January 2022

Fostering Emerging Online Learner Persistence In Teacher Candidates: The Role Of Online Discussions

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FOSTERING EMERGING ONLINE LEARNER PERSISTENCE IN TEACHER CANDIDATES: THE ROLE OF ONLINE DISCUSSIONS

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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Grand Forks, North Dakota

May 2022

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Degree: Doctor of Philosophy

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Department Education Foundations and Research

Degree Doctor of Philosophy

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ACKNOWLEDGEMENTS

To begin, I would like to acknowledge the very helpful feedback from my advisor Virginia Clinton-Lisell not only on my dissertation but also over the past four years. The mentoring and invitations to collaborate on research projects and book chapters along with encouragement to apply for the OER fellowship were all vital in me being able to carry out this study and a foundation for my future as a scholar.

Also, thank you to my dissertation committee for the helpful feedback - Diana D'Amico Pawlewicz, Steven LeMire, and Kathy Smart. And I am grateful for the comments from Zarrina Azizova and Robert Stupinksy on earlier drafts.

Finally, I would like to acknowledge the support from my network of current and former colleagues and friends near and far who supported me in making this study a reality. Thank you for helping me process ideas, your thoughtful feedback, and encouragement.

DEDICATION

To my emerging online learners who took the time to talk with me in the hall after class, at the coffee shop on campus, or virtually about their online learning experiences. And to my beau and pup who have been with me always.

ABSTRACT

As the popularity of online learning continues to grow, so do concerns about online student success. This study aims to contribute to the continuous improvement of online learning and improve outcomes for a distinct group of online learners. Utilizing social presence, the expectancy-value theory of motivation, and capitalizing on innovative technologies, I advance a new framework that expands online discussions for emerging online learners, undergraduates enrolled in online and on-campus courses, and the predominant consumer of online courses. The emerging online learners in this study were also prospective teachers (n=80) enrolled in a teacher preparation course at a small midwestern liberal arts college. The teacher candidates participated in two different online discussions using multimodal asynchronous and synchronous technologies and then completed a questionnaire with both Likert scale and open-ended items about their experiences. The results validate this novel framework for this group of teacher candidates and demonstrate (1) both types of discussions tend to support social presence, (2) outside of the factor of convenience; students value synchronous discussions over asynchronous discussions for the connection with peers that supports their learning, and (3) there are positive associations between social presence and values. The recommendations I share call for teacher educators to use a blended model of online discussion design that includes both asynchronous and synchronous opportunities. While the results of this study may not be generalizable in the traditional sense, they do have implications for the design of online discussions in other fields.

Keywords: online learning, online discussions, community of inquiry, expectancy-value, multimodal, teacher preparation.

Chapter 1:

Introduction

Higher education students have been participating in online courses since the late 1980's when the first online degrees were offered by the University of Phoenix (Kentnor, 2015). The primary reason students choose online courses is for the flexibility and convenience these courses afford them as they manage their busy lives (Murphy & Stewart, 2017; Raza et al., 2020; Seaman et al., 2018). While for other students the only way they can access courses is online due to geography or personal health (Harris & Martin, 2012). However, the reasons for choosing to take online courses are not the only way online learners differ from one another. Online learners are not a homogenous group even though the predominant pedagogical practices make it seem like online learners are as online instructors and course designers gravitate toward a "one size fits all" approach. In reality, online learners also differ demographically in numerous ways including, but not limited to, student status (graduate v. undergraduate), field of study (education, arts and sciences, business, professional fields) and institution type (university, liberal arts, community college) that all shape student outcomes (Money & Dean, 2019). As the predominant consumer of online courses, emerging online learners are a unique subset in that they are undergraduates taking online and face-to-face courses concurrently (Dana, 2019; Murphy & Stewart, 2017; Raza et al., 2020; Seaman et al., 2018) with the COVID-19 pandemic likely increasing their prevalence (Inside Higher Ed, 2021). To illustrate, a study by Bay View Analytics (2021) highlights how during the pandemic some students experienced the online environment out of necessity, found they liked learning this way, and now prefer it for part or all of their courses. Online in no longer a trend for emerging online learners, it is mainstream.

It appears online learning is here to stay, but like all things, it is a work in progress. The growth and interest are promising as online courses provide access to higher education for students who otherwise may not attend and are often equivalent in quality to face-to-face courses (Bowers & Kumar, 2015). But as online learning continues to grow, so do concerns about overall student success. Yet despite the uniqueness and predominance of emerging online learners, few researchers have focused on this population and measures to support their persistence. This study aims to contribute the continuous improvement of online learning and improve student outcomes by introducing a framework and using it as tool to design instruction that better meets the needs of a unique small group of emerging online learners who are pursing teaching licensure at a private midwestern institution. An additional layer of importance surrounds this study due to the ongoing teacher shortage (Center for American Progress, 2019) and the need for teacher preparation programs to retain prospective teachers now more than ever.

Just as online learners differ, so do online and face-to-face courses. In an online course, the learner has more autonomy and is in control of their learning while faculty takes on the role of coach and mentor (Boettcher & Conrad, 2016). There are also typically few if any set meeting times and minimal interactions with peers and the instructor. When interaction does occur, it is usually with a small number of students or the instructor (Barria et al., 2014). For some students this is why they chose to engage in online courses, and they thrive in this type of environment. For other students online learning is not an easy endeavor and the differences in autonomy between online and face-to-face courses is challenging. These differences that includes a lack of physical proximity that offers spoken and visual cues, and a lack of opportunities for collaboration makes it too convenient to procrastinate, forget about, and become otherwise disengaged, leading to poor outcomes (Wilkinson, 2022). Recent research illuminates these

growing concerns and challenges related to online student success. Specifically, online learners earn lower grades as compared to students in face-to-face courses (Hart et al., 2012; Xu & Jaggars, 2011) with 10-20% lower persistence rates (Xu & Jaggars, 2011). Persistence involves a complex set of interconnected demographic, socioeconomic (Bourdages & Delmotte, 2001), academic, pedagogical, psychological, social, and technological (Kelly & Zakrajsek, 2020) variables that work together to aid students in successfully completing their coursework. Explanations for the disparities range from student characteristics to institutional shortcomings to course design. To improve persistence rates, institutions are rather limited, and in the end, institutions are only able to manipulate things such as learner support systems and instructional designs.

Some suggest the lower persistence rates are a result of an interaction deficit (Watts, 2016). Paulsen and McCormick (2020) point out that opportunities for student-to-student interactions are limited in online courses as compared to face-to-face courses. While others contend that when interactions do occur in online courses, theses interactions are not perceived to be authentic by today's younger and more diverse learners (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020; Schultz et al., 2020). In other words, students could possibly feel they are isolated from their peers and instructors in the more autonomous online courses due to a lack of communication and authentic interaction leading to disengagement, impacting their performance, and even causing them to withdraw from a course (Bawa, 2016). Instructors often seek to address this deficit through instructional designs that include text-based asynchronous discussion boards (Kauffman, 2015), even though students frequently report dissatisfaction with these types of discussions (Kauffman, 2015; Majid et al., 2015). Alternatives to the text-based asynchronous discussion board have been suggested. Yet, there is limited empirical research

about the effectiveness of these tools or guidance about how to put these types of discussions into practice.

In the end, online instructors are often frustrated due to a lack of guidance about best practices when it comes to designing online interactions for distinct groups of online learners, such as emerging online learners. This lack of direction is illustrated in a systematic review by Ferhman and Watson (2020) that focused on 35 peer-reviewed studies from 2015 to 2019 in which discussion boards were a component of the course. Their results indicate that despite the widespread use of text-based asynchronous discussion boards, there is little consensus on best practices, and sparse research on alternatives. These researchers call for robust frameworks to assist with the establishment of best practices. This call could not come at a more crucial time as the COVID-19 pandemic has increased interest and demand for online courses (Bayview Analytics, 2021; Inside Higher Ed, 2021; Strada Center for Education Consumer Insights, 2020). This study aims to address this deficit by empirically testing such a framework, gathering evidence about its effectiveness, and providing recommendations about best practices with the goal of improving outcomes for a distinct group of emerging online learners who are also teacher candidates. The importance of teacher candidates and their success in online spaces is paramount now as the teacher shortage continues (Center for American Progress, 2019).

