student learning experience. They found the use of audio communications coupled with written feedback was more appealing to students than text-based comments alone. Similarly, Aragon and Wickramasinghe (2016)

found that instructor-made short videos focused on key concepts had a positive impact on student learning.

## **Instructor Feedback**

In the online environment, providing substantive and useful feedback is vital to student growth and academic performance. It is more important to understand the nature of the student population in regard to instructor feedback. Huang, Ge, and Law (2017) categorized how students processed feedback. Some students were identified as self-motivated with a profound interest in the subject matter and sought a deeper understanding of course material. Others sought to meet minimal requirements for tasks. For many online adult learners, it would be helpful for instructors to tailor instructional feedback in a manner that motivated the students and pushed them for higher performance in the classroom.

Sadler (2010) posited that feedback provided a statement of performance through the assessment of student work as well as suggestions as to how a better response could have been prepared. Planar and Moya (2016) studied personalized and formative feedback in the online environment from the perspectives of the student, the instructor, and in consideration of the media by which the feedback was presented. They found that “feedback needs to constitute a dialogue between the person who facilitates it and the one who receives it. It must explicitly promote self-regulation and a proactive attitude on the part of the student towards it; at the same time, it needs to focus on the learning process and involve class colleagues” (p.198). In the online environment where students may be unable to discuss work with instructors synchronously, quality feedback becomes an especially important expectation for the faculty member.

The following case study examined teaching requirement changes surrounding presence, communication, and instructional feedback. It was hypothesized that if faculty requirements were enhanced, student academic performance and satisfaction in the online classroom would improve.

## **Methods**

### **Course Model and Instructor Participant**

Online undergraduate courses utilized for the study are worth three credits and are five weeks in length. Courses apply a standardized design, composed of weekly readings, discussion

boards, assignments, and quizzes. Individualized instruction includes supplemental course content, interaction with students, and nature of feedback. An instructor in the Journalism and Mass Communication program participated in the study and incorporated enhanced teaching requirements to her courses between May and November 2017. Prior to this, she had been teaching the same courses for two years, applying regular requirements to the classroom.

## Regular and Enhanced Teaching Requirements

Regular teaching requirements require instructors to post weekly guidance and announcements before the beginning of each week, answer student emails and questions within 48 hours, submit discussion grades within 72 hours after the end of each week, and provide assignment grades and feedback within six days after the submission due date.

Enhanced requirements focus on subject-matter expertise, discipline mentoring, immediate assistance, and student engagement. The instructor is required to apply the following to her classroom (see Table 1). Approaches to implement the enhanced requirements are to either replace or merge the regular requirements with the enhanced version.

**Table 1:** *List of Enhanced Teaching Requirements*

<b>Instructor Presence</b>	<ul style="list-style-type: none"> <li>• respond to all students at least once each week in discussion boards,</li> <li>• create a video introduction in weekly guidance, and utilize multimedia resources to enhance student learning.</li> </ul>
<b>Instructor Communication</b>	<ul style="list-style-type: none"> <li>• contact each student by email at least once per week during the course and the week before the beginning of the course,</li> <li>• respond to student emails and questions within the next day,</li> <li>• hold weekly office hours to facilitate student learning,</li> <li>• reach out to students via email if assignments have not been submitted, and allow leniency.</li> </ul>
<b>Instructor Feedback</b>	<ul style="list-style-type: none"> <li>• provide detailed guidance and feedback for all assignments.</li> </ul>

## Training Provided to the Instructor

Before May 2017, enhanced teaching requirements were discussed twice among the instructor, her program chair, and college leadership. Virtual office hours were scheduled on three different weekdays and times to accommodate adult learners. Mentorship provided by the program chair included sharing with the instructor the overall goals of the program to create a more engaging space for students. The instructor received guidance on how to effectively include videos within the course and how to creatively share professional work with students to bridge the gap between classroom studies and a career in the field. After the enhanced courses were launched, the instructor continued to conduct weekly meetings with

the chair to share classroom updates and reflect teaching behaviors and student learning experience. The chair also observed the enhanced courses regularly to ensure the alignment of teaching performance with enhanced requirements.

## **Operationalization of Student Performance and Satisfaction**

Student academic performance was measured with average GPA, course completion, pass, and next-course progression rates. Pass rate describes the percentage of students who receive D- (60% of course grades) and above. Next-course progression rate lists the percentage of students continuing on to the next course. Student satisfaction was collected through the end-of-course survey.

The end-of-course survey includes 16 questions. Questions 1, 5-6, 8-15 describe faculty's instructional performance, Questions 2 and 7 focus on course content, and Questions 3-4, 16 assess overall learning experience (see Table 2). The enhanced faculty requirements are related to the survey questions under the instructional performance category in a way that faculty engagement may influence the overall perceived teaching quality. However, there is no one-to-one mapping between the enhanced requirements and the survey questions. Responses are measured on a five-point Likert scale from strongly agree to strongly disagree gauging up to 4. The survey is available for students to complete during the last seven days of each course before final grades are released. Students receive emails indicating when the survey is available. The emails share the purpose of the survey, which is to help the University understand how well the course enables students to learn, and how the University can improve the way the course is presented in the future. Participation does not affect course grade, and the survey is conducted voluntarily.



**Table 2.** *The University's End-of-course Survey Questions*

<b>Instructional Performance</b>	Q1	Clear instruction was given on how assignments would be graded.
	Q5	I would recommend this instructor to another student.
	Q6	Instructions for completing assignments are clear.
	Q8	The instructor adds her/his perspective, such as knowledge and experience, to the course content.
	Q9	The instructor communicates and promotes high expectations.
	Q10	The instructor fosters critical thinking throughout the course.
	Q11	The instructor promotes active classroom participation of students.
	Q12	The instructor provides consistent grading across assignments.
	Q13	The instructor provides feedback in a timely manner.
	Q14	The instructor provides useful feedback for improving students' quality of work.
	Q15	The instructor's feedback aligns with her/his communicated expectations.
<b>Course Content</b>	Q2	Course assignments require me to think critically.
	Q7	The course content (assignments/readings/study materials) is engaging.
<b>Overall Learning Experience</b>	Q3	Hard work is required to earn a good grade in this course.
	Q4	I would recommend this course to another student.
	Q16	The quality of my educational experience has met my expectations.

## Results and Analyses

There were 48 courses taught by the instructor between 2015 and 2017. The enhanced requirements were used in 20 courses between May and November 2017. The regular version was used in 28 courses between January 2015 and April 2017, and 20 of them were randomly selected in the study. Thus, student performance and satisfaction data in 20 regular courses and 20 enhanced courses were analyzed using Repeated Measures in SPSS. In both instances, course content, size, and level were taken into consideration. The instructor taught all levels of major courses with a focus on JRN 201 and JRN 341 that consisted of 58.4% of her teaching load (28 out of 48 courses). Course enrollment was comparable between regular courses (mean = 6.21, sd = 3.10) and enhanced courses (mean = 6.95, sd = 2.82). Courses taught by other instructors between 2015 and 2017 were presented as a control group. No instructor in the control group resigned during the study period. Thus, they were all active and taught over time, though some might teach more sections than others. There were 41 courses taught by the instructors in the control group between May and November 2017. 216 courses were taught between January 2015 and April 2017, and 41 were randomly selected in the study.

Improvement in courses taught under the enhanced requirements was noticed in average GPA, course completion rate, pass rate, and end-of-course survey score (Table 3, Figure1). Descriptively, average GPA and the end of course survey score were .25 points and .43 points higher for students taught under the enhanced requirements (out of 4 points, respectively). The course completion rate was up over 4%, and the pass rate was 8.4% higher in the

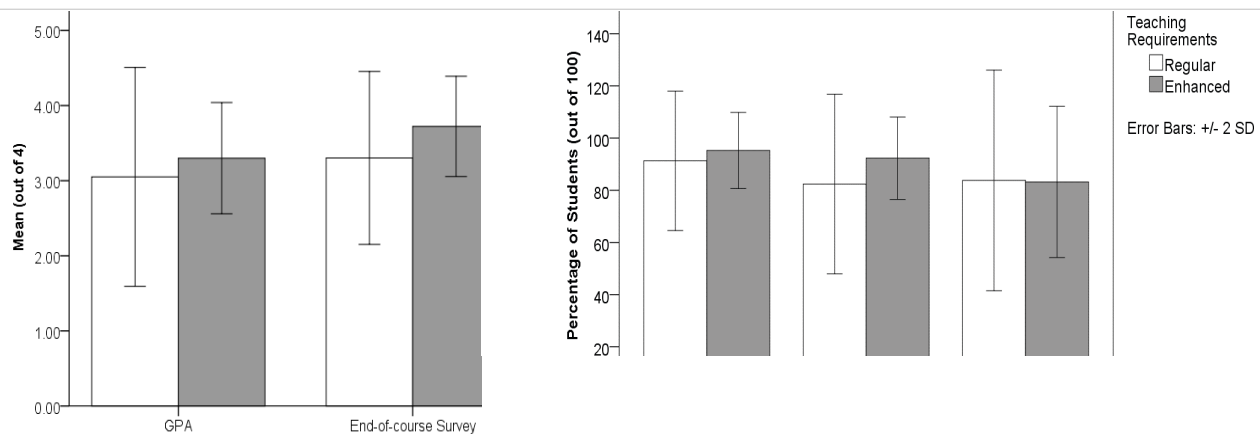
enhanced courses. The next-course progression rate was down 0.5% in the enhanced courses. Statistically, improvement in the enhanced courses was significant in the pass rate ( $p = .02$ ,  $\eta_p^2 = .255$ ) with a power of .677, and the end-of-course survey ( $p = .004$ ,  $\eta_p^2 = .363$ ) with a power of .877. In the control group, student academic performance and satisfaction taught under regular requirements were not significantly changed over the time between 2015 and 2017 except that the next course progression rate was significantly lower between May and November 2017 than before ( $p = .028$ ,  $\eta_p^2 = .116$ ) with a power of .607.

**Table 3.** *Student Academic Performance and Satisfaction in the Case Study and the Controls*

Teaching Requirements				
	Regular (before)	Enhanced (after)	Regular (before)	
Next-course Progression Rate (%)	83.76	83.20	85.65	

<sup>a</sup> =  $p < .05$ , <sup>b</sup> =  $p < .01$ .

**Figure 1.** *Differences in Teaching Requirements on Student Academic Performance and Satisfaction in the Case Study.*

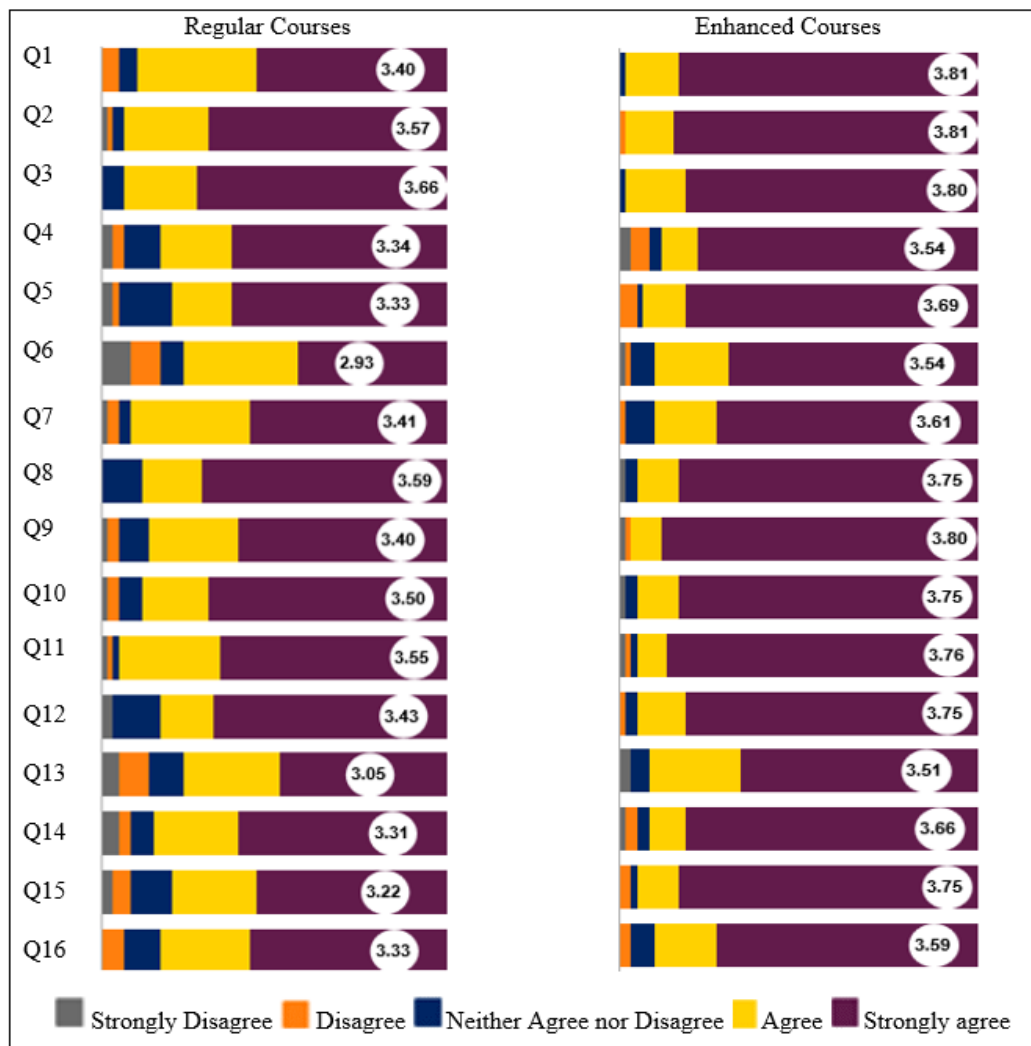


\* indicates significant results.