Chapter II:

Literature Review

The review of literature begins with information about emerging online learners as a group and then narrows to specific characteristics that make teacher candidates, the sample for this study, a unique subset. This information is important as it has implications for online discussion design. From there I introduce a novel framework that aligns with the strengths and needs of emerging online learners that includes elements related to social presence, online tools, and values. This chapter concludes with a summary of the literature along with the purpose and research questions for the current study.

Emerging Online Learners

To start, it is vital to understand emerging online learners are not a homogenous group, but at the same time, they do share many commonalities because as a group they differ from online learners of yesteryear and these unique characteristics impact instructional designs that best support student success. This is key because online course design has not kept pace overall with online learners' evolving needs nor those of emerging online learners, resulting in persistence rates in online courses that are low. The iconic distance learner of the 20th Century/early 21st Century who was independent, geographically isolated or bound, an older adult, self-motivated, and goal-oriented is no longer as prevalent. As we move deeper into the 21st Century, and technology continues to evolve rapidly, the distance education population is shifting to learners that are more diverse and younger (Bawa, 2016).

For example, prior to the COVID-19 pandemic, 45% of online learners were emerging online learners. Namely, undergraduates living on-campus (or within proximity), taking a mix of face-to-face and online courses due to the flexibility online courses afford them as they balance

their busy school, extracurricular, work, and family lives (Murphy & Stewart, 2017; Raza et al., 2020; Seaman et al., 2018). In 2019, the percentage increased to 51%. (Dana, 2019). The COVID-19 pandemic is likely to accelerate the demand for flexible course options for emerging online learners as more of them than ever now have experience with online and blended courses and are accepting of this form of instruction (Bayview Analytics, 2021). In response, already 84% of institutions report they will expand online course offerings across all content areas (Inside Higher Ed, 2021). Similarly, 68% of students report that in the future they want the option of taking some classes fully online with 57% also wanting to take some blended (combination of in-person and online instruction) courses (Bayview Analytics, 2021). For all these reasons online learning is here to stay and so are emerging online learners.

It is also essential to note emerging online learners understand, value, and engage in social interaction and collaborative learning and possess strong interpersonal and communication skills (Bawa, 2016; Dabbagh, 2007). To illustrate, Croxton's (2014) literature review and Walker and Kelly's (2007) survey of approximately 300 undergraduate and graduate students both assert undergraduate students enjoy interactions with their peers more so than graduate students. Consider students who are dissatisfied with online courses share the root cause is due to a lack of connection with the instructor and their peers (Borup et al., 2012; Pinsk et al., 2014; Cole et al., 2014). Also, students tend to be more satisfied with their on-campus courses as compared to their online and blended courses (Bay View Analytics, 2021). This is key as student satisfaction leads to motivation, persistence, and positive outcomes (Kaufman, 2015). As shared earlier, this dissatisfaction is thought to be due, to some extent, to a combination of limited opportunities in online courses to begin with for student-to-student interaction (Paulsen & McCormick, 2020) along with the widespread use of asynchronous, text-based discussions as the most commonly

used technology in online courses to facilitate communication (Kauffman, 2015). Yet, students frequently report dissatisfaction with these types of discussions (Kauffman, 2015; Majid et al., 2015). The primary reason given by students is because these discussions lack the real-time organic interaction and feedback they get in face-to-face courses (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020). Students also share other downsides related to discussion boards include these discussions can be time consuming and lifeless when peers are unengaged (Clinton & Kelly, 2019).

Schultz and colleagues (2020) further contextualize student perceptions and experiences with asynchronous text-based online discussions through a series of interviews with traditional undergraduate students. The students shared part of their dislike had to do with a lack of choice. For instance, students shared that in a face-to-face discussion, they can choose when to participate and how to respond to others' input (e.g., nodding, clapping, and adding to what was said), but these options are absent in most online discussions. Students also shared the lack of social cues makes it difficult to properly formulate a response to a prompt because it can be hard to read if someone is excited or upset, which can hinder the development of community and connection with other students. Other researchers support these findings as they assert students desire for dynamic and organic interaction (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020). To summarize, it seems, emerging online learners see the value in interpersonal interaction but are frustrated with the constraints discussion boards place on their ability to engage in authentic discussions with their peers.

Additionally, Hart (2012) reviewed over 100 pieces of literature published after 1999 related to factors leading to persistence in online courses. Overall, Hart's (2012) analysis of variables associated with positive and negative impacts on student persistence suggests the

importance of student comfort with the discussion format as a critical factor related to student persistence in online courses. The text-based discussion board format likely impacts student comfort as does the fact that these types of discussions can be scary for students who lack confidence because their posts are stagnant. Meaning the posts will be there potentially forever and shared perhaps with an indefinite audience (Andrews & Smith, 2011), which can feel threatening (Darby et al., 2020). Students must feel safe in their online spaces in order for them to thrive in their coursework. Thus, perhaps emerging online learners withdraw from online courses due to a combination of them being younger and sometimes lacking confidence along with online course design that often times has a scarcity of opportunities for safe and authentic interactions with their peers and instructors.

On the other hand, Generation Z, to include emerging online learners, and all of the current K-12 population (Pew Research Center, 2020) widely report use and engagement with social media culture and public digital platforms (Morrell, 2021). Studies conducted by the Youth Participatory Politics Survey Project from 2008-2018 (Cohen & Kahne, 2013 & 2015), show those in Generation Z make and circulate memes, videos, and other multimodal content; amplify and extend hashtags; and curate digital identities. They engage in performances of all types and events, which are often planned, recorded, and shared on social media platforms. Responsive screens are the norm for them as is the expectation for cutting edge and responsive pedagogy and technology in their online courses (Bay View Analytics, 2021; Kadika & Owens, 2016). In sum, it could be more about the discussion tools rather than the stagnant text and indefinite audience. It might be the tools used in online courses to engage students with one another are not as dynamic, engaging, and multimodal as the tools students use in their personal lives. Emerging online learners might yearn for the real-time interactions, immediate responses,

and multimodal platforms they get when using social media but are often lacking from their online course experiences. While yet others suggest it is not the tools so much as emerging online learners are not confident with the academic topics they are being asked to post about (Delahunty, 2018; Griffin & Roy, 2019) as those topics differ from the genres, they post about in their free time on social media. In sum, all of these factors related to students' personal digital communication and technology tool usage also to a certain degree contribute to lower persistence rates for emerging online learners.

Furthermore, a conversation about undergraduate student attrition is not complete without discussing the research of Vincent Tinto. Tinto is well known for his social integration theory and his research on post-secondary student persistence and retention. His study on undergraduate students attending face-to-face classes indicates they need both academic and social integration to persist in post-secondary education (Tinto, 1993). While Tinto's work focused on the face-to-face classroom, Rovai (2001) expanded upon it to look at online environments. He asserts the importance of an online learning community that connects students to one another and their institution. However, fostering these relationships are easier in face-to-face courses and often lacking in online courses (Callister & Love, 2016; Cherney et al., 2018). Besides, when interactions do occur in online courses, these interactions are not perceived by students to be authentic (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020; Schultz et al., 2020). As a result, emerging online learners might be lacking social integrations in online classes due to the lack of real-time interactions with others because the primary mode of communication is asynchronous text-based discussions. Once again, a lack of persistence seems to be attributed to the lack of meaningful interactivity in online courses that today's younger and more diverse online learners' value and desire.

The information shared earlier in this chapter, highlights the key elements that tie emerging online learners together, but they are certainly diverse and by no means a homogenous group. Emerging online learners seeking teacher licensure that were part of this study are similar to emerging online learners in other fields and at the same time unique. Perhaps most importantly students in a teacher preparation course are not just college students, rather, they are also becoming teachers. As teacher educators curate learning experiences for teacher candidates, they have the potential to model instructional design that students will carry over to their K-12 classrooms. Moreover, one of the most striking demographic differences between teacher candidates and students pursing degrees in other fields is nearly 80% are female and the vast majority white with the number of candidates steadily decreasing leading to teacher shortages (Center for American Progress, 2019). This decrease is attributed, in part, due to perceptions of teaching as an undesirable career (Center for American Progress, 2019). Due to this steady decrease, it is not surprising that the education field is the least popular degree among undergraduates with approximately 5% of the online courses offered to undergraduates being in education (NCES, 2019). However, online learning might be untapped in its potential to address the teacher shortage by providing access to teacher preparation programs for prospective teachers, and in particular those from more diverse backgrounds. But if online learning is to make an impact on the teacher shortage it must be done in ways that nurture student success.

Contrast that with undergraduate business degrees, where males and females are more similarly represented and the most conferred degree (NCES, 2019). Along those same lines the most commonly offered online courses for undergraduates are those in the business field (NCES, 2019). These demographic factors and information specific to fields of study are important to consider as they contribute to the diversity of emerging online learners, likely impact their

responses to pedagogical practices, and impact course offerings. Altogether, impacting emerging online learner success.

It should not be surprising that the attrition rates shared earlier for undergraduates are higher for online courses as compared to face-to-face courses (Hart et al., 2012; Xu & Jaggars, 2011). The likely cause, in part, is because interactions and collaboration with peers are deemed critical to the emerging online learner (Bawa, 2016; Borup et al., 2012; Croxton, 2014; Dabbagh, 2007; Pinsk et al., 2014; Walker & Kelly, 2007) and are necessary for post-secondary persistence (Tinto, 1993; Rovai, 2001), yet often lacking in online courses (Paulsen & McCormick, 2020). In online courses when interactions do occur, they most commonly are through asynchronous text-based discussion boards (Kauffman, 2015) that emerging online learners primarily dislike due to the constraints discussion boards place on their ability to engage in authentic discussions with their peers (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020). It seems the task for the higher education community is to capitalize on emerging online learners' strengths, desires, and diversity. Specifically, strengths in the areas of interpersonal and communication skills (Bawa, 2016; Dabbagh, 2007) along with their desires for agency (Schultz et al., 2020) and cutting-edge digital technologies (Bay View Analytics, 2021; Kadika & Owens, 2016) to provide students with online discussions options that allow for more authentic interactions with their peers. One way to accomplish this might be through the use of new technologies available recently in both asynchronous and synchronous formats, which allow for text, audio, and video communication. Thereby, providing students multimodal tools similar to those they use in their personal lives. Couple these new tools with a blend of both asynchronous and synchronous communication and institutions perhaps will be able to nurture improved persistence leading to higher course completion rates. Ultimately, instructors and course designers must consider how the influx of

emerging online learners and the diversity they bring can provide new opportunities for online course design.

In this study, I aim to address the research to practice gap as I advance a new framework and use it to investigate the impact of relational-focused small group online discussions utilizing both synchronous and asynchronous multimodal technologies on the perceptions of undergraduate students enrolled in teacher preparation courses. The results will be used to curate recommendations to support course design that better meets the needs of emerging online learners and advance online research. This study adds a layer of importance due to the increased interest in and need for online learning brought about by the COVID-19 pandemic, which will likely lead to even more online learners of all types to include those who are emerging (Bayview Analytics, 2021; Inside Higher Ed, 2021; Strada Center for Education Consumer Insights, 2020) and the ongoing teacher shortage by retaining the students already enrolled in teacher preparation programs (Center for American Progress, 2019). I see this moment as an opportunity to expand access, equity, and persistence rates in online learning by reflecting on and creating new opportunities for online course design. I argue this can be accomplished through pedagogical moves that, though often limited for online learners, address key psychological attributes necessary for student success. The creation of community using relational small group discussions supported by both synchronous and asynchronous advances in technology can not only mitigate barriers to persistence, but also improve student learning and experiences through more meaningful interactivity not only in teacher preparation courses but also with implications to other online courses in other fields.

Towards a Conceptual Framework

So far, three key themes continue to come up that are important to consider when designing instruction for emerging online learners. Namely, emerging online learners value interaction and collaboration, especially those that provide real-time organic interaction and feedback. The review of the literature about online instruction and online learners reveals patterns and relationships that offer conceptual orientations for understanding and analyzing emerging online learners' needs and the types of interventions for successful learning outcomes. Based on the review of literature, I created the Framework for Emerging Online Learner Persistence (FEOLP) (Figure 1) (Gilpin, 2020) to bridge the research to practice gap and support the persistence of emerging online learners. FEOLP shows that there is perhaps a connection between social presence, online course tools, student values, their collective impact on online course design, and student persistence. The highlight of this framework might be its potential to capture the unique needs of subsets of emerging online learners, embracing the diversity of online learners, and using that information to plan online pedagogy.

FEOLP is comprised of elements of Garrison et al.'s (2000) community of inquiry (CoI) conceptual framework, Anderson's (2003) interaction equivalency theorem, Wigfield and Eccles (2000) expectancy-value theory, and Pekrun et al.'s (2007) control-value theory. Social presence is concerned with the development of relationships and community in online courses and is part of the CoI along with cognitive and teaching presences (Garrison, et al., 2000). While all three are vital, some argue social presence is the most important because through meaningful interaction community is developed in online spaces that then allows for deep learning (Garrison & Cleveland-Innes, 2005; Rovai, 2001). Anderson's (2003) interaction equivalency theorem highlights the nuances of interactions to include the type, quality, and amount and the collective

impact of these factors on the development of social presence. Online tools and the decisions online instructors make about using these tools in facilitating interactions impact not only course design but also social presence. On one hand, asynchronous tools are those that provide for a one-way approach for information exchange in which students do not simultaneously interact (e.g., discussion boards) (Leader-Janssen et al., 2016). On the other hand, synchronous tools provide for real-time interaction in virtual spaces (e.g., video conferencing) (Leader-Janssen et al., 2016). While the role of student values is rooted in two theories. The expectancy-value theory of motivation, according to Wigfield and Eccles (2000), is about one's attitudes toward a task and its perceived value being fundamental in one's motivation to complete the task and learn the material. Pekrun et al. (2007) builds off the expectancy-value theory in the control-value theory of achievement with a focus on the control or autonomy one has or feels over their learning experiences impacting the value or worth of the activity to students. These theories taken together in FEOLP, show perhaps student values, in combination with indicators of social presence, are essential to consider when determining the type of tools/discussions (e.g., synchronous and asynchronous) and the blend of each to include in online courses.

In the remainder of this chapter, I use FEOLP as a road map to highlight research and evidence that helps explicating these connections. This road map provides a foundation for further developing an understanding of both the needs of emerging online learners, instructional design to address those needs, and a basis for this and future empirical studies. In the end, leading to online discussions that capitalize on the diversity of emerging online learners and thereby, support emerging online learner persistence.

Social Presence

Researchers often mention the connection between social presence and student success in online courses. The review of literature indicates the positive impact of social presence on online student motivation and participation (Jorge, 2010; Swan & Shih, 2005), actual and perceived learning (Hostetter & Busch, 2013; Picciano, 2002; Richardson & Swan, 2003; Richardson et al., 2017), satisfaction (Akyol & Garrison, 2008; Gunawardena & Zittle, 1998; Richardson et al., 2017), and persistence (Boston et al., 2009). Social presence is one of three core elements, along with cognitive presence and teaching presence (Garrison, et al., 2000) that comprises the CoI framework. The three presences can be used together or independently; however, they all are necessary in order to create a high functioning online community (Garrison, et al., 2000). The CoI framework is often used in online course design and research (Leader-Janssen, et al., 2016). As a result, it is worth a more in-depth analysis and consideration.

According to Garrison et al. (2000), social presence has to do with the way online learners interact with one another and the instructor and is concerned with the development of relationships and community in online courses. Theses researchers add that social presence refers to the ability of individuals to establish themselves as real people in online courses. While teaching presence is the role the instructor plays in organizing and facilitating the creation of social presence. In essence, the instructor lays the foundation and supports the creation of a nurturing environment that enables students to connect with each other and form a community of learners. This connectedness established by both teaching and social presences, then allows learners to collaboratively construct knowledge through critical thinking and reflection, otherwise known as cognitive presence – the ultimate goal of learning.