It was noted in the end-of-course survey results that student satisfaction with instructional performance was improved in the enhanced courses (Figure 2, Questions 1, 5-6, 8-15 in Table 2). It was also worthwhile to notice that students were more satisfied with course contents, assignments, study materials (Questions 2 and 7 in Table 2) and overall learning experience (Questions 3-4, 16 in Table 2) in the enhanced courses, which shed light on the impact of teaching behaviors on student engagement, use of course materials, and learning satisfaction. To further examine if student satisfaction in enhanced courses was aligned with the enhanced

teaching requirements, some of the students' verbal comments in the survey were quoted below (see Table 4). It was noted that students in the enhanced courses appreciated the instructor for the timely guidance, detailed feedback, subject-matter expertise, multimedia resources, and clear communications that she brought to the classroom. Consistently, they shared positive comments on the courses and overall learning experience in enhanced courses. Comparatively, fewer comments were received by instructors in the control group between May and November 2017. The authors noticed that positive comments from the control group on instruction and the courses were less targeted. Other comments in the control group identified opportunities for improvement in the areas of detailed feedback, clear instructions, and prompt email replies.

**Figure 2.** End-of-course Survey Results between Regular and Enhanced Courses Taught by the Instructor in the Case Study.



**Table 4.** *Student Verbal Comments from the End-of-course Survey*

	Enhanced Courses	Controls
Instructional Performance	I appreciated Dr. X's positive and constructive feedback.	Y is a great instructor. I love taking any course he is teaching.
	I know what her [Dr. X's] expectations are, and she helps us along in any way possible	Thank you for everything. I highly recommend this course and especially Instructor Z to anyone interested in the field of Journalism.
	She reaches out more than other teachers. I look forward to the next class with her	The instructor fails to give good feedback on how the students can improve their work.
	My instructor was awesome and very informative and fair.	The instructor does not give clear instructions on assignments.
	Dr. X is one of the best instructors that I have experienced in my academic endeavors. She is fair, understanding, engaged, unbiased, inclusive, considerate, passionate, timely, and added a human element to an online class. I cannot say how moved I am by her attention to each student and their needs, including one with hearing impairment for an assignment. Dr. X was awesome in explaining to us how to approach our task. I truly value this experience and wish her well!	There was a little issue of the instructor replying to us for the first part of the course through emails, but it got better as the class went on.
Course and Overall Learning Experience	Love this class.	Great course.
	I enjoyed this course, Great course and learned a lot.	I'm satisfied with this class. This instructor has made my experience as a student fantastic.
	This class was really fun and insightful.	
	This class was great, Dr. X. is the best.	

## Discussion and Conclusions

Following the analysis of regular and enhanced teaching requirements, distinct differences were seen in student metrics. First, the pass rate for students taught under the enhanced requirements was significantly higher than the rate for students taught under regular requirements. With an 8.4% difference between students in groups of 40 total courses, this provides strong evidence that the enhanced requirements designed to improve faculty-student communication, faculty presence, and instructor feedback have a real-world impact on the student academic performance in the enhanced courses.

Student satisfaction, as measured by the end-of-course survey, also showed significant differences. Students under the enhanced requirements rated the course 0.43 points higher on a 4-point scale on the survey than students under regular requirements, significant at  $p < 0.01$ . There was a small fear by researchers that the enhanced requirements might negatively alter

the student satisfaction within the courses due to a perceived increase in course workload. Additionally, high functioning adult students often wish to be left alone to do work at their pace with little intervention. However, data illustrates a significant increase in satisfaction across all courses, quelling these fears.

In addition to the student pass rate and the end-of-course survey score, a trend for increased course completion and increased course GPA was also seen across groups. Significance was likely lowered by the small sample size in the study. However, we believe this data provides further evidence supporting the enhanced requirements. Course progression (students beginning their next course within two weeks of this course completion) was significantly decreased in the control group throughout May and November 2017. The decrease was not noticed in the enhanced courses. As the University utilized in the study offers 50 course starts per year, the flexibility of students' schedules allows students to take two or more weeks off between courses. It does appear that enhanced teaching requirements do not lead to students progressing at a slower pace.

Researchers wondered if the instructor's general teaching improvements over time might contribute to the student improvements in the case study. The results indicated that there was no significant student improvement in regular courses taught by instructors over time in the control group between 2015 and 2017. The instructor in the case study reflected that the training she received before the enhanced courses was less about learning new skills, and more about understanding the connections among heightened faculty engagement and consistently implementing the requirements across all her courses. She admitted that she acquired the skills of managing virtual office hours and video lectures before the case study, as the University provided professional development webinars to all instructors on a regular basis with topics to improve instruction. The key part was actively practicing the enhanced requirements both in and out of class and ensuring her teaching performance was aligned with the requirements, which was not a priority prior to the case study, nor for other instructors teaching regular courses.

Based on the data presented, the study appears to support the hypothesis that enhanced requirements increase student satisfaction and performance as measured by the survey and the pass rate. Administrators at asynchronous online universities with largely adult populations may see improved student satisfaction and academic performance in the classroom by adopting enhanced teaching requirements among faculty. However, the question remains as to time availability for faculty, consisting of adjunct instructors and full-time faculty with research and service commitments. Teaching roles, such as lecturers and faculty-of-practice instructors, might increase communication and thus increase student performance. Further research addressing this question may be needed.

Finally, the sample size in this case study consisted of one faculty member. While this does provide consistency across all sections of courses, it is not clear if similar results would arise in other cases. As such, further expansion of the enhanced requirements to additional faculty and disciplines could help to provide an answer to this question. Faculty communication, presence, and instructional feedback appear to have a significant impact on student academic performance and satisfaction in asynchronous online classrooms with adult students. While further investigation is needed to address the extent of these improvements, enhanced requirements provide promising results with higher course pass rates and student satisfaction for online universities.

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# Does Increased Online Interaction Between Instructors and Students Positively Affect a Student's Perception of Quality for an Online Course?

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## **Abstract**

Online education is increasing as a solution to manage increasing enrollment numbers at higher education institutions. Intentionally and thoughtfully constructed courses allow students to improve performance through practice and self-assessment and instructors benefit from improving consistency in providing content and assessing process, performance, and progress.

The purpose of this study was to examine the effect of student to instructor interaction on the student's perception of quality for an online course. "Does increased online interaction between instructors and students positively affect a student's perception of quality for an online course?"

The study included over 1200 courses over a three year time period in a public, degree-granting higher education institution. The top two findings of the case study included an overall linear relationship between interactions per student and overall perception of quality in addition to a statistically significant relationship between interactions per student and quality-of-course scoring by students using linear regression with fixed effects for colleges. These findings were significant at the 99% level.

The implications resulting from this study, based on the data, can be used by administrators and faculty to create high-quality online courses providing students a sense of belonging in an online learning environment.

## **Introduction (Statement of the Problem)**

With online learning enrollments growth (Poll, Widen, & Weller, 2014) outpacing traditional higher education (Allen & Seaman, 2015), it is becoming important to focus on the

design and delivery of online courses (CHLOE, 2017; Kearns, 2012; Meyer, 2014). However, undergraduate curriculum has remained essentially unchanged during the last half-century (Bass 2012). The move to online courses opens up possibilities, including but not limited to personalized education in the online realm (Weld, Adar, Chilton, Hoffmann, Horvitz, Koch, Landay, Lin, & Mausam, 2012).

A question often asked in the literature, “What can administrators do to increase an effective online environment” (Jaggars, Edgecombe, & Stacey, 2013) goes unanswered when related to pedagogy, although many research articles answer the question related to technology (Huneycutt, 2013; Hogg & Limicky, 2012; Grabe & Holfeld, 2014). Related questions include; (a) how an online class is effectively monitored while it is in session, (b) how many days a professor should participate in the asynchronous learning environment, (c) when feedback should be provided and what constitutes substantive feedback, (d) what are the appropriate level of interactions with students, (e) how course materials are aligned and scaffolded with accreditation standards (such as ISLLC and CCSSO), and finally (f) what constitutes meeting the university contract hour per week (B. Reynolds, personal communication, January 04, 2017). This study attempts to answer question (d) what are the appropriate level of interactions with students. The focus was on purposed, meaningful interactions (Kuh & O'Donnell, 2013), as one student from the institution stated: “too much student-teacher interaction puts me in a position where I feel like the attention is negative from the professor” (E. Buchanan, personal communication, January 5, 2018). A positive correlation between instructor presence in discussion forums and higher student grades was reported in one study (Cranney, Alexander, Wallace, Alfano, 2011).

## Research Question/Context

“Does increased online interaction between instructors and students positively affect a student’s perception of quality for an online course?” The study included over 1200 courses over a three-year time period in a public, degree-granting, higher education institution. The top two findings of the case study included an overall linear relationship between interactions per student and overall perception of quality in addition to a statistically significant relationship between interactions per student and quality-of-course scoring by students using linear regression with fixed effects for colleges. These findings were significant at the 99% level.

## Literature Review

The last decade has seen an emergence of social constructivism as a learning theory focused on knowledge distributed socially (Hunter, 2017). One element of social theory is community (Taylor & Hamdy, 2013), which included interaction. Social interaction positively affects the learning process (Baker, 2011). A social constructivist learning theory focusing on student interactions, whereas the social constructivist teaching theory concentrates on the interaction between the student and teacher with an emphasis on student engagement with the content (Bryant & Bates, 2015; Moreillon, 2015).

The importance of interactions in the online learning environment is the focus of many studies (Brinthaup, Fisher, Gardner, & Raffo, 2011; Hogg & Lomicky, 2012; Watts, 2016). The quantity of interaction and the quality are both important elements to perceived interaction (Brinthaup, et al., 2011). One study's findings include the amount of time spent studying online was only beneficial if some form of interaction was part of the study process (Castano-Munoz, Duart, & Vinuesa, 2014). Interaction can be synchronous or asynchronous. Typical asynchronous interaction in online courses occurs with discussion boards (Kleinsasser & Hong, 2016).

Interaction can be instructor to learner, learner to learner, and learner to content (Baker, 2011; Goldman, 2011) with the first two types affecting social and community aspects of learning. The results of one study on student satisfaction in online courses found interaction with the instructor (instructor to learner) was a significant contributor (Goldman, 2011, Bonfiglio, O'Bryan, Palavecino, Willibey, 2016) to student learning.

Interactions with instructors can increase academic achievement and student satisfaction with college courses (Barkley et al., 2014). The lack of instructor to learner and learner to learner interaction in an online course has led educators and researchers to seek effective methods for keeping students engaged in an online learning environment (Findlay-Thompson & Mombourquette; 2014; Watts, 2016). The advantage of current education technology allows for engaged students (Ertmer & Newby, 2013), creating opportunities for instructors to facilitate student participation and interaction (Stear & Mensch, 2012).

## Data collection/method

Data for this study was extracted from the institution's online learning management system. The data was compiled together including assignment submission comments and conversation messages broken up by course, department and college.

For this study, interactions were counted at a course level. An “interaction” will hereafter be denoted as an instructor making a comment on a student’s submission or an instructor responding to a student’s message or sending a message to a student. Mass messages (i.e., sent to the entire class) were counted as one interaction, as opposed to, for example, 30 (1 per student). This was done to ensure the interactions occurring between students and teachers were personalized, rather than mass-produced.

For this institution, an end-of-course standardized survey is conducted to determine student experience, quality of instruction, and numerous other measures. The final scores are based on an average of all the section scores in the survey and can range anywhere from 1 (lowest) to just above 5 (highest). For online courses at this institution, these survey scores are only available if there were enough responses to provide a comprehensive survey sample of the course, in this case, a minimum of five students in the course with at least three students responding. Any and all courses not meeting this requirement are omitted from the data. This omission also accounts for outliers, which might otherwise affect the analysis. Courses with high interaction counts and less than five students are not included due to lack of substantial survey responses, thereby removing outliers from the dataset and ensuring accuracy of prediction.

In addition, as a robustness check to ensure trends were similar across time, we examined semester data over the last three complete years (2015-2018). The semesters include summer, fall, and spring.

## Results

Examining the scatter plot in Figure 1 and its best fit line, we can infer the relationship between interactions per student and quality survey score is positive overall three years. This shows increases in meaningful interaction increase the perceived quality of a course by a student across the entire time-period examined. It should be noted that there is a clustering of courses with high evaluation survey scores and low interaction count. This is most likely due to the student’s perceived necessity of interaction with the teacher being minimal, or rather the fact that interaction takes place in differing communication methods outside of the learning management system. For these reasons, it is important to keep in mind that action plans should be implemented on a case by case basis predicated on previous data, which may or may not prove that student preference favors or warrants more interaction.