Garrison and Cleveland-Innes (2005) and Rovai (2001) assert that social presence is perhaps the most important presence because the capacity of learners to engage in meaningful

interaction for learning that leads to cognitive presence rests on the learner's ability to socially connect. But social presence alone will not guarantee high levels of cognitive presence (critical thinking and reflection); without a foundation of social presence, it is difficult to develop cognitive presence. Due to the social nature of learning and the importance of community in online spaces, Shea et al. (2014) go so far as to suggest that a social dimension must be a part of each presence. That is not to say teaching presence is not important. Indeed, the instructor plays a key role in setting the stage pedagogically by designing interactions that foster community and create levels of social presence which allows for optimal learning and cognitive presence. In fact, the research suggests that the development of community and social presence is worth greater consideration and in-depth analysis given its positive impacts on cognitive presence, learner motivation and by extension, students' satisfaction with courses (Garrison et al., 2003; Richardson & Swan, 2003) and positive academic outcomes (Richardson et al., 2017).

However, some suggest asynchronous text-based discussion boards rarely fully embody all three of the CoI presences because cognitive presence is almost always lacking (Gunawardena et al., 2016). Others hypothesize a way to enhance social presence, improve learning, and make discussion boards more inclusive for all learners, is to incorporate multimodal discussion modalities by allowing students to provide text-based responses along with uploading video or audio clips (Domingue 2016; Gay, 2010). Still others suggest not only adding multimodal discussion modalities, but also adding a student-led component to the asynchronous discussions. For example, Correia et al. (2019) found in their qualitative study of graduate students that by that shifting the facilitation, namely teaching presence, back into the hands of the learners and letting them steer the asynchronous conversations that deeper learning, namely cognitive presence, occurred. Students in this study reported they went beyond simply

facilitating discussions with their small groups as they helped to shape the class by creating discussion-based instruction. Hence, the social presence created through the small group discussions supported the other presences. This research indicates multimodal asynchronous tools along with student-led discussion designs warrant further exploration as both might be able to support online learners in not only social presence development but also deep learning and persistence.

More recently, scholars have begun to assert that synchronous discussions may lend themselves to better embrace all of the CoI presences. To illustrate, Gilpin and Rollag Yoon (2022) studied 33 students (23 undergraduates and 10 graduates) enrolled in a fully online teacher preparation course. The students participated in three to four small group student-led online discussions facilitated by multimodal synchronous video conferencing technologies. The results of this qualitative study demonstrate the discussions supported community and deep learning as evidenced in the representation of all three CoI presences in student artifacts and reflections. So too, the majority of students indicated a preference in the future for more synchronous type discussions rather than asynchronous discussion boards. In another qualitative study, Brown and Eaton (2020) examined 12 recordings of student-led synchronous discussions for 51 online graduate students. These researchers also collected information from students through open-ended questionnaires and interviews. Their findings were similar to those of Gilpin and Rollag Yoon (2022), as they suggest these types of discussions also nurtured all three CoI presences and highlight the role student-led synchronous discussions might play in not only social presence development but also cognitive and teaching presences. Thereby, making the full scope of the CoI available for online learners with social presence supporting deep learning, and nurturing persistence.

As we explore social presence further, it is important to note that online learning can be lonely. Students can feel isolated when they spend hours studying alone and interacting only with a computer. Liu et al. (2009) shares that social presence has to do with one's feelings, perceptions, and reactions to others in an academic setting, whether to peers or the instructor. Their study of community college students suggests that a reason for higher attrition rates in online post-secondary courses might be because online students feel isolated and a lack of social presence due to limited social interactions. In turn, interactions with others sustains or enhances social presence and learner motivation (Jorge, 2010; Swan & Shih, 2005) while impacting actual and perceived learning (Hostetter & Busch, 2013; Picciano, 2002; Richardson & Swan, 2003; Richardson et al., 2017). By extension, those interactions also heighten students' satisfaction with courses (Akyol & Garrison, 2008; Gunawardena & Zittle, 1998; Richardson et al., 2017) and improves persistence (Boston et al., 2009). In face-to-face classes, students often are presented with opportunities to engage both formally and informally in synchronous conversational exchanges with their peers and instructors, which foster a sense of community and belonging and enhance social presence. On the contrary, the majority of online courses only afford students asynchronous opportunities, such as email and other forms of text-based communication. Consequently, feeling isolated and a lack of social presence often attributed to the limitations of asynchronous, text-only communication, may lead some students to eventually stop attending (Liu et al., 2009).

Moreover, some empirical studies appear to support social presence to predict student persistence, satisfaction, and overall performance in online courses. Joksimovic et al. (2015) supports this in their study of a master's level computer science course. These researchers define social presence as a "students' ability to engage socially with an online learning community."

Their results indicate that social presence indicators are predictive of final student grades and, in turn, student success. They go on to discuss the use of social presence indicators for early detection of students at risk of failing a course and assert the importance of meaningful interactions between students as having a significant impact on the development of social presence. This is similar to findings of Liu et al. (2009) in their quantitative study of community college students. Joksimovic et al. (2015) go on to suggest the use of blended learning programs (e.g., using both asynchronous and synchronous tools) as a way to enhance student social presence and improve persistence. Additionally, Zhan and Mei (2013) studied undergraduate students enrolled in online and face-to-face digital design courses. Their results indicate that students enrolled in the online courses required higher levels of social presence as compared to students enrolled in face-to-face classes. Further, theses researchers share the effect of social presence on learning achievement is more important for online students than academic self-concept (their competency as a student). They argue the way to increase social presence is through sustained or increased opportunities for meaningful social interactions. At the same time, asserting students might need more supports with these interactions in online environments as compared to face-to-face. Zhan and Mei (2013), too, suggest that synchronous video discussions rather than text-based asynchronous discussions may help enhance online students' social presence, which may lead to better performance and attitudes. Also, they recommend blogging, instance messaging, and other forms of social media. In sum, these studies indicate social presence to predict student persistence, satisfaction, and overall performance in online courses.

A common theme continues to emerge of making online discussions more authentic and relatable as a way to nurture social presence, the development of community, and persistence for all learners. And the way to facilitate these relational type discussions means moving beyond the

traditional text-based asynchronous discussion board. The research around social presence development supports the use of asynchronous and synchronous audio, video, text, social media, and blogs along with student-led formats. The way forward is becoming clearer, but there is still more to consider when designing online discussions for emerging online learners.

Interactions. Another thread of research that complements what I shared about social presence has to do with interactions, specifically the type, quality, and quantity, as these factors impact students' sense of belonging, the development of community, and student persistence. In online courses, Miyazoe and Anderson (2010) describe how interactions occur across a continuum from those that are independent-oriented to those that are interactive-oriented. For example, interactions between student-to-student and student-to-instructor are considered interactive-oriented while student-to-content (e.g., reading a text or viewing a video) are considered independent-oriented with the type and amount of each impacting the development of community, social presence, and student persistence. Anderson (2003), in his interaction equivalency theorem, asserts at least one of these three forms of interaction needs to be present at a sufficiently high level in order for learning to occur. He goes on to add that high levels of more than one will likely lead to increased student satisfaction, but adding more than one comes at a cost, namely that of student time. Additionally, he stresses the need to consider the cost, sustainability, and pedagogical value when determining the type of interactions. However, even though Anderson's theorem is often cited in publications, very few studies have addressed or framed their results within it.

However, one piece of research from Padilla-Rodriguez and Armellini (2015) framed their study using Anderson's theorem (2003). They caution relying on only one type of interaction as doing this in essence hedges bets that all students need and prefer one type of

interaction. Instead, at a minimum a balance of the three is suggested. This thread of research aligns closely with the CoI framework in its emphasis on the role of all three presences. Because students need to be able to apply new learning in order to succeed and persist, Padilla-Rodriguez and Armellini's work highlights social presence and community as levers in supporting students as they critically analyze and apply course content.

Further, Croxton (2014) suggests the focus of the interaction type might vary based on undergraduate versus graduate status and whether the interaction was asynchronous or synchronous. She goes on to suggest the way forward is for instructors and course designers to move past a factory model of education and instead match interactive activities to the needs and preferences of distinct groups (e.g., undergraduate or graduate) of learners. Croxton's (2014) findings build on those shared earlier from Walker and Kelly (2007), who studied graduate and undergraduate students, and found that undergraduate students value student-to-student interactions more than graduate students. At the same time, do not discount the role of the instructor as undergraduates report to still crave timely interactions with their instructors, particularly feedback that occurs during online discussions that addresses misconceptions, clarifies, and reassures (Phirangee et al., 2016). But the disparity between graduates and undergraduates is larger when it comes to student-to-student interactions (Walker & Kelly, 2007). In sum, the research about interactions aligns with emerging online learners yearning for social interaction, collaboration, and interaction with their peers. Anderson's (2003) assertion that the cost, sustainability, and pedagogical value of interactions need to be considered along with Croxton's (2014) recommendation for student input, both point to a need for the inclusion of emerging online learners voices in online course design.

Another thread of interaction related research that builds off Anderson's theorem (2003) and has implications for social presence and community is the factor of quality versus quantity. Specifically, more interaction, regardless of the type, is not always better. Garrison and Cleveland-Innes (2005) conclude interactions must be purposeful with a mind to the quality of interactions rather than the quantity. Angelino et al. (2007) add to this discussion and support the earlier shared research of Joksimovic et al. (2015) in their integrated review of literature related to online post-secondary students and attrition. Angelino et al. (2007) assert that getting the balance of interactions right, prioritizing those that are meaningful, leads to increases in social presence, student engagement and satisfaction, student persistence, and retention. All in all, these assertions go along with what Zhan & Mei (2013) also shared earlier that the way to develop social presence is through meaningful interactions.

Moore (1989) adds that interactions in the online environment need to be thoughtfully and meaningfully planned because too much interaction might be considered busy work, cause students to feel overwhelmed, and lead to students feeling unsatisfied. Castano-Munoz et al. (2013) shares the cause of these diminishing returns might be text-based interactions in the online environment. Picciano (2002) elaborates that students must monitor the comments and threads in an online discussion, something that does not exist in the face-to-face environment, which may lead to information overload. On the other hand, too little interaction might lead to isolation and decreased social presence. As a result, it is essential to find a balance.

Downing et al. (2007) recommends a way to find this balance is to focus online interactions on educational benefit and once that is accomplished, the interactions are no longer needed. These researchers theorized that once students have the knowledge and understanding, they disengage and any further required interactions become busy work. Cho and Tobais (2016)

add support for Downing et al.'s (2007) and Moore's (1989) assertions in their study of undergraduates enrolled in a fully online course. Cho and Tobais (2016) caution that not all courses may warrant discussions. Instead of unilaterally including discussions in online courses, they recommend instructors consider several factors, to include content and learner characteristics, when determining the need and type of interactions. Once again, the way forward is perhaps through learning about the types of interactions students prefer and using that information in the design of online courses.

Small discussion groups. Another stream of research around interactions, the development of community, and social presence asserts discussion group size matters. The use of small group activities is commonplace today in many face-to-face courses yet until recently had not gotten much attention by online instructors and course designers, even though as early as 2001 Rovai suggested these types of activities as a way to develop social presence and support online student persistence. Akaoglu and Lee (2016) along with Qiu and Brett (2014), found that in small groups of 3-5, students perceived greater social presence, community development, and comfort than in larger or whole groups. This recommendation also aligns with the research that suggests that small group discussions are more effective than large or whole group discussions for students from a variety of cultures (Plotts, 2020, 2020b; Woodley et al., 2017). Additionally, small group discussions like these naturally lend themselves to being student-led as compared to larger discussion formats. Thus, the small group element makes the student-led design possible, which has been shown to nurture social presence (Brown & Eaton, 2020; Correia et al., 2019; Gilpin & Rollag Yoon, 2022).

A related line of research that deserves our attention because it often arises when grouping students has to do with peer effects. Tincani (2017) articulates the idea behind peer

effects is that the peers a student has in class influence that student's achievement. She goes on to share, previous research on peer effects in in-person settings (to my knowledge this topic has not been studied in online environments) has produced mixed results, showing that having peers that are better or higher achieving does not always lead to improved academics. In other words, the important thing are opportunities for interaction. In the case of small group discussions, the composition, who the students are in the small groups with, likely does not matter that much. Instead, the focus should be on optimal small group size to afford students the best opportunity to develop social presence and other benefits from their peer interactions.

These small group discussions can be carried out via multimodal synchronous technologies or similar asynchronous technologies. Remember, students often desire a relational back and forth conversation rather than a set of transitional-feeling isolated responses (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020; Schultz et al., 2020). It only makes sense that this is easier to accomplish with synchronous technologies, but if these kinds of discussions are used, scheduling will be easier for students if instructors organize them in small groups based on their availability to meet in real time (Gilpin et al., 2022). Still, if asynchronous tools are used, even those that are text only, the small groups setting is key. As Faye (2020) adds, the use of small groups in asynchronous formats also makes it possible for students to read all of their group members' posts and respond carefully. Moreover, this can encourage greater interaction among group members on the discussion board, building a real back and forth conversation rather than just a set of isolated responses to a post. The importance of the small group setting regardless of discussion type continues to emerge time and time again.

In summary, the discourse needs to be rich, purposeful, and intimate but there is little research around what this looks like in the online environment in general nor for distinct groups.

And the best approach to the type and number of interactions is not a one size fits all approach. Thus, the task at hand is to create opportunities for interactions that allow emerging online learners to interact with their peers in a manner, as shared by Abrami et al. (2011), "that is not fake or forced but meaningful and purposeful." And that provides them autonomy. To accomplish this and improve outcomes for emerging online learners, it is important for online instructors and course designers to incorporate innovative technologies as they design online discussions that are rooted in the interplay between social presence, interactions, and their collective impact on emerging online learner persistence.

Online Tools

The earlier sections of this piece I established that meaningful social interactions are vital for supporting emerging online learners. There are two types of tools online instructors use to facilitate these interactions and nurture social presence. The majority of communication in online courses is asynchronous, with 92% of post-secondary institutions delivering courses using these types of tools (National Center for Education Statistics). Asynchronous tools utilize a one-way approach for information exchange in which the students and instructors do not simultaneously interact. This type of communication often occurs through instructor recorded video lectures and text-based student-to-student and instructor-to-student dialogue through learning management system (LMS) discussion boards (Leader-Janssen et al., 2016). In contrast, prior to the COVID-19 pandemic, 19% of institutions offering online courses incorporated synchronous technologies (National Center for Education Statistics), but during the pandemic when nearly all instruction moved online, synchronous technology was the primary mode of delivery (Bayview Analytics, 2021). As a result, it is likely that post-pandemic online instruction will include more synchronous technologies since students and instructors have a level of comfort and experience

using these tools. Synchronous tools, such as video conferencing, bring online students and instructors together simultaneously in virtual spaces (Leader-Janssen et al., 2016). Occasionally, a blend of the two technologies is used in online courses; unfortunately, this usage is fairly new and not widely researched. In the following sections, I share research related to the use of these tools, how these tools are used in online courses, and the implications for emerging online learners.

Asynchronous tools. As noted earlier, text-based asynchronous discussions are the prevalent technology used in online courses. Even though up to this point, I have primarily highlighted the negative aspects, it is also important to report the benefits from these types of discussions. Asynchronous discussions have been widely studied and show promising results for engaging some students in learning (Lee & Brett, 2015; Watts, 2016). For example, asynchronous discussions have shown to be beneficial to some students as they engage in learning tasks with their peers that promote critical thinking (Aloni & Harrington, 2018), social presence (Cho & Tobias, 2016; Decker & Beltran, 2016), help with procrastination (Michinov et al., 2011), lead to a deeper understanding of course materials (Decker & Beltran, 2016), and improve attrition rates (Lee & Choi, 2011). Students are also protected by the virtual distance or anonymity of the text-based asynchronous discussion board (Berry & Kowal, 2020) with moderate to high levels of anonymity, in some cases, shown to lead to increased participation (Haythornthwait & Andrews, 2011; Jenkins, 2011). This distance may also make dealing with microaggressions and other sensitive conversations easier as compared to face-to-face or real time environments because text-based asynchronous discussion boards provide students time and space for reflection on how to best communicate and address these issues (Gilpin et al., 2022). All in all, this virtual anonymity along with the many other benefits of discussion boards support

the development of community, social presence, and persistence. Despite these benefits students still report dissatisfaction with asynchronous text-based discussions because these discussions lack the real-time authentic interactions they get in face-to-face courses (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020; Schultz et al., 2020). It should also not be a surprise that instructors and course designers are often frustrated with these types of discussions due to a lack of guidance around best practices (Fherman & Watson, 2020).