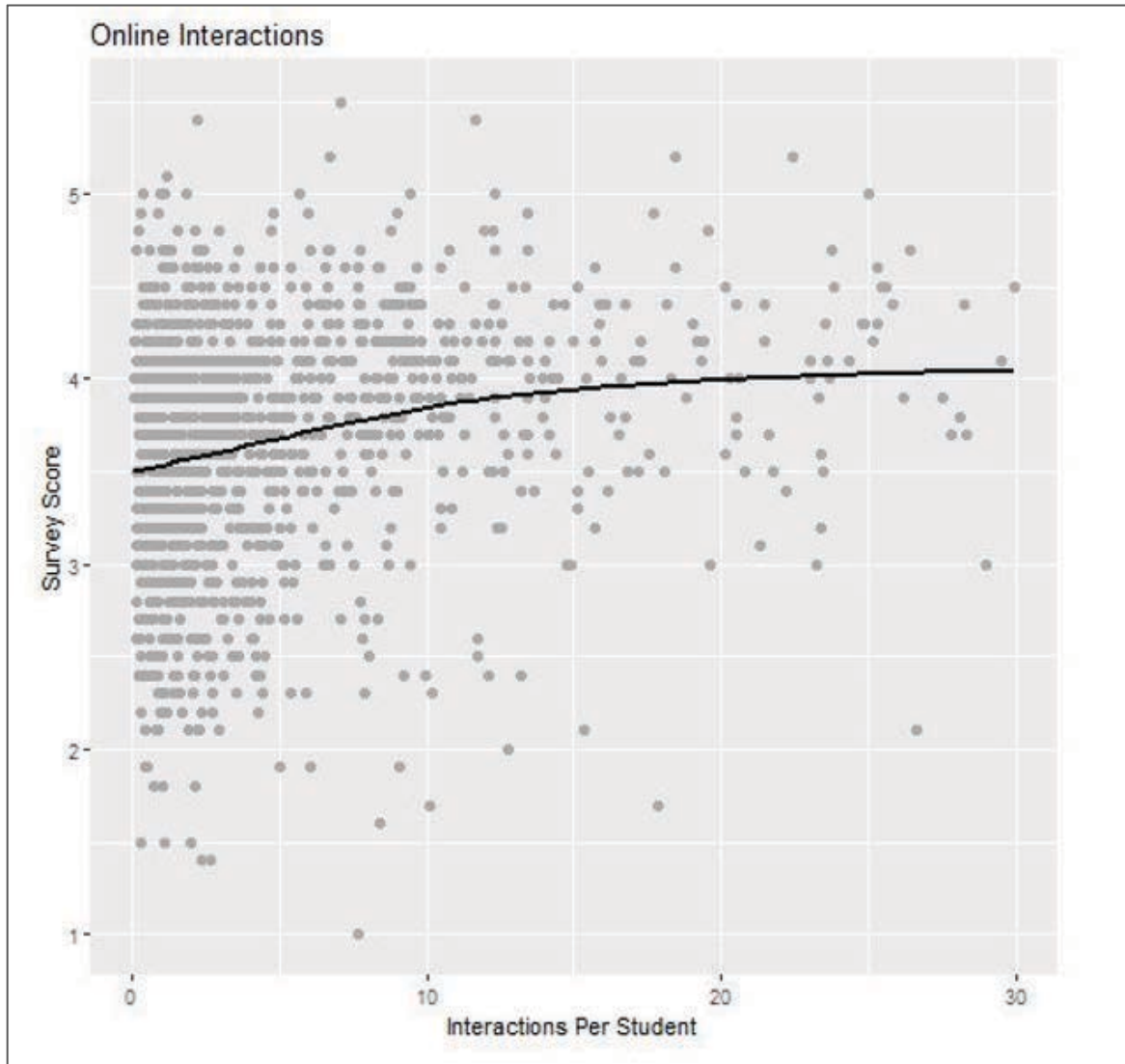
*Figure 1.*

Figure 1 shows the relationship between interactions per student and survey scores for the institution. Each dot represents a single course, with its total interactions per student as the X-axis and the survey score received for that course in a given year as the Y-axis, and a best fit line plotted over all three years.

To determine if the relationship is indeed linear and statistically significant, we used a linear regression model with fixed effects for colleges (controlling for College of Business, College of Education, etc.), with the dependent variable being Survey Scores and the independent being interactions per student.

Table 1 (below) shows the results for the linear regression model using fixed effects for college. Interactions per student are statistically significant at the 99% level, showing that for each additional interaction per student, an instructor can increase their survey scores by .01 points. The R-squared value shows the model explains approximately 25% of the variation in Survey Score with the provided variables for this dataset.

**Table 1**

<i>Dependent variable:</i>	
	Survey Score
Interactions Per Student	0.011*** (0.003)
Observations	1,264
R <sup>2</sup>	0.253
Adjusted R <sup>2</sup>	0.247
Residual Std. Error	0.573 (df = 1253)
Linear regression w/ Fixed Effects for Colleges	

Note: Table 1 shows the statistically significant relationship between survey scores and interactions per student. The relationship is significant at the 99% level.

## Limitations

The main limitation in the model and the results is the overall perception of quality of the course. There is still approximately 75% of the variation in survey scores left unexplained. Other factors affect quality of a course, such as the depth of coursework, difficulty, ease of access to instructors, speed of response to student questions, and teacher-student compatibility. These factors likely fill that missing explanation of survey scores in a course.

In addition, limitations are present in the interaction counting. For this dataset, the only interactions counted were those that took place inside the learning management system. Any interactions occurring between students and teachers outside of the learning management system are unavailable due to privacy concerns and lack of access. For some classes, this is the primary method of preferred communication and denoted as such by the instructor, leading to minimal use of the learning management system for a communication path. Some teachers also indicate that other pathways of communication result in faster response times, warning that a message through the LMS will likely be responded to in delay.

## Findings/recommendations

The presence of a positive linear relationship between interactions per student and perceived quality of a course by a student shows us that increased interaction on its own can



vastly improve student experiences and perception of quality. However, as mentioned above in student comments, too much interaction may have a reverse effect on the student experience. Interaction should be increased but in a meaningful way. Comments and messages that make a student feel respected, provide constructive criticism, and give credit where credit is due are the most effective path to improving student experience and perception of quality. This provides the student with a sense of belongingness. The most improvement for course evaluations will most likely be seen in those courses which the instructor makes a noticeable attempt to include and promote the students under their supervision. Those who simply increase their interactions in a course by providing non-meaningful, passive feedback will more than likely decrease their evaluation of perceived quality by students.

The action items, in this case, are not solely the courses with few interactions, but the courses with few interactions and low survey scores. These are the areas where the students are unhappy with their experience or the quality of the course. These courses are where the interaction should increase, and will thereby improve student experience as is shown above in Table 1. It is extremely important to conduct a careful examination of each college and/or course with these findings to ensure proper recommendations. If not done properly, as stated above, there could be a hindrance to the instructor's performance scores by providing increased and unnecessary interaction.

## Conclusion

One technological challenge would be to create an environment or space for instructor-learner interaction (Kolb, 2000). Activities creating interaction opportunities in an online course are part of course design, whereas the daily interaction would be part of delivery standards (Hunter, 2017).

One example for delivery standards of an online course would include meeting the Carnegie Credit Hour definition (ed.gov, 2009) Professors are provided details for a traditional face to face class regarding the credit hour, days and times of the class, and the classroom location. In an online class, the amount of time spent by the professor to meet the Carnegie Credit Hour should remain the same; however the set days and times the class run are not as clear nor concrete as a face-to-face class. The format or outline of course content, if the class is running on a Monday/Wednesday/Friday or Tuesday/Thursday schedule, is often overlooked in the development and delivery phase of an online course. This schedule does not enforce an online course being set up with a Monday/Wednesday/Friday format a student must adhere to, rather time is a guide for professors to indicate how often instructor presence

or instructor interactions should take place in an online course based on the number of credit hours.

A second factor relating to online delivery is the posted office hours. Online students should be able to meet with professors using some method (asynchronously or synchronously) which adds to the interactions between the instructor and the learner. Administrators and faculty, using the findings and recommendation from this study can increase the quality of online courses providing students a sense of belonging (Baumeister, 1995) in an online learning environment.

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# Assessing Community-Engaged Learning Impacts using Ripple Effects Mapping

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## Abstract

*Communicating Sustainability*, an upper-level undergraduate service-learning live broadcast course, was created at Utah State University to help students gain critical skills in communicating and participating in local sustainability efforts. Community-engaged learning was a key component applied in gaining and using these skills. This study sought to capture the impacts of this course on both its students and the community partners who worked with those students using Ripple Effects Mapping. Key findings include: powerful impacts on student learning, growth, and ability to engage in local movements, as well as clearly defined benefits for community partners. Included in this study are implications on how to apply Ripple Effects Mapping (REM) to measure impacts in other service-learning or project-based courses.

## Introduction

World resource depletion has resulted in an increased conservation focus of many local, regional, and national movements. In 2017, for example, the United States (U.S.) received 18% of its power from renewable resources, an exponential growth from previous years (Morris, 2018). Up to 80 percent of the U.S. could be powered by renewable resources by 2050 (Mai, Sandor, Wiser, Schneider, 2012). Across the nation, hundreds of mayors are leading their cities towards positive actions against climate change (Climate Mayors, 2017). In the conservative state of Utah alone, three cities and one county have signed on to 100 percent renewable energy resolutions, and two cities have enacted plastic bag bans. Over 240 U.S. cities, counties and two states have enacted plastic bag bans, and Seattle has also banned single-use plastic cutlery and straws (Winslow, 2018). Organizations, institutions, and programs have emerged across the nation focusing on ‘regeneration,’ ‘sustainability,’ ‘permaculture’ and more, providing

hopeful solutions to our current destructive and extractive lifestyles. How can higher education teach students sustainability in a way that prepares them to successfully act on and further these and other environmental efforts? And, is it possible to do so in a manner that also provides them with needed skills and knowledge for the future?

With these questions in mind, *Communicating Sustainability*, an upper-level undergraduate service-learning live broadcast course was created at Utah State University (USU). Key in the development of this course was the belief that students could learn critical skills in communicating and participating in sustainability efforts and could apply those skills during the course to effect change. To this end, service-learning became a key component and learning tool used in the class. Students overview fundamental concepts of sustainability, learn key marketing techniques effective in changing behavior, and either work individually if enrolled alone at a broadcast site, or are placed into small groups (two to four) in which they work with a community partner to enact environmental behavior change at the organizational level. Partners range from small non-profits to large, internationally reaching, for-profit corporations. Through this class, students should become more capable of carrying out the kind of change needed to create a more sustainable future.

The course has now been taught via live broadcast every spring since 2014. With six years of students and projects, it was time to find out what impacts the service-learning model was resulting in. To that end, we used Ripple Effects Mapping (REM) to measure the impacts of participating in this course/project on students and community partners. We held three sessions over the fall of 2018, all of them implementing the REM method described in more detail below. Two of the sessions involved students, one with past students (from 2014-2018) and one with students (then) currently taking the course (fall 2018). The final session included community partners (participation in one or more years between 2014 and 2018). The REM model applied to measure the impact of our course is the focus of this article, and should prove very helpful for others teaching service-learning courses and looking to evaluate the impact of this type of approach.

## Communicating Sustainability

Communicating Sustainability is a certified community-engaged learning course through USU. The course goal is to “enact environmental behavior change through application of successful education and communication strategies,” and this goal is operationalized by six objectives:

1. Identify definitions, common misconceptions, and key principles of sustainability.

2. Think critically about sustainable living, including why people do and do not engage in sustainable behaviors.
3. Explain models or theoretical frameworks that can be used for analyzing the questions: “Why do people act the way they do?” “What are the barriers to environmental behavior?” “How can we motivate people to act environmentally?”
4. Use theoretical frameworks and marketing techniques to design comprehensive communication strategies to change behavior.
5. Identify and apply effective facilitation, conflict management, messaging, and negotiation strategies.
6. Consult with a community partner to develop and implement a comprehensive sustainability plan.

In lieu of exams and essays, student grades consist of in-class discussion and a weekly group meeting (10%), online discussions and timed reading check quizzes (20%), a class introduction presentation about the community partner they will work with (5%), at least three community partner meetings with notes and a reflection video submitted (15%), a first draft of a community-engaged learning report (15%), a newspaper article submission about what they are working on (5%), a final presentation to their community partner (15%), and a complete graphically appealing community-engaged learning report presented to the instructor and community partner (15%). Foundational to the class is a Community-Based Social Marketing framework, where students learn how to identify an issue, select a target behavior, conduct a barrier-benefit analysis, and then apply various marketing techniques including prompts, incentives, norms, convenience, commitment, and communication to enact environmental change at the organizational level. Most of the work occurs in small groups, with the exception of students enrolled alone at a broadcast site, or those wishing to work on their own project with instructor approval on a case-by-case basis. Final grades are based on their comprehension and application of the techniques with their partner, not in physical changes resulting from their work as these can often take longer than the course of one semester to be implemented (McKenzie-Mohr, 2011; Thomson & Brain, 2017). Aside from exceptions with instructor approval, the course instructor links groups with community partners. Partners over time have represented pet shelters, restaurants, ski resorts, grocery stores, schools, city officials, technology companies, on-campus programs and businesses, and more. Projects with these groups have focused on recycling, water conservation, anti-idling campaigns, plastic bag reduction, share the road campaigns, Earth day activities, among other sustainability topics.



## Student Benefits of Service-Learning

Service-learning has existed in one form or another since the beginning of the twentieth century, but the pedagogy of this approach was popularized in the 1970s and early '80s via cognitive psychologists (Morton, 1995; Kraft, 1996). The form of service-learning used in *Communicating Sustainability* is community-engaged learning. The National Commission on service-learning defines community-engaged learning as, "... a teaching and learning approach that integrates community service with academic study to enrich learning, teach civic responsibility, and strengthen communities" (NCSL, 2002, p. 3). With this definition in mind, community-engaged learning matched the model sought in *Communicating Sustainability*. Service-learning, properly implemented, is documented to have strong impacts on student academics, heightened civic engagement, higher multicultural awareness, development of career skills and more (Astin, Vogelgesang, Ikeda, & Yee, 2000; Schalge, Pajunen, & Brotherton, 2018; Warren, 2012). All of these skills are important for those seeking to play an active role in enacting positive environmental change.

## Community Partner Experiences

Although evidence of the benefits to students in service-learning abound, the benefits to community partners vary in the literature, and frequently positive experiences occur alongside negative ones (Stoecker, Tryon, & Hilgendorf, 2009). As several authors have indicated, these results may often stem from a lax implementation of service-learning (Stoecker et al., 2009). Without a concise plan of what the service-learning should look like and a dedicated application of the approach, unintended consequences are likely. For this reason, the responsibility of creating student groups, choosing community partners, and outlining project expectations must be carefully planned by the instructor. As Eby (1998) discovered, "...if done poorly service-learning can teach inadequate conceptions of need and service, it can divert resources of service agencies and can do real harm in communities" (p. 8). As a result, however strong the impacts are with students, it is critical to ensure that community partners are also receiving beneficial impacts. With these imperatives in mind, we had three main goals in conducting our research:

1. Discover what specific benefits or effects community partners were experiencing through *Communicating Sustainability* service-learning projects.
2. Confirm that published benefits to students were achieved for this course.
3. Determine any ripple effects stemming from class projects for both students and community partners and if these ripples conform with the stated goal and objectives of the course.

## Ripple Effects Mapping

Ripple Effects Mapping uses a participatory process of Appreciative Inquiry (defined below) and collective mind mapping to discover, analyze and visually map program impacts (Emery, Higgins, Chazdon, & Hansen, 2015). This method for evaluating impacts has seen increasing use by Land-Grant University Extension programs based at the community-level. Some of the benefits of using this method include: it's simple and relatively inexpensive to implement, it is capable of capturing both intended and unintended consequences, it produces a visual map which is helpful for reporting and it creates positive energy towards continued action (Kollock, Flage, Chazdon, Paine,& Higgins, 2012).