An alternative to the text-based asynchronous discussion posts that only recently came onto the radar due to rapid technological advancements is recording and uploading short audio and video clips. These new advances now make it possible to post text-based responses to LMS discussion boards along with short audio and video clips (Pinsk et al. 2014). Thus, offering students choice in how they interact via a multimodal discussion platform. The use of audio and video interaction to supplement or supplant text-based discussion boards is still a new practice with a sparse research-base (Fehrman & Watson, 2020). Research has begun to emerge, albeit some promising and at times contradictory. On one hand, Iona (2017) asserts that these alternative tools to text-based discussions make it easier and more natural to share thoughts and ideas as students report to be more comfortable sharing audio and videos instead of written responses. Along this same line, Page and Colleagues (2020) argue that asynchronous audio and video interactions may also facilitate more authentic and respectful discussions, as compared to text-based discussion boards, when tackling controversial topics because peers seem more "real." Some suggest a way to make discussion boards more inclusive for all learners is to incorporate multiple discussion modalities so students can interact via text-based responses along with uploading video or audio clips (Domingue 2016; Gay, 2010).

On the other hand, Seery (2017) found students to be uncomfortable posting audios and videos. They surmised this is not a negative aspect of multimodal tools, but perhaps instead a symptom of students needing more time and support to adjust to recording and posting videos instead of typing responses. In order to succeed in these new types of online discussions some researchers also acknowledge students need to be explicitly taught how to talk online in an academic manner (Delahunty, 2018; Griffin & Roy, 2019) to include guidelines, examples, and coaching. Zhan & Mei (2013) also suggest students might need help with their online interactions. It seems students are used to recording themselves for social media posts but recording one's self talking about a math problem or a social studies topic is a different genre. This research wholly reaffirms the need for continued research into the use of alternative tools and the implications for online learners.

All of that being said, I will highlight two studies around the use of student-created asynchronous video to illustrate how asynchronous video is being used and the impact on student social presence. To begin, Pinsk et al. (2014) studied five online non-traditional undergraduate students' use of student-to-student asynchronous video discussion posts and conclude the use of these posts did seem to create a sense of social presence for the students. This study is important because the research in this area is limited, but the implications of the results are limited too due to the small sample size. Griffith and Graham (2009) included a pilot study in an article they published about the use of asynchronous technologies. In their pilot study, all of the students attended the same campus and were taking an online course. Students created video clips and shared them with their peers and the instructor. The pilot study used surveys and course evaluations to collect feedback with the results indicating social presence using asynchronous video could mirror social presence found in face-to-face environments. Once again, the sample

size was small. Also, I was unable to discern if the students studied were graduate or undergraduates, which, as we have learned, is an essential consideration because not all online learners are the same. The results from these students suggest with asynchronous video, students still get to maintain that "anytime anywhere" aspect of online learning they desire (Drefs et al., 2015; Raza et al., 2020; Seaman et al., 2018; Simpson, 2013) with perhaps the same benefits of real-time face-to-face interactions even though the feedback is not immediate. Albeit the sample sizes were small, these studies still indicate promise for alternative tools.

To add more depth and understanding to the potential of multimodal tools, I am going to highlight three studies that investigated how interaction via VoiceThread or Flipgrid affected social presence and the creation of community. VoiceThread and Flipgrid are multimodal tools that can be embedded in most LMS to allow students to interact with one another through short audio or video recordings, and to comment on other's posts through text, audio, and video. (Sacak & Kavun, 2020). However, these tools require institutions to purchase licenses and pay fees on top of those already incurred for their LMS, which sometimes deters their use. First, Ching and Hsu (2013) examined 20 instructional design graduate students' experiences using VoiceThread in an entirely online course. Interestingly, when given the choice more than half of the participants in this study interacted with their peers using audio, followed by text, and video. In addition, half of the students felt more connected to their peers as a result of participating in a multimodal discussion as compared to text only discussions and students preferred these types of multimodal discussions over text only discussions. Again, the interactions were more authentic. For example, students shared the biggest benefit of this experience was they were able to communicate emotion, personality, and other non-verbal cues which allowed them to better interpret others' thoughts.

Another study conducted by Delmas (2017) surveyed 39 students in a fully online master's program and in a blended doctoral program regarding their experiences using VoiceThread in their courses. Results indicated that students perceived VoiceThread positively in the creation of online community. Students reported feeling more connected with their classmates due to the tool's ability to add voice to online activities. Bartlett (2018) also surveyed 24 graduate students about how interactions with peers in a course facilitated by Flipgrid impacted their perceptions of connectedness and community. The results indicated the majority reported increased connectedness to their peers and the program. In summary, the information gleaned from these studies, albeit the sample sizes were small, have positive implications for the development of social presence and community through multimodal tools. Therefore, the inclusion of asynchronous student-created audio along with video in online courses and future research is an important element because the power of asynchronous audio and video are perhaps untapped as alternatives to text-based discussions.

Social annotation tools, such as Hypothesis and Perusal, are another recent alternative to text-based discussion boards that also allow for multimodal interactions via text, audio, and video. These tools can be embedded in most LMS to allow students to students share their thoughts and comments directly on a webpage or online material, ask questions, and collaboratively discuss a text while reading (Sun & Gao, 2017). These tools also require institutions to purchase licenses and pay fees on top of those already incurred for their LMS, which sometimes deters their use. Further, when using social annotation tools, the audio and video files must be hosted externally and then shared via a link (Hypothesis, 2021), which is different than the previously shared multimodal tools (Voice Thread, Flip Grid, and progressive LMS discussion platforms). As a result, adding labor for users and the need for technology

devices that allow for recording directly to them instead of being embedded in the tool, could deter or prevent some from using the multimodal features. Traditionally studies have focused on the use of social annotation tools to enhance students' reading abilities with significant benefits (Chen & Chen, 2014; Yang et al., 2013). Recently, social annotation tools have begun to gain additional traction due to their potential for supporting online learners through the facilitation of interactions, community building, and social presence development (Chen, 2019). So, these tools too are worthy of further exploration.

There is a limited research base due to the relative novel nature of using social annotation tools to support online interactions, build community, and develop social presence. However, I did locate two studies of interest that I am going to highlight. Both studies only used text-based asynchronous interactions – no audio or video. The first study conducted by Sun & Gao (2017) surveyed 45 undergraduate students enrolled in an online teacher preparation course. Students participated in two types of asynchronous discussions with one facilitated using a social annotation tool and the other using a LMS discussion board. The results indicated that the social annotation tool did a better job of motivating students to participate in the discussion as compared to the LMS discussion board. The social annotation tool was received positively by the majority of students with a common theme emerging related to it being easier to read, comment on others posts in the social annotation tool because the posts were right there, and students didn't have to search for the original thread or cite a particular passage. On the contrary, some students shared concerns about the social annotation tool being difficult to use. The second study was conducted by Chen (2019) around the use of Hypothesis and looked at its potential for community building. Twelve graduate students were surveyed, and the results indicated students perceived the social annotation tool to be useful in supporting collaboration with their peers.

Both studies (Sun & Gao, 2017; Chen, 2019) show social annotation tools have the potential to foster interaction, build community, and develop social presence, even when used in a unimodal manner, by motivating students to engage with their peers. But with an important caveat that students need to be explicitly taught how to use the social annotation tools and then provided ongoing support. Once again, the sample size of both studies was small so the results should be used with caution but given the limited research these studies are a significant starting point.

DeRosa (2021) recently added another perspective to this conversation about social annotation as she spoke about the importance of instructors recognizing the implications of text that is stagnant and how this negatively impacts student participation in publicly shared learning experiences. Text-based discussion boards meet both of these criteria. She highlighted the role social annotation might play in improving student engagement as these texts are perhaps safer due to the fluid nature which conveys a sense of openness. These assertions by DeRosa (2021) also align with information shared earlier about the text-based discussion board format causing anxiety for some students because their posts are stagnant (Andrews & Smith, 2011; Darby et al., 2020). Thus, social annotation tools and asynchronous student-created audio along with video should be considered in the design of online courses and future research as these tools could be untapped in their potential for supporting emerging online learners by providing alternatives to the text-based discussion board.

Synchronous tools. According to Moallem (2015) one of the emerging technology tools for online learning that holds promise in addressing this resistance to asynchronous text-based discussions are synchronous video conferencing tools (e.g., Blackboard Collaborate, Zoom, WebEx, Adobe Connect, Cisco Telepresence). The use of synchronous technologies, such as video conferencing, brings online students and instructors together simultaneously in virtual

spaces (Leader-Janssen et al., 2016). These tools provide the opportunity for real-time, student-to-student, and student-to-instructor interaction in online environments in a multimodal manner through audio, video, text or a combination. Some assert online instructors can perhaps address the need for more authentic student-to-student interaction, and by proxy, increase community and social presence, through the use of synchronous video conferencing tools. These tools might provide opportunities for students to have more meaningful "real-time" interactions with their peers (Paulsen & McCormick, 2020) as compared to asynchronous text-based discussions. According to Berry & Kowal (2020) this is especially true of synchronous video because students can read one another's facial expressions and simultaneously pick up on voice cues/inflections, which is what builds community. Further, another study showed Black students may be less active in text-based asynchronous discussions as compared to White students (Ruthotto et al., 2020) due, in part, to a preference for oral conversation and storytelling (Plotts 2020a; Plotts 2020b) and face-to-face real-time interactions (Salvo et al., 2019) that are better supported through video conferencing technologies. Thus, video conferencing technologies seem to be another promising alternative to discussion boards.

But is also important to consider that while synchronous tools can promote equity, these tools can also promote inequality. This is particularly true for some students who are unable to attend live meetings with their peers due to work, family, or extracurricular commitments (Banna, Grace Lin, Steward, & Fialkowski, 2015), do not have access to technology and reliable high-speed internet (Johnson & Cuellar-Mejia, 2014; Stanford, 2020), or quiet spaces to meet (NYU Steinhardt, 2020). Plus, it gets harder for students who want to remain anonymous to keep that anonymity (Berry & Kowal, 2020) when using any sort of audio or video communication.

Not only are there issues of equity with synchronous tools, but when these tools are used in online courses, they begin to impact the flexibility and convenience many online learners, including emerging online learners desire (Drefs et al., 2015; Raza et al., 2020; Seaman et al., 2018; Simpson, 2013).

As a result, Berry & Kowal (2020) share instructors using this type of synchronous technology need to mindful of these topics, take proactive measures to keep students safe and comfortable, and have a plan for addressing microaggressions and other student concerns. Therefore, when using synchronous video conferencing tools, instructors should communicate with their students about internet access and provide the necessary support or alternative participation options (Gilpin et al., 2022). Further, instructors should alleviate potential scheduling difficulties by surveying students ahead of time and putting them into groups primarily based on their availability to meet (Gilpin et al., 2022). Moreover, instructors might need to work collaboratively with their institutions to assist students who do not have quiet spaces to meet, to find those places (Gilpin et al., 2022). When used thoughtfully synchronous technologies have the potential to emulate the face-to-face environment and bring equity to the online realm. Therefore, supporting the development of community, social presence, and persistence.

Similarly, much like the arguments in support of asynchronous audio and video, those in favor of synchronous video conferencing in online courses seem to be more theoretical (Garrison et al., 2000; Gilpin, 2020; Gilpin et al., 2022; Gorordshit, 2018; Hart 2012; Leeds et al., 2013; Liu et al., 2009; Moallem, 2015; Northrup, 2009; Zhan & Mei, 2013) rather than empirical because there are only a limited number of studies about the actual use of synchronous video conferencing tools in online courses. But due to the COVID-19 pandemic and the shift to a

primarily synchronous delivery of the majority of courses via video conferencing tools, increased empirical research in due time is likely to follow. However, I did locate five studies (Bonnici et al., 2016; Brown and Eaton; 2020; Gilpin and Rollag Yoon, 2022; Ragusa & Crampton, 2018; Skylar, 2009) that provide important insights into the potential benefits of synchronous video conferencing tools.

To begin, Skylar (2009) conducted a comparison study between asynchronous and synchronous online instruction involving 40 undergraduate students who were pursuing teacher licensure. Almost three-fourths of the students indicated they would rather take an online course that uses synchronous video conferencing technologies instead of a course relying solely on text-based asynchronous technologies. Similarly, the findings of Ragusa and Crampton's (2018) quantitative study with 122 undergraduates enrolled in a variety of online courses indicated those with a synchronous component felt a greater connection to their class. An opportunity may reside in information Bonnici et al. (2016) share in their case study of graduate students regarding that outside of the factor of convenience, their distinct group of online students preferred synchronous course delivery over asynchronous primarily for the connection with peers that supports their learning. The findings of these studies align with those shared earlier by Brown and Eaton (2020) and Gilpin and Rollag Yoon (2022) as they too found that synchronous discussions promoted social, teaching, and cognitive presence development. Additionally, Gilpin & Rollag Yoon's (2022) results show a student preference for interactions via synchronous video conferencing technologies rather than asynchronous discussion boards. Albeit limited, the empirical research suggests that synchronous interactions via video conferencing technology in online courses are a promising means to increased social presence and student satisfaction leading to improvements in online course completion rates.

Blended: using both asynchronous & synchronous tools. As mentioned earlier, a growing number of researchers recommend a shift in the online course delivery format from one that is primarily asynchronous to one that incorporates more synchronous opportunities for communication as a way to increase social presence leading to student satisfaction, engagement, and overall success. Still often the only type of technology used is the asynchronous text-based discussion board even though students tend to despise it (Kauffman, 2015; Majid et al., 2015) and the literature suggests a better course design is synchronous (Bonnici et al., 2016; Garrison et al., 2000; Gilpin and Rollag Yoon, 2022; Gilpin et al., 2021; Gilpin, 2020; Gororshit, 2018; Hart 2012; Leeds et al., 2013; Liu et al., 2009; Moallem, 2015; Northrup, 2009; Ragusa & Crampton, 2018; ; Skylar, 2009; Zhan & Mei, 2013) or blended delivery (Clark et al., 2015; Gilpin & Rollag Yoon, 2022; Gilpin et al., 2021; Gilpin, 2020; Hart, 2012: Joksimovic et al., 2015; Leeds et al.; 2013; Liu et al., 2009; Watts, 2016; Zhan & Mei, 2013). The research, once again, is more theoretical rather than empirical and sparse. But due to the COVID-19 pandemic, and the popularity of blended learning during that time, more empirical studies are likely to follow.

Nonetheless, I did locate a study that shows promise in the use of both types of tools. Clark et al. (2015), qualitatively investigated the impact of asynchronous and synchronous video along with a text-based discussion on the levels of social presence within an undergraduate online teacher education course. Sixteen students self-reported via a survey that social presence was significantly higher when using the video in both an asynchronous and synchronous manner. As a result, it might not matter if the video is asynchronous or synchronous. Instead, the critical aspect perhaps is seeing and hearing others with occasional real-time interactions.

In short, the research points to the use of more multimodal asynchronous and synchronous tools in online discussions. The use of any type of video or audio threatens the anonymity others desire (Berry & Kowal, 2020). And when a synchronous component becomes part of an asynchronous course, this jeopardizes the flexibility and convenience online students desire (Drefs et al., 2015; Simpson, 2013; Raza, 2020; Seaman et al., 2018), as they now have live meetings with their peers to juggle (Banna, Grace Lin, Steward, & Fialkowski, 2015), some students may not have the necessary bandwidth (Johnson & Cuellar-Mejia, 2014; Stanford, 2020) or quiet spaces to fully participate (NYU Steinhardt, 2020). But what if the benefits of the synchronous element are such that it might outweigh the costs? The cost (e.g., emotional and time) of the real-time synchronous discussion now becomes paramount to the emerging online learner. It might come down to the format for communicating that students value the most. The form students value most, in turn, motivates them. In that case, the information about what students value the most in tandem with social presence indicators becomes vital to designing purposeful asynchronous and synchronous discussions in online courses. This might also mean instructors provide choice or a blend of discussions because emerging online learners are getting more diverse.