While variations of REM exist, all of them contain a few key features (Hansen, Higgins, & Sero, 2018). These include: Appreciative Inquiry, a participatory approach, and radiant thinking (mind mapping). After an introduction of facilitators and participants, every session of REM continues with Appreciative Inquiry, which fosters a positive way of thinking about the world (Hammond, 2013). The reasoning behind using this positive tone is explained well by Hansen and others (2018), “Appreciative Inquiry works because we know that people move in the direction of the stories they tell about themselves. You will make better progress by focusing on what is working well and then look for ways to apply those lessons to efforts that may be stalled or not having the impact you anticipated would occur” (p. 5).

After Appreciative Inquiry interviews in groups of two or three, the entire group moves into radiant thinking or mind mapping. There are several ways that REM variants achieve this, with some writing the mind map onto a large piece of butcher paper or board, others projecting mind mapping software, and others applying both methods at once (Emery et al., 2015). All of the methods require that participants drive the discussion. A moderator will guide the conversation, but only to keep participants on topic, ask for clarification, and offer probing questions to flesh out details. The moderator may also mind-map the discussion in real-time, though many use another person or two to do that job. As participants engage and reflect on their experiences, they quite often feel more connected to the topic and ready to further collaborative discussion (Vitcenda, 2014). Finally, as participants reflect over the mind map that their discussion created, additional stories or details may emerge. Participants leave this process energized towards further action, and REM coordinators leave with a wealth of stories and impacts, which then can be coded for further analysis and reported to stakeholders. The analysis process for Ripple Effects Mapping is flexible depending on researcher needs. Some projects have included a qualitative data coding process to identify emergent themes, others identify emerging themes and compare to existing frameworks, while others simply enter the created mind maps into a mapping software and then display them in a way to best emphasize their success (Emery et al., 2015). We used qualitative data analysis methods (inductive analysis)

to identify themes (Braun & Clarke, 2006) and then cross-compared the themes with Community Capitals Framework (CCF). Community Capitals Framework was developed as a tool for community planning, measurement, and development. It has become one of the primary research approaches in community analysis and is often used in connection with REM (Emery & Flora, 2006).

The REM framework seemed well suited to our service-learning impact measurement goals. While REM has been used for a myriad of program evaluations, many of them focused on community Extension programs (Olfert et al., 2018). To our knowledge, our efforts represent the first implementation of REM to evaluate impacts from a community-engaged learning course. As an additional goal of this project, we sought to verify REM as a viable method of impact assessment for community-engaged learning.

## Study Design

The design for this study included: outlining the questions, goals, and structure of the REM sessions through suggestions in the *Advanced facilitator guide for in-depth ripple effects mapping* by Hansen, Sero, and Higgins (2018), obtaining approval from USU's Internal Review Board, organizing and contacting potential attendees, preparing and running REM sessions, and analyzing the resulting recordings and mind maps using inductive analysis (Braun & Clarke, 2006). Our questions were influenced by typical REM procedure, beginning with Appreciative Inquiry (Hansen et al., 2018). As such, questions were generally positively worded and aimed at reflection. Our questions and methods were reviewed and approved by Utah State University's Internal Review Board before the REM sessions were held, and examples of these questions can be seen below.

- What was your most satisfying moment working on the project?
- How has your work in Communicating Sustainability changed the way you think or do things?
- What was something unexpected that occurred from participating in this/these project(s)?
- What impact do you feel this project has had on the community? (Utah State University campus, the broader community, or both)

To determine who would attend the REM sessions, we first created a database of previously completed projects in Communicating Sustainability. The database contained basic information about students, their community partners, and projects from spring 2014 through spring 2018. This presented us with 45 different projects, 37 unique community partners, and

108 students. After completing the database, we systematically selected students and partners to contact. If current contact information for community partners was unavailable, or if the primary partner no longer worked with the company, they were excluded from the study. This process led to a total of 23 potential community partners. Many were located in Logan, where USU's main campus is situated and most students attend the class, but a handful were from regional sites around the state. We attempted a variety of methods to contact these including personal contact, calling and email. Of those contacted, three more indicated or were found to no longer work in the same position, or contact information was incorrect. Initially, we had ten respond to a doodle poll confirming their possible attendance. Of these, six made it to the actual REM session. Many of these partners had worked with several different groups, representing ten projects between them. The community partners attending represented both on-campus businesses and off-campus organizations located in or near Logan, Utah. Students participating in the session were also selected through a similar process. After eliminating those that no longer lived within an hour's drive of USU's Logan campus, where the sessions would be held, and those that we lacked contact information for, we reached out to a total of 22 potential previous students. Several did not respond to contact attempts and several more indicated they would not be able to make the dates selected. Nine students attended that REM session. Students from this group worked with on-campus businesses and organizations as well as off-campus for-profit businesses. We also held an abbreviated REM session for current students during one of their final classes of the semester, with 17 of 19 students enrolled attending. All sessions followed the Ripple Effects Mapping process that has already been described, with a main facilitator, an assistant mapping ideas on a large whiteboard, and another assistant documenting key quotes stated in the audio-recorded session.

## Analysis

Our analysis involved transcription, coding, and comparison with the Community Capitals Framework. All three mind maps were entered into Xmind mapping software (Xmind 8, 2017), organized for clarity, and had key quotes added. Transcriptions were manually typed verbatim, and names were changed to protect identity as was required by the IRB protocol. Transcriptions were checked by two researchers on the project for precision. Following entering and editing the maps in Xmind and transcribing the sessions verbatim, we coded the transcriptions using inductive analysis and then grouped major themes and corresponding quotes into capitals from CCF (See Table 1 for the Seven CCF capitals). From these groups, with comparison to our session mind maps, we narrowed the major themes that guided our results.

**Table 1:** *The Seven Community Capitals in Community Capitals Framework*

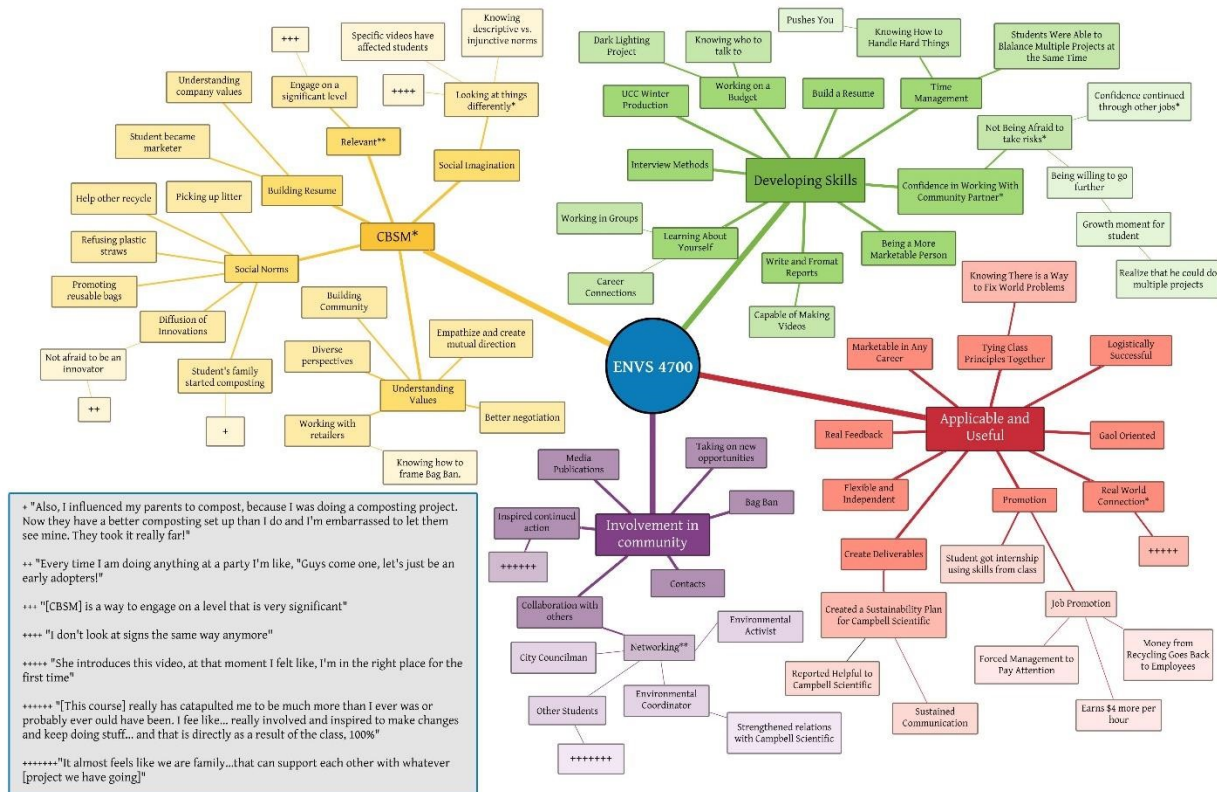
The Seven Community Capitals						
Natural	Cultural	Human	Social	Political	Financial	Built
Includes a community's environment, rivers, lakes, forests, wildlife, soil, weather, and natural beauty.	This includes the diversity, traditions, and beliefs of the community.	This includes the skills and abilities of the residents as well as their ability to work in community projects.	This reflects the connections among people and organizations or the social glue that makes things happen.	This is the ability to influence standards, rules, regulations, and enforcement.	This includes the financial resources available to invest in community capacity building.	This is the infrastructure that supports the community. Built capital is often a focus of community development efforts.

## Results

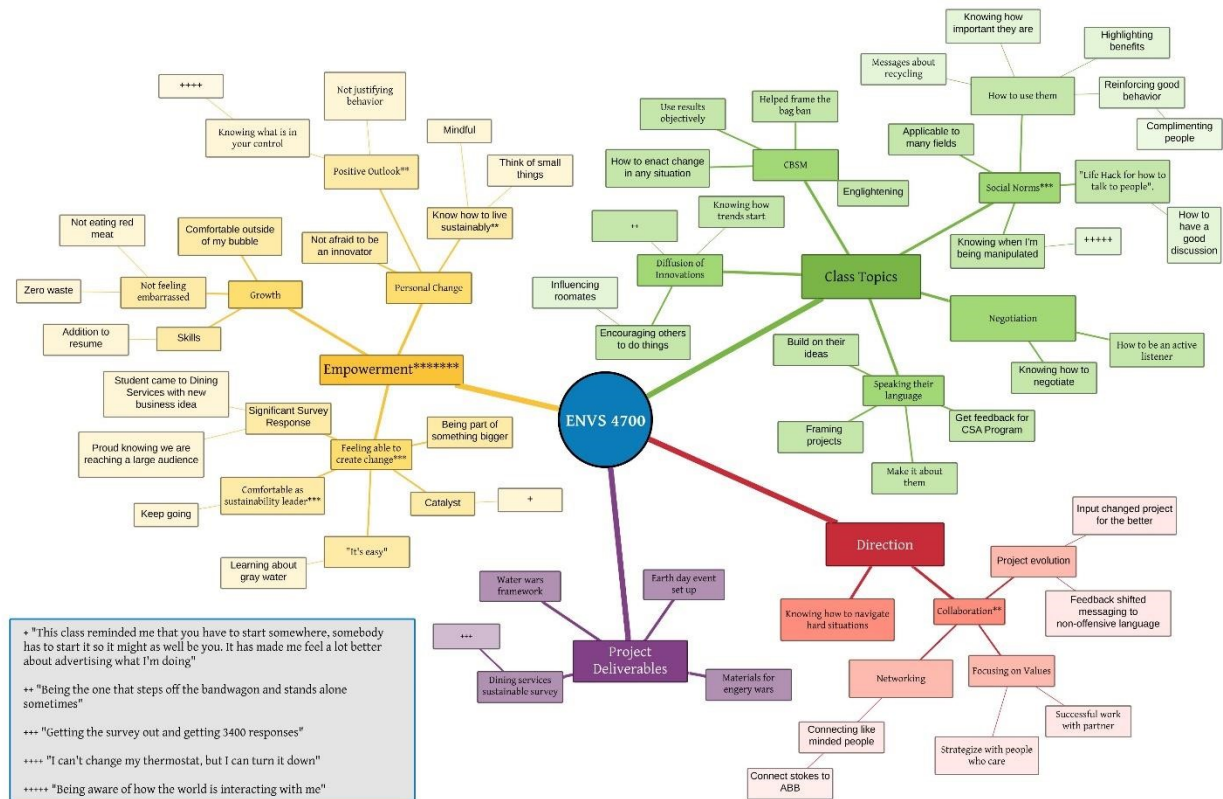
### Student Results

Given the many benefits students have been found to experience with community-engaged learning courses – from increased multicultural awareness to better grades (Novak, Markey, & Allen 2007) – we expected to find students in *Communicating Sustainability* having experienced some of these. In particular, our study was looking for benefits that would increase student ability to enact community sustainability, as well as providing them with “real world” experiences (Warren, 2012). In viewing the student mind maps (Figures 1 and 2) we can immediately see these, and many more benefits are being achieved. Analysis of the student mind maps and session transcriptions led to two main themes, which we will discuss below. These themes were selected from the Community Capitals Framework by analyzing topics discussed in each session and then categorizing them under one of the seven Community Capitals of natural, cultural, human, social, political, financial, and built (see Table 1). From this process, human and social capitals emerged as primary themes.

**Figure 1.** Mind map of course impacts perceived by previous students ( $n = 9$ )





**Figure 2.** Mind map of course impacts perceived by then-current students ( $n = 17$ )

## Growth of Human Capital

The theme that was most prominent in the student REM sessions was the development of human capital. This capital describes the skills, abilities, knowledge, and other capabilities a person may have (Emery & Flora, 2006). Early on during each session, students described how much they had grown from the course. Cynthia, a participant in our previous student session, summarized her feelings this way, "So [the course] not only [helped us in] gaining new skills but really developing and finding skills within yourself that you already had."

Many of the skills and knowledge learned had an immediate use within the projects students were carrying out. As Mary explained, "[What we were taught applied to class] ...and not in a preachy way 'this will be useful one day.' It was, 'This will be useful and go and do it right now.'" Another student, Charles, described how these skills were applicable outside of his education:

Another really helpful thing is that we had to write a lot of reports in that class and we had to make them visually appealing, not only for the class, but for the community partner as well. So right now, I work for a consulting company and I have to write reports for the customers each week. That is a huge part of it and I am really lucky

having already developed [that skill] because my boss just sends me to do my job and I actually know how to write a report. Which, I knew esoterically before, but had never practiced it. So that was actually a really helpful skill.

Another key development related to human capital was confidence, both in their new abilities and applying these outside of class and in their communities. As Jane mentioned, “I feel like that is kind of what this class has instilled in me... that the worst thing that could happen is a person could say no. You just move forward from that...” Others also added their feelings about this, “The course was stressful...but then it went so well, and now I am way more involved with the community than I would have been otherwise because I know can manage in that time and balance that with school work. That was definitely empowering.” Another stated it this way, “[The class]...really has catapulted me to be much more involved in the community. Much more than I ever was or probably ever would have been. I feel ... now I just feel like really involved and inspired to make changes and keep doing stuff... and that is directly as a result of the class, 100 percent.” Students grew more comfortable trying new skills, but also in applying them outside of their education. The ripples of these new skills and abilities is best seen from our previous student map (Figure 1). As seen in multiple areas of Figure 1, students applied course content towards resumes, jobs and other applications. Students claimed job advancements, new positions and help getting into graduate school among other benefits gained from the skills they learned in the course. All of which ripples into various other community capitals.

## Development of Social Capital

The second main theme we found relates to social capital; while not necessarily a goal of the course, it was nevertheless a significant outcome for many students. Social capital refers to the connections that glue together a community (Emery & Flora, 2006). As Kim, a previous student found, “...so just all of those connections really run deep. It almost feels like we are family, so like we said earlier I am not afraid to approach [a past student of *Communicating Sustainability*] and say ‘Hey, do you want to help with this plastic bag ban?’ And so, it really feels like we are just this big family that can support each other with whatever, whether we have met each other or not.” Students found that the connections they made were often significant and that they presented them with more contacts and opportunities. Several previous students have found themselves working with each other on projects in the community and others have found contacts through their projects. Deanna found and received several opportunities through her connections in class. When she needed one of her projects reviewed she sent it to her previous community partner, “...he read through my report right away and gave a lot of really good feedback. Because of the relationship we have, I feel that he took it more seriously than if we didn’t know each other that well. This was helpful in developing the project for the



city.” Connections are being made between many different groups, as will be further explored in the business results. Connections made through the class have led students to have better projects, feel more comfortable with the sustainable lifestyle they wanted and led them to seek additional causes they can support. Notably, some previous students are volunteering their time in working with current students to achieve project goals. This is beneficial both to community partners and students.

## Additional Notable Impacts

One of the benefits of holding separate sessions for previous and current students was that it allowed a view of impacts that are more immediate versus those that tend to come with time. While the themes discussed above apply to both sessions, the stories of the change current students were experiencing were quite powerful. Thus, even in the short term, this course was providing impetus to change and grow. As John, a then current student told,

This class has helped me with impetus to change [be]cause I have had sustainability convictions that I’ve wanted to implement, but I’ve always felt embarrassed to do it. Like when [we were challenged] to give something up to do something sustainable I picked not to eat red meat. I’ve always wanted to stop eating red meat and that was the catalyst to so that I don’t eat red meat anymore... At my house my wife won’t cook red meat anymore, my wife and my kids will still eat red meat like at a restaurant and stuff. But... It’s kind of interesting to be willing to stand up. I was really nervous to tell my mom. We were at my mom’s house and it was later and we were getting ready to go and it was an hour drive home and she asked, “do you want some hot dogs”. I said, sure [my kid] is hungry. She [was] fixing some hot dogs and she asked me, “do you want one” and I [told her], I don’t eat beef anymore. She said, “you don’t?” (Laughing) I mentioned, ‘no, it’s just something that I wanted to do’ and she was okay....

From the impacts on student human and social capitals, we saw further ripples into other capitals by past and current students, including financial, cultural, and natural capitals. To give a few examples: some students gained jobs and higher positions which affects their financial capital.

Kim, from our previous students’ session shared her experience,

I felt like I was underlooked, underappreciated, underutilized, underpaid you name it... In turn when I interviewed for this position as a trainer I had to create a presentation and then present it, which heads up, at that point, not even a big deal at all! I could do that in my sleep after compared to what I had just done. I got four dollars more an

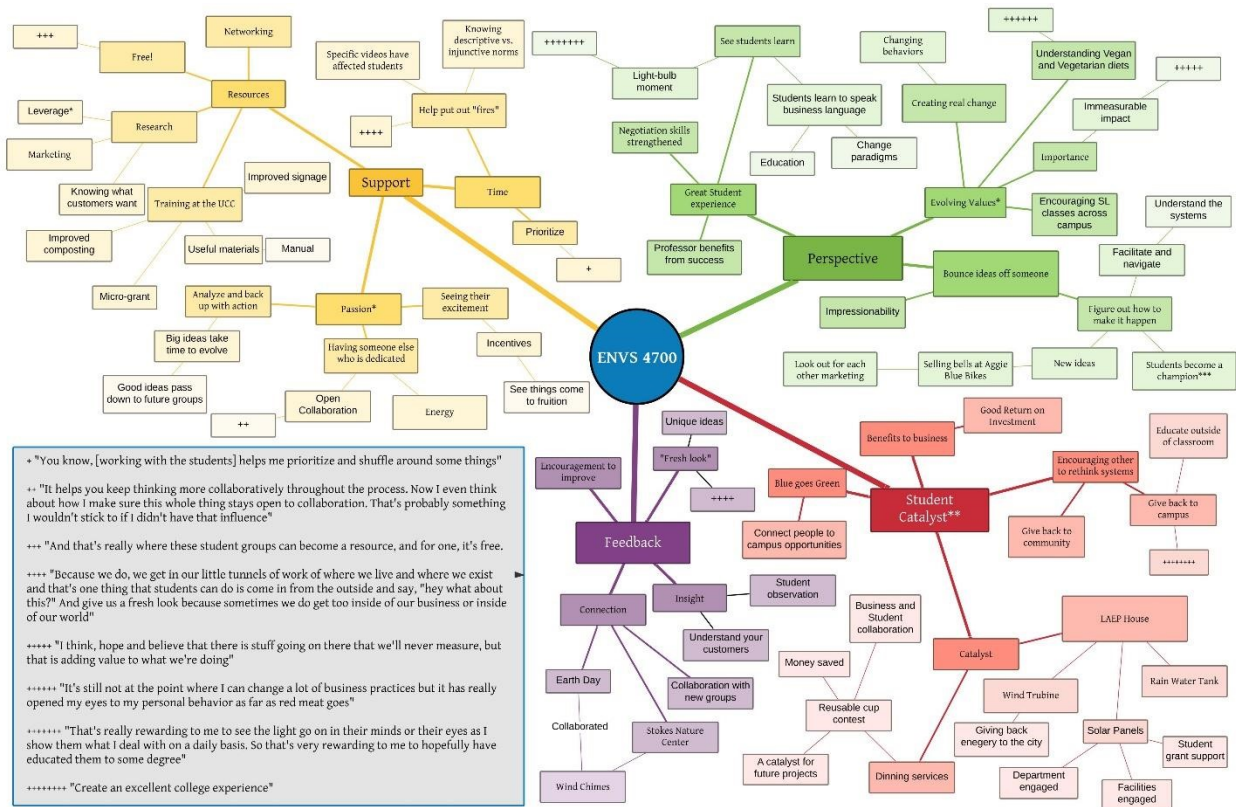
hour, and now I have an office and appreciation. Additionally, the money we generate through the recycling program is given back to the employees every year at Christmas.

This is a great example of how these ripples can spread away from the participants and into the community. Also, many of the students, current and past, have changed their habits to be more sustainable and have introduced this to others leading to changes in the cultural capital and natural capital of the area. While these longer-term ripples are easily found among past students, the beginnings of these ripples were captured in the current student session. One group sent out a survey about sustainable practices for USU Dining Services and received over 3,400 responses, from which Dining Services is implementing top desired changes. Others, as mentioned earlier, have begun to not only embark in more sustainable living practices but to share those practices with others. Many of these ripples were recorded in the Community Partner results below.

## Community Partner Results

The session with our community partners was the most anticipated, due to the disputed nature of benefits for community partners engaged in service-learning projects in general. It was hoped the course would benefit not just the students, but also the community at large through the partners and respective businesses the students work with. The mind map of the community partner session is shown in Figure 3. While not every student project produced significant monetary results for a business, businesses are receiving benefits just by working with students. Our analysis led to two central themes being recognized, financial and cultural capitals.

**Figure 3:** Mind map of course impacts perceived by community partners ( $n = 6$ )



## Students Affecting Business Financial and Social Capital

Regarding financial capital, students are both providing resources and proving to be a resource for community partners. Provided resources came in many different forms. Discussed in the group were grants received, trainings for employees, market research, money saved, and more. Many of these provided financial capital for these businesses through either money saved or gained in a variety of methods. Often this financial capital is just one of the resources students bring. The resources come in other ways, revealed in our session, where students brought “ideas unrestrained.” This allowed for a reinvigoration for working on sustainability issues. “You get bogged down by the day to day survival mode,” reported one partner, “but then [the students] come in with all this energy and excitement, and that’s what I really love.” And another, “That sometimes breathes a breath of fresh air into the whole thing, and you kind of get reinvigorated by that. That’s one of the things that I think is so important...We take time to listen to them and find out what their cool ideas are.” In this fashion, a student’s passion is a type of resource to these partners. As one partner put it, “And that’s really where these student groups can become a resource, and for one, it’s free.” While not strictly monetary, students are helping businesses improve their financial capital.

An additional resource brought to businesses is the social connections related to these projects that build bridging links in the community. Collaboration frequently can make a project have much greater success. One such project revolved around upcycling unrecyclable bicycle parts to be wind chimes. At first, the community partner was unsure anyone would enjoy these new products. The students provided a connection to several other groups through which they found,

“...people loved those wind chimes! And we ran through them, and people couldn’t believe that we were giving it to them for free.” This type of success can be seen through collaboration, which is often facilitated by the students. In this example, the students partnered with a different nonprofit to make the wind chimes, strengthening a connection between two community organizations. As one other partner mentioned, “It helps you keep thinking more collaboratively throughout the process. Now, I even think about how I make sure this whole thing stays open to collaboration. That’s probably something I wouldn’t stick to if I didn’t have that influence.”

## **Cultural Capital and Long-term Impacts**

The financial and social capital brought to the businesses through these projects were the shortest-term ripples that we identified. With the possible exception of the collaborations, most projects lasted for the duration of one semester, and that is not a long time to make lasting impacts. There have been a few exceptions where students have continued with the projects after the semester, but as one partner mentioned, “And then that really is the challenge, to [find] somebody that can give continuity to whatever [the project is].” This reality makes long term impacts from a project difficult to produce. The business owners in our session struggled to find someone to keep projects moving once students leave. Acknowledging this downfall of design, which can be addressed by assigning future student groups to continue or grow past projects while still being open to new partnerships, students are still leaving long term impacts on businesses, particularly in cultural capital.

Analyzing the mind map, we found that one of the major advantages working with students identified was a change in perspective. As one business partner put it, “I think from working with the student groups on the Share the Road and the Road Respect thing, it made me think more deeply about how I behave as a cyclist and setting a good example for other cyclists... I don’t think I would have ever come around to the bells if it wasn’t for the student groups.” In that case, not only were her personal habits affected, but she was able to change business tactics as well and start selling bike bells. Another, who works in the food industry, had a similar experience:

I'm a Utah boy born and bred, but it's been very eye-opening and educational for me to meet with people about vegetarian and flexitarian diets. I never really understood the environmental impact of the meat industry. It's still not at the point where I can change a lot of business practices, but it has really opened my eyes to my personal behavior as far as red meat goes. It's amazing because you'd think that I'd know that, but when someone comes in, [it] brings that a little closer to home as opposed to something that people are doing in Princeton or UC Santa Barbara, it's like another universe for us.

This change in perspective ripples outward to affect the culture surrounding these individuals. This isn't limited to just those lead partners student's work with. As this partner described, it goes further than that. "I employ 300ish employees, many are students. Maybe something we're doing from a sustainability perspective might impact them. I wonder how much is out there... that is not measurable... I think, hope and believe that there is stuff going on there that we'll never measure, but that is adding value to what we're doing."

## **It's Not All About the Business**

Not every community-engaged project is going to experience high success as student motivations, and partner dynamics vary greatly. Regardless, our community partners showed that the intended results are not always the most important. As Sandy and Holland (2006) found, many community partners were more interested in the learning the students would receive during the project than the outcomes of the project itself. As one of their researched community partners put it, "We are co-educators. That is not our organization's bottom line, but that's what we do" (p. 34). Reminiscent of that sentiment, community partners in our study enjoyed working with the students, enjoyed the feedback, the flow of ideas and perspectives and even teaching students what it means to be in their profession. In discussing the role of students, one partner put it this way, "My piece represents outside the classroom. So, anything that I can do to support inside the classroom and educate outside the classroom are all big pieces...That's really rewarding to me to see the light go on in their minds or their eyes as I show them what I deal with on a daily basis. So that's very rewarding to hopefully have educated them to some degree." Community partners are glad to be a part of the education students receive and have a desire to teach them.

Our partners primarily experienced financial, social, and cultural capital benefits, but the additional benefits as well outlined above. Though not principle themes, partners implemented physical features such as composters and water tanks through these projects. While the impacts of this study are not generalizable to other service-learning courses, the results did prove that

our partnerships have been valuable in providing benefits to both students and community partners.

## Discussion

One of the central goals of this project was to determine if students were receiving the benefits that are claimed for in service-learning literature. The results from the Ripple Effects Mapping sessions reaffirm the positive results of other studies conducted related to service-learning.

Students saw benefits to their learning, positive gains in employment, increased skill and abilities, better communication, connections, and networks. All of these are supported in the literature (Warren, 2012). We also saw an increase in social responsibility and activity. Additionally, students claimed to have taken more enjoyment out of this course than others, due in part to many of these benefits. These are the benefits that drive the popularity of service-learning and provide ample reason to continue its use.

While we had some inkling coming into this study what the results would be for the students, we had less of an idea where community partners would stand. What can be found in literature points to both positive and negative results, influenced largely by the type of relationship created through the projects (Morton, 1995; Sandy & Holland, 2006). What the REM session revealed was that semester-long projects produce select long-term results. That aside, we unexpectedly discovered that some projects are not ending at the end of a semester. As mentioned earlier, there are a few cases of students remaining and working with a project longer term, but increasingly more common are larger projects that are passed on for future students to continue. As one partner mentioned, “I think that the work you put in now is like you were saying, they’re baby steps, but it’s all on the way to bigger things as long as you keep working with students... Maybe they [the students] think it’s a failure, but it’s not. They’re just baby steps.” These continued projects, according to our participants, show potential for better, longer-lasting results and are a model the course instructor is furthering. Several of our partners have continued projects, which have benefitted from continued help from successive groups of students. In combination with the results found in the student sessions, we can see that while each project may only be a baby step for the community partner, students and partners alike are gaining from this process. Most importantly, with each step, there are additional unseen ripples expanding outward into the community.

Throughout this process, REM has proven itself to be useful in capturing impacts from student projects. In particular, capturing the stories and changes that have occurred in the personal lives of students and partners proved both useful and powerful. Through REM, we



were able to confirm first-hand the power that Appreciative Inquiry has in propelling participants towards further action. Immediately following the past student session, those same participants started planning a clothing swap, which they saw as a solution to waste in student housing. We even heard from the current student session, which took place after the community partner session, regarding how their partner was further encouraged to work with them and had a few new ideas to try out. Although the results we have published are focused on the positives that we collected, we were also able to collect ideas on how the course could be further improved, which should help create larger impacts for those participating in the future. This includes suggestions by community partners of a one-page outline of the student projects and expectations for the partnership over the course of the semester, among others.

## Conclusion

Our research sought to identify the benefits received by both students and community partners who have participated in *Communicating Sustainability* at USU through Ripple Effects Mapping. Largely, what we discovered matches current research into the benefits of service-learning. While

Ripple Effects Mapping did not uncover many hidden benefits of service-learning, it did prove very useful in measuring these impacts in a mind-mapping display with associated participant quotes. Through this process, we have discovered that *Communicating Sustainability* is indeed having the impacts desired. We were able to demonstrate to the University's Center for Civic Engagement and Service-Learning, upper administration, and other educators that this course is making lasting and valuable impacts, for the students and for the community. Students are leaving this course better prepared to enact positive environmental change.

Also, while not reported here, we received feedback through the process to continue improving the course. This important fact should not be overlooked, as seen in the literature, service-learning mismanaged may not provide the benefits desired (Morton, 1995; Schalge et al., 2018). It should be our duty as educators to consistently monitor the impacts we have so as to better prepare those we teach. Due to small sample sizes, our results are not generalizable; rather, we encourage other programs to trial REM as an economical and effective method to ensure that their programs are also achieving their desired results. The following summarizes the REM model for measuring the impact of a service-learning class:

- Build a database of potential participants
- Design the session goal, objectives, and major guiding questions
- Submit for Institutional Review Board approval

- Contact participants with a request to attend and possible dates, stating clearly the intention, time commitment, and incentives (such as free dinner and beverages) to attending, and begin scheduling sessions
- Conduct sessions, record important quotes, have a facilitator map themes in real-time on a large display board, audio record the sessions
- Transcribe the sessions
- Enter/clean and organize mind map in software
- Analyze results through coding or other analysis
- Report your findings back to stakeholders and administrators.



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# Reflective Practice: The Impact of Self-Identified Learning Gaps on Professional Development

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## Abstract

The ebb and flow of education creates unique challenges within educational programming. Universities are charged with the directive to offer more diverse field experiences within their course requirements. As a result of the directive, not every topic nor instructional scenario can be addressed in the program coursework, challenging the programs to bridge the pedagogical learning gaps of their candidates. The purpose of the professional development (PD) being studied was to connect pedagogical methods to candidates' own learning by providing self-selected PD with instructional tools that candidates could directly put into practice. The self-selected PD based on self-reflection of knowledge had the potential to promote meaningful, purposeful, and valued PD.

## 1. Introduction

As education ebbs and flows and the focus of instruction shifts to student-centered, active engagement, teacher education programs are charged with the directive to provide more diverse field experiences to help pre-service teachers think more deeply, connecting their content and pedagogy to their context for learning (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009; Coffey, 2010; National Council for the Accreditation of Teacher Education, 2010; Zeichner, 2010). The world of education is continuing to re-invent itself; therefore teacher education programs must stay forward-focused because those changes impact teacher preparation. The goal of increasing the number of diverse field experiences was to strengthen pre-service teachers' understanding of their learners in an ever-changing system, but they also need to be metacognitively aware of their own learning.

In this article, the term "field" is defined as the location that pre-service teachers work collaboratively with a classroom mentor teacher (CMT) to develop and implement lessons and

fulfill professional internships. Due to the directive to increase diverse field experiences, the onus is on the pre-service teachers to be reflective and cognizant of their instructional learning gaps, because every topic or instructional scenario cannot be addressed in program coursework. Therefore, teacher educators must determine how to bridge the pedagogical learning gaps of their pre-service teachers due to the increased time in the field--not an impossible task but challenging.

Due to the directive, field experiences were created at Parkway State (university pseudonym) from freshman through senior year. Parkway State is a Midwest University graduating over 400 pre-service teachers each year. They observe and actively engage in diverse contexts for learning, including but not limited to urban, rural, and suburban settings. Pre-service teachers may tutor one-on-one or in small groups, volunteer at instructional camps across the content areas or work in community centers (senior living facilities, juvenile residential centers or detention centers, churches, special needs facilities). In addition, they have opportunities to observe and co-teach in a variety of grade levels in different school settings.

At the end of pre-service teachers' third year in the education program, they are expected to draw from their content knowledge for a state-mandated content knowledge assessment, and then by their fourth year, they are supported as they actively engage students through careful planning and instruction, using data they glean from their day-to-day practice to inform future instruction. Pre-service teachers are encouraged to critically reflect on their own instruction and experiences to assess learning gaps that guide their next steps as a professional. Pre-service teachers are expected to be reflective about their teaching practice and knowledge (Greene, Sandoval, & Braten, 2016; Hofer, 2016).

Teacher educators at Parkway State also engage in reflection as they examine educational programs and student learning. Continually programs are modified and restructured to meet the needs of students and the ever-changing world of education. According to research, traditional views of effective teachers must be transformed (Darling-Hammond, 2006, 2009; Mockler & Sachs, 2011; Shostak, 2011), as well as teacher programming. Teacher educators at Parkway State took this seriously. With careful analysis of courses and student learning, faculty designed professional development that existed outside of coursework, providing the opportunity to bridge some of the pre-service teachers' self-identified learning gaps.

Senior year plays a crucial role in pre-service teachers' professional thinking and may also play a role in programmatic decisions when teacher educators listen to the learning needs of students. In this study, pre-service teachers applied reflective practice (Shön, 1983, 1987, 1991) and identified their learning needs including several instructional issues including but not limited to: classroom management, Individual Education Plans (IEP), individualized accommodations, behavior management, and various other miscellaneous challenges.

Professional development was implemented that reflected the pre-service teachers' self-identified needs. The purpose of this study was to connect pedagogical methods to pre-service teachers' learning by providing self-selected professional development with instructional tools that candidates could directly put into practice.

## 2. Review of Literature

Schön's (1983, 1987, 1991) groundbreaking work on professional reflective practice paved the way to address critical reflection in teacher education (Many & Many, 2014; Hofer 2017). According to research, an examination of beliefs that emerged from critical reflection promoted the development of more flexible and intentional approaches to effective teaching and learning (Korthagen, 2017; Schoffner, 2009; Sockman & Sharma, 2008;). Critical reflection occurs when learners construct their own narratives based on learning experiences and professional practice (Greene, Sandoval, & Braten, 2016; Hoffer, 2016). These reflections can take place individually or collaboratively and may take place during or after instruction. Reflection occurring during instruction is reflection-in-action, and reflection that takes place after instruction is reflection-on-action (Kovas & Corrie, 2017; Moore & Whitefield, 2008). Reflective dialogue that promotes intellectual and peer support, and connects classroom experiences with the real world generally takes place after instruction (Gut, Wan, Beam, and Burgess; 2016; Many & Many, 2014) and pulls colleagues and peers together to think critically about instruction.

Self-reflection and evaluation integrate teacher knowledge and skills that encourage change in teacher practice (Donovan, Bransford, & Pelligrino, 1999; Greene, Sandoval, & Braten, 2016; Hoffer, 2016; Timperley et al., 2007). Through professional inquiry of student needs, implementation of strategies, and the value of the professional development (Black & Wiliam, 1998; Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004), pre-service teachers have an opportunity to process new learning (Jang, Reeve, Halusic, 2016; Kusurkar, Ten Cate, Vox, Westers, & Croiset, 2013; Vansteenkiste, Simons, Simons, Lens, Soenens, & Matos, 2005) and have autonomy in their learning. Autonomy, in this context, refers to the pre-service teachers participating in the decisions about their learning (Smith, 2008).

By analyzing the valued student outcomes and how they are fostered by teacher behaviors (Black & Wiliam, 1998; Van der Sijde, 1989), the content and effectiveness of professional development can be evaluated meaningfully and purposefully (Brophy, 1999; Timperley, Wilson, Barrar, & Fung, 2007). According to Weaver (2015), we must engage students if they are to be successful and motivated learners. By providing teachers with targeted, professional development, opportunities for more complex thought can take place, and the professional

development can change teacher practice (Patterson et al., 2018). Pre-service teachers can then evaluate the session's effectiveness, reflecting on their own learning and practice (Korthagen, 2017; Timperley et al., 2007).

### 3. Theory

This study was grounded in the work of Shön, Dewey, and Piaget. Using reflective practice (Shön, 1983), teachers must reflect on their own interpretations and construct personal understandings of what it means to be a teacher (Sellers, 2012). According to Dewey's (1938) experiential learning theory learning ensues through experience, and those experiences reconstruct one's knowledge when the prior knowledge fuses with new knowledge (Dewey, 1934). Piaget (1954) examined Dewey's theory of reconstruction further by breaking it down into assimilation or accommodation. When a learner consciously reflects on experiences, the new learning either fits into existing schema through assimilation or the existing schema is reshaped through accommodation which takes place when the new knowledge does not fit into the existing schema. Throughout the four-year educational program, pre-service teachers are having to fuse their experiences together, reconstructing their knowledge, and their knowledge and experiences shape their encounters with texts and new happenings.

By examining pre-service teachers' histories, learning experiences, attitudes, and values, teacher educators can align them with curriculum and programming. The researchers created professional development that was thoughtful, investigative, and evaluative by responding to pre-service teachers' self-identified learning gaps when developing programming. The professional development has the potential to promote reflective practice and have the greatest impact on instructional quality and student achievement (Donovan, Bransford, & Pelligrino, 1999; Timperley et al., 2007). Through a process of pre-service teachers' reflection and teacher educators' responses, professional development sessions were created that brought continuity and a stronger program that promoted growth and a restructuring of pre-service teachers' belief systems around teaching.

### 4. Methods

Though more is known about the potential benefits of professional development (PD) for practicing teachers, little research has examined the effectiveness of professional development that is requested and self-identified by pre-service teachers. The PD went beyond the confines of mandatory classroom attendance and was requested by the integrated language arts and social studies pre-service candidates at the end of their methods semester. Faculty offered

sessions in the afternoons after regular school hours to encourage attendance, but attendance was voluntary. The objective of this study was to examine the value pre-service teachers' put on the professional development and its impact on instruction. It was important for pre-service teachers to reflect on their prior knowledge about the teaching profession, what knowledge and skills they perceived as integral to teaching, and what learning or instructional gaps they perceived themselves as possessing.

Researchers gave 40 pre-service teachers who were going to be teaching grades 7-12 language arts and/or social studies a simple survey at the end of their methods semester that asked, "What else do you want to know before going into the teaching field?" To formulate the professional development for the following semester, the researchers tallied the responses, analyzing the data for the four most popular teacher candidates identified as learning gaps: English Speakers of Other Languages, Universal Design for Learning, Special Education Law (specifically, how they can advocate for students with special needs), and Classroom Management (specifically, when teaching students with emotional and behavioral disturbances). These four topics were based on democratic consensus upon the principles of reflective practice (Shön, 1983, 1987, 1991).

During pre-service teachers' internship semester, teacher candidates across the content areas (math, science, language arts, and social studies) were invited to attend the four professional development sessions. The pre-service teachers' attendance was voluntary. After each session, candidates who attended the sessions were given a survey measuring the value, relevancy, and usefulness of the strategies given during the sessions. Then the candidates were encouraged to apply the concepts of each session into their instruction in the following two weeks. The language arts and social studies candidates completed discussion-board posts that asked how they implemented the given strategies and the impact on instruction because they self-identified their learning gaps and selected the sessions. Direct quotes from the discussion board posts were used because the candidates were teaching various content within their disciplines, so the direct quotes helped provide context for the candidates' responses.

This study focused on the prospect that self-identified professional development may influence pre-service teachers' instructional practice and university programming. Because the pre-service teachers self-selected the sessions, the work of Timperley, Wilson, Barrar, & Fung (2007) suggested that pre-service teachers would put more value on the professional development and have more motivation to implement the strategies in their classrooms. The present study examined the following research questions: 1) How did pre-service teachers value the professional development delivered to meet needs identified through a reflective inquiry process? and 2) How did the sessions they requested inform their instructional practice?



The sessions were all interactive and had the pre-service candidates working on case studies, when appropriate, and in small groups to discuss the scenarios and topics that were provided. Within these groups, the facilitators allowed the candidates to draw conclusions collaboratively with their peers and provide real life examples from their field experiences. The session *English for Speakers of Other Languages* was conducted over WebEx. It, too, was interactive and included case studies and small group work.

## 4.1 Participants

The participants in this study who self-identified learning gaps were senior pre-service teacher candidates in the Adolescence to Young Adult program (qualifying to teach grades 7-12). 27 were language arts majors, and 13 were social studies majors. The candidates' ages ranged from 21-27, and there were 22 females and 18 males who responded to the pre-survey. Those who attended the sessions included language arts, social studies, and several pre-service teachers from science and mathematics education programs, and attendance varied from one session to the next. All pre-service candidates who attended the professional development voluntarily responded to the content evaluation surveys. Approximately two weeks after each session, the language arts pre-service teachers responded to reflective, discussion board questions in the learning-management system for their seminar course. Pre-service teachers in the other content areas did not participate in these discussion boards and were not included in the qualitative analyses reported here. Because attendance at the workshops was voluntary, the number of participants varied from the first workshop until the fourth (see Tables 1-4), depending on interest and scheduling issues. Pseudonyms are used for all pre-service teachers.

## 4.2 Data Collection

Surveys and discussion board posts acted as data sources for the present study. Each survey had a total of 9 questions. The first seven questions were five-point Likert-scale items where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, and 5 = *Strongly Agree*. To analyze the results, researchers calculated the percent of respondents who agreed with each item (defined as a response of either 4 or 5), and calculated the mean and standard deviation for each item. The last two questions were divergent, open-ended questions. The response for the last two questions were coded for emergent themes. The surveys were completed directly after each session, and the discussion boards were written two weeks after implementing the professional development content strategies into instruction by the integrated language arts pre-service teachers.

Researchers used Erickson's (1986) coding process to analyze responses. Emergent codes (Denzin & Lincoln, 2008) and themes were negotiated from the open-ended items and

discussions posts after the initial analyses. During the second examination of the data sources, recurring themes were verified among the researchers. This open coding method (Strauss & Corbin, 1990) was utilized for the descriptive themes and patterns. Researchers then categorized the responses as they connected to the research questions. The discussion board posts revealed five main themes: self-examination, peer encouragement, strategy sharing, innovation, and strategy borrowing.

## 5. Results

The findings are organized in the sections which follow according to our two-part research questions: How did pre-service teachers report and describe value the professional development delivered, and how did the content inform instructional practice? First, the researchers analyzed the Likert scale responses and compared them to the initial survey and the desires of students. Second, the researchers examined the open-ended responses and discussion board posts related to instructional practice. Quotations provided in the findings were selected to represent the codes and themes identified and are copied and pasted directly from the online source without editing for spelling, grammar, or punctuation.

### 5.1 Universal Design for Learning

Our largest attendance was in session one, Universal Design for Learning, with 35 students (Table 1). Those attending represented 25 language arts, 7 social studies, 1 math, and 2 science pre-service teachers. Based on the initial survey reflecting on learning gaps, 50% of participants felt Universal Design for Learning was a learning gap and candidates wanted to know more about it. Based on the post-survey, 74% of those in attendance found the presentation relevant to themselves as a professional, and 81% of respondents felt it met their needs. 94% of candidates believed they could use the strategies learned in the session in their classroom.

**Table 1.** *Feedback Survey Quantitative Results for Universal Design for Learning Workshop*

Survey Item	Agreement				
	<i>n</i>	<i>n</i>	(%)	<i>M</i>	( <i>SD</i> )
I was well informed about the objectives of this workshop.	35	34	(97%)	4.9	(0.4)
This workshop lived up to my expectations.	35	30	(86%)	4.4	(1.0)
The content of this workshop is relevant to my development as a professional.	34	32	(94%)	4.8	(0.6)
I found this workshop engaging.	34	27	(79%)	4.1	(1.1)
This workshop met my needs.	34	29	(85%)	4.4	(0.8)
I will be able to use what I have learned in this workshop.	34	33	(97%)	4.6	(0.6)
The instructor was well prepared.	34	34	(100%)	4.9	(0.3)

**Note:** Survey items were presented as five-point Likert-scale items where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, and 5 = *Strongly Agree*. *n* = the number of responses received for each item shown. The number (*n*) and percent (%) of respondents who answered either *Agree* or *Strongly Agree* are displayed under “Agreement”. The mean (*M*) and standards deviation (*SD*) shown is calculated across all responses received for each item.

A running theme in the Universal Design for Learning open-ended responses were strategies candidates could use to motivate students on less favored topics to be more engaged through interactive learning. Candidates cited many examples of this pertaining to literature and other dense subject matter in the social sciences. For example, Claire wrote in her discussion post:

I provided my [sophomores] with a handout with all of our discussion questions, and I also projected them on the board in a PowerPoint. For each question I tried to have an image that could be associated with the question or answer. The images helped guide students to an answer, and students could see the discussion questions in front of them (where they could take notes) and on the board at the front.

For my freshmen, I tried to alter my auditory information...I gave them some background info on the author and story and then asked them to read the story on their own in 10-12 minutes. After they finished, I asked for volunteers, and we read it aloud together. Some students groaned, asking why we had to read it when they just did; but after the second reading, they admitted that they had a better understanding.

Other students, including Mark, used their responses in their discussion post to showcase unique strategies that drew upon multiple sources of media or pop culture to make the curriculum more accessible and relevant to their students:

Representation: I incorporated music videos of the currently popular rap song Black Beatles by Rae Sremmurd. Through using the Black Beatles original song alongside two very different cover versions...I was able to demonstrate for the class how changes in pitch and rate of the song’s voices completely changes the style of the original song.

Then to solidify this understanding I had students give examples of how changing their own vocal choice could change the mood of a performance. Thus, tying my music-based example into dramatic performance and relating it back to their real lives.

Other students used a small group setting stating, “This helped provide multiple means of engagement by giving them individual choice and fostering collaboration and a community of learners.”

Jenna stated, “I have tried to incorporate movement when feasible,” and Kelly reflected, “I have found that having them write their answers first gives them an opportune time to think and process before verbalizing their response. Also, if students choose not to verbalize, I then have written documentation.”

Cara said,

My Senior class is learning about the Restoration time period and they were reading about The Great Plague...The students were allowed to feel and write, as if they were experiencing what they were reading about. This made the lessons more personal to them, since the plague had happened many, many years ago. The students had fun with the assignment and were able to interpret the author's texts.

Brandon commented that he used “engage with the page,” and had juniors color, illustrate, or comment to “engage with the page in a way that made sense to them. Coloring utensils were brought out and students went to work.”

## 5.2 Special Education Law

In session two, Special Education Law, 24 students participated (Table 2). Those attending represented 16 Integrated Language Arts (ILA), seven Integrated Social Studies (ISS), one math, and one science teacher candidate. Based on the initial survey reflecting on learning gaps, 43.3% of participants felt Special Education Law was a learning gap. Based on the post-survey, 63% of those in attendance found the presentation relevant to themselves as a professional, and 79% of respondents felt it met their needs. 96% of candidates believed they could use the strategies learned in the session in their classroom.

**Table 2.** *Feedback Survey Quantitative Results for Special Education Law Workshop*

Survey Item	Agreement				
	<i>n</i>	<i>n</i>	(%)	<i>M</i>	( <i>SD</i> )
I was well informed about the objectives of this workshop.	24	21	(88%)	4.6	(0.7)
This workshop lived up to my expectations.	24	21	(88%)	4.4	(0.9)
The content of this workshop is relevant to my development as a professional.	24	24	(100%)	4.8	(0.4)
I found this workshop engaging.	24	18	(75%)	4.0	(1.2)
This workshop met my needs.	24	21	(88%)	4.4	(0.8)
I will be able to use what I have learned in this workshop.	24	23	(96%)	4.8	(0.5)
The instructor was well prepared.	24	24	(100%)	4.9	(0.3)

**Note:** Survey items were presented as five-point Likert-scale items where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, and 5 = *Strongly Agree*. *n* = the number of responses received for each item shown. The number (*n*) and percent (%) of respondents who answered either *Agree* or *Strongly Agree* are displayed under “Agreement”. The mean (*M*) and standards deviation (*SD*) shown is calculated across all responses received for each item.

Pre-service teachers indicated in multiple instances the feelings of uncertainty and gratitude related to the training and information about Special Education Law during the second semester of their senior year. During their teaching experiences, many students had encountered students’ individualized education plans or working with intervention specialists, but not all. Those who had not were often grateful to hear fellow pre-service teachers’ experiences.

Teacher candidates questioned the effectiveness of particular aspects of the individualized education plans and how to circumvent barriers caused by ineffective wording of individualized education plans. Brittany writes in her discussion board post:

Although there are only a few students on individual education plans within my classes, the students should always be treated equally and be motivated to learn. I have a few students who need extra time on tests...I’ve tried my best to accommodate these students. When completing in-class work, I believe that the students should also be able to take their work home.

Pre-service teachers also discussed their relationships with parents of students who have individualized education plans and how this impacted their teaching strategies. Allan said in his post:

While I always provide accommodations for my students and do my best to meet their needs, many of them are still failing. However, I do not have strong relationships with any of the students’ parents...I think we could better serve the students if we communicated more frequently with parents to address the students’ needs and make sure they are receiving the needed accommodations at school and at home.

After the professional development, 18 pre-service teachers indicated lower anxiety about not having as much experience with Special Education Law. For example, Kaylee states in her discussion-board post:

The main take-away (sic) from the Special Ed Law seminar is that I need to constantly be aware of what I know and what I don't know...I need to ask the right questions and be sure to keep up on the legal aspects that come with my profession. It is all right not to know everything so long as a person is willing to learn.

Megan stated:

Now that I'm aware of special ed law, I realize how hard it is to get a student on an IEP and there can be lots of issues that come with a legal document for accommodations. I didn't know it was so difficult to get a student diagnosed for something that would qualify him or her for an individualized education plan...When I attend my next meeting, I will definitely go in with a different mindset and with a better understanding of how it works.

Eighteen respondents echoed the feeling of less anxiety about their knowledge of Special Education Law, and they felt more confident they were aware of which resources were available.

### **5.3 English for Speakers of Other Languages**

Sixteen students attended the English Speakers of Other Languages workshop (Table 3). Those attending represented all language arts pre-service teachers. Based on the initial survey reflecting on learning gaps, 46.7% of participants felt English for Speakers of Other Languages was a learning gap. Based on the post-survey, 56% of those in attendance found the presentation relevant to themselves as a professional and 94% of respondents felt it met their needs. 88% of candidates believed they could use the strategies learned in the session in their classroom.

**Table 3.** *Feedback Survey Quantitative Results for English for Speakers of Other Languages (ESOL) Workshop*

Survey Item	Agreement				
	<i>n</i>	<i>n</i>	(%)	<i>M</i>	( <i>SD</i> )
I was well informed about the objectives of this workshop.	16	15	(94%)	4.5	(0.6)
This workshop lived up to my expectations.	16	12	(75%)	4.1	(1.2)
The content of this workshop is relevant to my development as a professional.	16	14	(88%)	4.4	(0.9)
I found this workshop engaging.	16	9	(56%)	3.6	(1.5)
This workshop met my needs.	16	11	(69%)	4.1	(1.0)
I will be able to use what I have learned in this workshop.	16	14	(88%)	4.4	(0.7)
The instructor was well prepared.	16	16	(100%)	4.8	(0.4)

*Note:* Survey items were presented as five-point Likert-scale items where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, and 5 = *Strongly Agree*. *n* = the number of responses received for each item shown. The number (*n*) and percent (%) of respondents who answered either *Agree* or *Strongly Agree* are displayed under “Agreement”. The mean (*M*) and standards deviation (*SD*) shown is calculated across all responses received for each item.

In the data from this professional development, students seemed to struggle the most relating the content to their classroom settings. Seven students indicated that they did not have non-native English speakers in their classrooms. However, nine of the responders alluded to students with lower reading levels or to classes reluctant to disclose when they had not understood a teacher candidate’s instructions or lesson. For example, in Kelly’s discussion board post that is similar to Claire’s Universal Design for Learning response, Kelly said:

One way I have tried to accommodate all of my learners in a special way is through reading in class...I asked them to read the passage silently on their own. I gave them ample time to do so because I know I have some struggling readers in my class...Once a few students shared the main points of the essay, I asked for volunteers to read it aloud...I wanted my students to see that it is always beneficial to read something twice, but I also wanted to give extra support to my struggling readers.

Four pre-service teachers who had second-language learners in their classrooms indicated that the presentation was helpful in better assessing students’ needs and creating opportunities for self-examination and modifying unsuccessful teaching strategies. In Sarah’s discussion post, her comment covered the content of the other six candidates’ posts:

I have begun checking my pace and portion when teaching to my students to ensure comprehension. I have slowed down my verbal instruction and increased the amount of comprehension checks I do while verbally instructing. I have also begun to expand and elaborate on subjects...I have found that many times my language learners will not speak up and say he does not understand...I also began to give more wait time and

interact with all the students one on one...I began going around to every student and talking to them individually during every individual or group task to check their comprehension.

Lexie also stated the impact of working with the English language learners individually:

This week I tried discussing the content with them individually so that the student can ask questions if they need to. One of my language learners now talks more than my other students in class and has enjoyed Gatsby. The other students seem to be more engaged in the content, but success is a process!

Andrew said, “The strategies to help English language learners should start with getting to know the student, first. When the student sees that the teacher is trying, then they will be more open to learn(ing) (sic) what you want to teach them.”

## 5.4 Classroom/Behavior Management

In our final professional development session, Classroom/Behavior Management, 13 pre-service teachers were in attendance (Table 4). Those attending represented solely Integrated Language Arts candidates. Based on the initial survey reflecting on learning gaps, 83.3% of participants felt Classroom/Behavior Management was a learning gap. Based on the post-survey, 76% of those in attendance found the presentation relevant to themselves as a professional and 92% of respondents felt it met their needs. 92% of candidates believed they could use the strategies learned in the session in their classroom.

**Table 4.** Feedback Survey Quantitative Results for Classroom/Behavior Management Workshop

Survey Item	Agreement				
	<i>n</i>	<i>n</i>	(%)	<i>M</i>	( <i>SD</i> )
I was well informed about the objectives of this workshop.	13	13	(100%)	4.7	(0.5)
This workshop lived up to my expectations.	13	12	(92%)	4.6	(0.7)
The content of this workshop is relevant to my development as a professional.	13	12	(92%)	4.7	(0.9)
I found this workshop engaging.	13	10	(77%)	4.3	(0.9)
This workshop met my needs.	13	12	(92%)	4.6	(0.7)
I will be able to use what I have learned in this workshop.	13	12	(92%)	4.8	(0.6)
The instructor was well prepared.	13	13	(100%)	4.8	(0.4)

**Note:** Survey items were presented as five-point Likert-scale items where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, and 5 = *Strongly Agree*. *n* = the number of responses received for each item shown. The number (*n*) and percent (%) of respondents who answered either *Agree* or *Strongly Agree* are displayed under “Agreement”. The mean (*M*) and standards deviation (*SD*) shown is calculated across all responses received for each item.

An immediate recurring theme that emerged among ten candidates’ discussion board posts was how to deal with the presence of cellphones in the classroom and general frustration with



the lack of adherence to existing policies about phones. Pre-service teachers sought to link common discipline issues to strategies presented at the conference. A good example is from Helen's detailed discussion board post that covered her several takeaways:

When it comes to group contingencies, I think it would be a great idea to offer a class reward when all students put their phones inside their assigned phone pockets...I would also use group contingencies to motivate my students to turn their assignments in on time...In terms of the executive functioning steps, one idea...is using a self-monitoring system...By challenging my students to focus on what they've learned from the assignment and addressing questions or issues that they had, this could potentially encourage them to complete their assignments.

This quote illustrates how the pre-service teachers sought to re-contextualize management issues as learning opportunities and integrate new strategies to achieve desired outcomes. Twelve pre-service teachers indicated they wished to implement more positive reinforcement. For example, Allison stated in her discussion post: "Encouraging positive behavior is something I have done informally, but many of the strategies mentioned in the lecture really struck me, particularly allowing my students to anonymously complement one another."

John continued the idea of positive reinforcement when he reflected: Because of [positive sticky note] idea, I want to implement positive, inspirational cards for my students when they take the state test during school...My students currently struggle with bullying...I would like to implement a class compliment book where students can write compliments about their peers and I can read them to the students.

## 5.5 Co-occurrence

As the researchers discussed the professional development sessions and the pre-service teachers' experiences based on their self-selection, it was important to look at patterns across all of the workshops. The surveys and dialogue of the candidates exhibited professional thinking and inquiry as well as critical reflection. The data revealed other overarching patterns and trends occurring as pre-service teachers shared their experiences with one another. Candidates supported each other in their experiences but also challenged one another by asking for further clarification. The peer-encouragement and self-examination co-occurred, demonstrating the behavior of professional educators and demonstrated the development of collaborative dialogue through reflection.

## 6. Discussion

This study examined how pre-service teachers' reflective practice informed the development of professional development based on their inquiry and self-identified needs. The sessions requested by pre-service teachers focused on integrating teacher knowledge and skills to change instructional practice. Based on the data collected, pre-service teachers perceived professional development as valuable, relevant, and the specific strategies suggested in the workshops have great potential for classroom implementation. For example, although only 50% of students felt they needed the Universal Design for Learning professional development (Table 1), after the workshop, 74% found it relevant, and 94% believed what they learned could be used in the classroom. The discrepancy between the pre-survey and post-survey could have resulted from pre-service teachers not understanding what Universal Design for Learning entailed. Once they understood the concept, they saw the relevancy and were able to utilize the strategies in the classroom, making their classrooms more interactive in order to teach every child.

Like UDL, candidates saw the relevancy of Special Education Law (Table 2) after the workshop and believed they could use the strategies in the classroom. One of the issues for some students who attended the Special Education workshop was that they did not currently have students with Individualized Education Plans in the classroom, so the immediate relevancy was not obvious to them, yet they did see the usefulness in a classroom.

The same argument could be made for the English Speakers of Other Language workshop (Table 3). Only 56% of students saw the relevancy, with 88% believing the strategies could be used in their classrooms. Candidates stated during discussion that they did not have students with English language learners currently in their classroom. The majority of students in attendance at the classroom/behavior management workshop, however, could directly relate to the content. 76% of students saw the relevance in professional development, and 92% thought they could use the strategies in the classroom. Candidates were able to re-contextualize their classroom management and provide more positive reinforcement. In all other workshops except the classroom management workshop, the pre-survey percentage was lower than the post-survey percentage regarding relevancy. The pre-service teachers' perception of usefulness in the classroom of all workshops increased across all professional development offerings. Those who attended the classroom management session were language arts students who specifically selected the topic as a learning gap. This revealed that candidates had the preconception that the topic would be relevant, valuable, and useful in the classroom.

## 7. Limitations

As the data was examined, the researchers determined a couple of limitations to the study. The  $n$  decreased as the professional development sessions continued throughout the semester. These sessions took place starting the second month of the second semester when teacher candidates were just entering their field site for full-time teaching. As the semester progressed, their responsibilities increased with completing the mandatory state assessments, job searches, grading, and planning. As their obligations increased, professional development might not have been at the top of their priority list. This phenomenon warrants further examination. Another limitation seemed to fall within the post-survey results. The lower percentages in the post-surveys might be a result of those surveyed may not have found the same value or relevancy as those who took the pre-survey. By looking at the results, one would guess that the language arts and social studies candidates were more satisfied with the professional development because they self-identified the learning gaps, whereas math and science candidates did not. In the future, researchers should provide pre- and post-surveys to teacher candidates across all content areas to self-identify learning gaps and measure the value, relevancy, and application of strategies presented. This continues to be an area of research.

## 8. Implications and Conclusions

Across the responses, the language arts pre-service teachers seemed to be actively using the concrete examples provided in discussion responses as sounding-board opportunities or sources of inspiration for teaching strategies. Replies often consisted of praise, cautionary tales, or further questions about successful teaching strategies they wished to adopt/employ. Of the designated codes from these posts, some interesting trends emerged. Of the total codes assigned, the most frequent codes assigned were Self-Examination and Peer Encouragement (with 56 and 52 instances, respectively). There were also seven co-occurrences of Strategy Sharing and Innovation, and Strategy Borrowing and Peer Encouragement.

The issue of democratic consensus is valuable in professional development. During and after the sessions, pre-service teachers shared respectfully and constructively with peers, while still being candid about the challenging aspects and learning struggles of their teaching knowledge and instruction. They were honest about their shortcomings, displayed confidence in their abilities, and seemed to want to foster preparedness and support in their cohorts. Teacher-candidates' request and input on the professional development topics may have helped engender more reciprocity in the relationship between professor and student. Allowing pre-service teachers to communicate their learning gaps and what they deem as critical knowledge can help transform teacher education programming.

Educational models need to be continuously revisited in order to meet the changing world of education. In order to unpack and analyze the existing educational models and transform traditional practices to provide authentic experiences for our pre-service teachers, we need to use reflective practice to examine the pre-service teachers' experiences and discover what learning gaps they self-identify. This examination creates opportunities for future research to continue measuring the efficiency of programming based on student needs and choices. Students' learning needs may shift and their self-identified learning gaps may ebb and flow. This variation could be an intriguing area of research: How do the topics shift over time, and what influences those changes to occur?

What we have discovered as a result of this study is that the role of choice by pre-service teachers promotes meaningful, purposeful, and valued interaction with the content of the sessions. By aligning the content with the candidates' self-identified learning gaps, candidates can transition more seamlessly from teacher candidate to teaching professionals, taking responsibility for their own professional learning.

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# How students learn and instructors can, too: Effective college teaching according to Eyler (2018)

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## Book review

**Eyler, J. R. (2018). *How Humans Learn: The Science and Stories behind Effective College Teaching*. West Virginia University Press.**

293 pages. Available in hardback, paperback, and digital format. Price \$85 (hc), \$22 (pb), \$17 (ebook)

Keywords: learning, teaching, college students, classroom practice

More than ten years ago, Alfie Kohn published an article entitled “It’s not what we teach; it’s what they learn” (2008). Reading this article marked the beginning of a transformation in my outlook on teaching and learning. Until that point, I had invested most of my energy in becoming a subject matter expert, motivated by my belief that if I could just get better at presenting information and explaining things, students would learn better. Perhaps most instructors at the beginning of their teaching career go through such a phase of intense focus on subject matter expertise. After all, it is what we devoted ourselves to in graduate school. At some point however, if our students are lucky, we will arrive at the insight that it is not what we teach; it is what they learn.

Whether and how well students learn is closely tied to their engagement, the topic of many conversations, books, and workshops about classroom learning. Joshua Eyler’s book *How Humans Learn: The Science and Stories behind Effective College Teaching* (West Virginia University Press, 2018) is an important contribution to this field. Synthesizing recent findings from wide-ranging fields such as child development, cognitive neuroscience, and psychology, Eyler describes five factors that drive student engagement and thus enable learning: curiosity,

sociality, emotion, authenticity, and (surprisingly!) failure. Each of these topics is the title of a chapter in the book, following an introductory chapter in which Eyler presents his professional background and his motivation for writing the book.

Joshua Eyler started with a BA in English from Gettysburg College and went on to earn a Ph.D. in Medieval Studies from the University of Connecticut. After teaching in the English department at Columbus State for 5 years, Eyler moved into increasingly higher leadership roles at university centers dedicated to excellence in teaching and faculty development – first at George Mason University, then at Rice University (during which time he published *How Humans Learn*), and currently at the University of Mississippi. As he works with college instructors from a broad range of disciplines, his book contains relevant examples, important insights, and practical advice for virtually all educators. Beyond college instructors, those who teach at the high school level or in adult education will also find much to ponder in this book.

A synthesis of key scholarly research on the five central topics, Eyler’s book is primarily directed at practitioners. Three “Getting Started” sections offering practical suggestions that readers can try in their own classrooms are interspersed throughout each chapter. At the end of every chapter are “Key Takeaways” summarizing the main points in bullet form.

Chapter 1 addresses the topic of curiosity. The human species thrives on curiosity, and children are innately curious. Sadly, their school experiences quickly transform curious children into bored students. Reviewing research demonstrating that exploration and inquisitiveness lead to learning, Eyler states that “to truly know anything we must first ask questions” (p. 24). He also shows that it matters whether the questions are generated by the instructor or by the student. Instructor-initiated questions are often part of a game I call pedagogical ping-pong, with the instructor asking a question and a student offering an answer, possibly with other students chiming in as well, always with the instructor as the focal point and arbiter of whether the answer is adequate. However, when we frame the role of question asker as the student’s responsibility, we help students capitalize on their curiosity and promote their ability to “use questions to learn” (p. 36).

Asking questions is an inherently social practice. Chapter 2 addresses the topic of sociality, a fundamental aspect of human learning. From early childhood, other people are “the starting point for the way we experience the world” (p. 67). Family members and peers show us how things work and how to act upon our environment. For Eyler, teaching is a natural “augmentation of our sociality” (p. 76). However, we would be wrong to assume that learning happens only in the presence of an instructor. Students also learn from interactions with their classmates and peer instructors, which faculty can strategically incorporate in their course design. The section explaining the difference between collaborative learning versus group projects (pp. 91-95) was particularly helpful to me. I learned that, while students tend to

approach group work with a “divide and conquer” mentality, carefully designed collaborative learning projects cannot be completed with such an approach. The key is in developing assignments that do not have preconceived solutions or conclusions. At the end of the chapter, Eyler uses the argument of sociality to declare his distaste for online learning and his doubts about its potential for student success. While recognizing that it is possible for online course design to incorporate aspects of sociality, he questions “whether the technology allows us to tap into our sociality enough to maximize learning” (p.107). Nevertheless, online learning has offered unprecedented opportunities to students in rural areas and nontraditional students. Seeing the growth in online education in recent years, I expect Eyler’s perspective to disturb some readers. Even among academics, emotions play a role in our ability to reason.

Emotion is the topic of chapter 3. It should come as no surprise that “emotions have great potential for enhancing learning but can sometimes undermine that process as well” (p. 115). More interesting to ponder is the ways in which emotions are “both biological and cultural” (p. 116), signaling an “interdependence between emotions and sociality” (p. 119). Three recommendations for instructors are particularly valuable: show your enthusiasm for your subject and the day’s topic, try to use humor and laughter when appropriate, and display an ethic of pedagogical caring. While caring may sound vague, Eyler offers practical ways to embody it, such as learning and using students’ names, as well as learning and connecting their interests to course content. It is in this chapter on emotions that the section “Don’t be Scary”, tucked oddly into chapter 1, would have fit better.

One of the emotions students might feel is boredom or annoyance, especially when they perceive learning contexts as inauthentic. In Chapter 4, focused on authenticity, Eyler defines authentic learning contexts as those in which content and parameters are as close to the “real world” as possible and in which students have to use “real-world” tools, techniques, and interactions to address challenges or solve problems. He argues that such contexts offer better opportunities for learning than contrived situations that students perceive as artificial and treat as meaningless. While simulations can be effective if designed well, they must be as authentic and immersive as possible for optimal learning results. Assignments that are as authentic as possible give students the opportunity to learn through experience, offering the potential for implementation of Kolb’s model of experiential learning (2014). Eyler concludes: “The brain doesn’t mess around. If it registers a situation as being artificial or unimportant, it will allocate cognitive resources elsewhere” (p. 170).

The final chapter focuses on failure, a topic not often treated positively in educational settings. When he was a student himself, Eyler was “certainly never rewarded for [his] failures” (p. 173), and even in graduate school, he remained unaware of the important possibilities that failure offers for learning. In early childhood, failure leads to novel techniques and new

discoveries. While failure's inherent potential for learning – as “a source of joyful experimentation” (p. 180) – does not change, students' attitudes toward failure do begin to change as they start school and begin experiencing failure as something for which they will be corrected, shamed, or punished. Eyler offers many examples of how failure, rather than success, can lead to better learning outcomes. At the end of the chapter, Eyler turns the conversation to “the elephant in the room” (p.212), namely grades. “Grades”, he writes, “seem like a good idea, and on the surface they appear to have the potential to be useful, but by the end they subvert all the work you have been trying to do” (p. 212). Grades “stigmatize failure” (p. 213), and thus function only as an “extrinsic motivator, whereas educational pursuits need to be primarily intrinsic if they are to be transformational” (p. 213). Admitting that we operate in a system we can change neither single-handedly nor overnight, Eyler encourages readers to change their grading models. For the sake of student learning, he advises implementing a variety of smaller assignments with relatively few points attached to each, instead of 3-4 larger assignments each carrying a heavy portion of the final grade. This approach to assessment offers students the freedom to take risks and experiment without the threat of failing the course when things don't go as hoped.

In all, *How Humans Learn* provides much food for thought and an invitation to experiment with specific practices in our classrooms. Instructors might wish to read the book together in their professional learning circles as they join their minds and efforts to improve teaching and learning at their institutions.

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