Student Values

In order to determine how to design online interactions in a manner that is responsive to the increasingly diverse online student population, instructors and course designers need to know what students prefer and what is relevant because the more students value a task, the more motivated they are to engage, which in turn leads to higher levels of social presence and persistence. As a result, it is essential to consider student values when designing courses for emerging online learners. One approach to looking at motivation is the expectancy-value theory.

According to Wigfield and Eccles (2000), in this theory, one's attitudes toward a task and its perceived value are fundamental in students' motivation to complete the task and learn the material. The perceived value consists of utility and intrinsic values (Eccles & Wigfield, 2002). Utility value or usefulness is related to how much a task or content connects to one's future (Hulleman et al., 2017). In contrast, the basis of intrinsic value is about how enjoyable or exciting someone finds a task or activity. An intrinsically valued activity provides many positive psychological consequences (Eccles & Wigfield, 2002). In contrast, we should not ignore the cost of tasks or activities. Cost refers to how the decision to engage in one activity limits access to other activities, the effort needed to accomplish the activity, and its emotional cost (Eccles & Wigfield, 2002). In conclusion, the interplay between values and costs are paramount for online instructors to keep in mind as both impact motivation.

The premise behind this theory is that when students come into a learning space feeling a sense of high control and high value, this will contribute to emotions, and those emotions contribute to motivation and learning. The role of control is an important nuance related to a lack of choice perceived by students in many of their online discussion experiences as compared to those in their in-person courses. Earlier in this review of literature, I discussed the research of Schultz et al. (2020). In their study students shared that in face-to-face discussions, they can choose when to engage and how to respond as it can be more than words (e.g., nodding clapping, adding on). Yet, students reported the ability to do this absent from most online discussions. The text-based asynchronous discussion board, the common online discussion tool, could not be any more rigid and lacking student autonomy when discussed in this context. On the other hand, synchronous discussions tend to provide more opportunities for students to exert choice and control. Also, the option for students to decide between a synchronous or asynchronous option is

another way for instructors to put the control back into the hands of students. In sum, control and value provide another way for instructors to think about motivating online students.

It is important to consider both the expectancy-value theory of motivation and the control-value theory of achievement. Whereas, the expectancy-value theory is about the value and cost associated with a task, the control-value theory adds the element of student autonomy. In the end, when designing online courses, it is vital for instructors and course designers to consider these additional entry points for thinking about how to support the motivation of online learners as both can be impacted by instructional design. As part of FEOLP, these theories work in tandem with social presence and modes of interaction because it really should come down to what students want and value with those activities that are both high control and high value leading to motivation and learning. In the end, impacting persistence.

Summary and Research Questions

But what if the use of asynchronous and synchronous audio, video, and text to facilitate small group collaborative activities are both valued by students and create similar levels of social presence, possibly levels identical to or higher than face-to-face courses? Then why not let students decide the amount of each to include in online classes? Or provide them a choice? Or offer them some of each? Let them facilitate the discussions? All of these options provide the flexibility and autonomy students desire along with addressing issues that can lead to inequities, while providing opportunities for authentic interactions. Ultimately, higher education leaders, instructors, and course designers need to move beyond a "one-size fits all" approach to designing online learning experiences. Instead, the focus should be on the preferences and desires of distinct groups of learners along with the emerging research to create meaningful interactions

that nurture community and support students across the finish line. Instructors and course designers need a way forward to accomplish this.

FEOLP provides a roadmap for both practitioners and researchers regarding emerging online learners. It has the potential to be a robust framework to assist with the establishment of best practices. FEOLP combines elements of other well-known frameworks and theories in a novel way to address the needs of emerging online learners through course design that has the potential to enhance social presence using student values to determine the blend of asynchronous and synchronous discussions. Thereby, capitalizing on the unique needs of subsets of emerging online learners, embracing this diversity, and using that information to plan online pedagogy. FEOLP indicates there is perhaps a connection between social presence, online course tools, student values, and their collective impact on student persistence. However, FEOLP is theoretical and in need of empirical validation.

Given the limited research to draw from on how to design online courses as illustrated throughout this piece so far, there is a need to assess empirical support for FEOLP. My review of literature showed the online discussion research base is still emerging and limited. The pieces I reviewed were many times theoretical or reviews of literatures. While the empirical studies were generally small (50< participants) qualitative studies, the participants were a mix of graduate and undergraduate education students, with the most common frameworks being social presence or the entire CoI. Six of these studies looked at multimodal asynchronous tools to include those that only used audio or video (Bartlett, 2018; Ching & Hsu, 2013; Correia et al., 2019; Delmas, 2017; Griffith & Graham, 2009; Pinsk, 2014), five synchronous tools to include those that only used audio or video (Bonnici et al., 2016; Brown and Eaton; 2020; Gilpin and Rollag Yoon, 2022; Ragusa & Crampton, 2018; Skylar, 2009), and one blended to include the use of both

asynchronous and synchronous multimodal tools (Clark et al., 2015). One experimental design study in this review of literature was not specifically geared toward enhancing online discussions via innovative technologies rather Clinton and Kelly (2019) used a brief intervention informing students of the usefulness of group discussions to assess the impact on their attitudes towards discussion boards. All of the studies' findings indicated the tools and conditions had a range of positive impacts on students. But a limitation of most were small sample sizes. In conclusion, my review of literature aligns with other researchers (Ferhman & Watson, 2020; Gilpin, 2020; Lee and Brett; 2015) as it indicates a need for more empirical studies.

The purpose of this study is to address this research gap while also advancing a robust framework, FEOLP. To my knowledge this is the first study to investigate two different types of online discussions that incorporate asynchronous and synchronous text, audio, and video. And the first to look at in tandem social presence and values. The empirical evidence will be used to curate recommendations to support course design that better meets the needs of emerging online learners enrolled in teacher preparation programs with implications to other fields and also advance research. The study is focused on the following research questions:

RQ1: What differences in social presence, if any, did online students report between discussions using synchronous tools versus discussions using asynchronous tools?

RQ2: What differences in values (intrinsic, utility, and cost), if any, did online students report between discussions using synchronous tools versus discussions using asynchronous tools?

RQ3: What relationship, if any, is there between student reports of social presence and student reports of values for discussions using synchronous tools and discussions using asynchronous tools?

Chapter III:

Methods

The current study utilizes FEOLP as the foundation to examine the impact of two different types of online discussions on the constructs of social presence and values for online students enrolled in a teacher preparation course. Students participated in both discussion boards (asynchronous discussions) and learning communities (synchronous discussions) over the duration of a 16-week semester as part of the course requirements. Then they were invited to complete an online questionnaire about their experiences with each type of discussion. In the remainder of this chapter, I share information about the participants to include demographics and the measures used to collected data to be used to answer the research questions along with the design, analysis, and procedures.

Participants

The students who had the opportunity to participate in this study were undergraduates, who were also teacher candidates, enrolled in an online undergraduate Introduction to Special Education course that I taught at a small, Midwestern private liberal arts college. The course is a requirement for all students seeking teacher licensure. In addition, other non-education students take this course because it is part of the sequence of courses for a Special Education Minor. There were 85 undergraduate students enrolled in the courses that were being studied. Of those students, 83 students completed all of the activities related to this study (participated in three discussion boards and three learning communities) and were invited to complete the questionnaire. The response rate was 96% as 80 of 83 eligible students completed the questionnaire.

Information was collected to insure the students being studied were in fact emerging online leaners who were also teacher candidates and to learn more about their needs. To support that data collection, the 38-item questionnaire I designed for this study began with five standard demographic items (see Appendix, items 1-5). There was also an 8-item student experience scale (see Appendix, items 6-13). The student experience scale included items such as, "What is your grade point average?," "Prior to this term, how many credits have you completed?," "What percent of your previously completed/current credits have been online and face-to-face?," and "How many miles do you live from campus?"

Of the 80 students that completed the questionnaire, 62 reported they were female, 17 reported they were male, and 1 reported another gender identity. Students ranged in age from 18 to 55 with a mean of 23 years. English was considered to be the first language for 95%. In terms of race, 89% identify as White, 5% Black or African American, 3% American Indian or Alaska Native, 3% another race, and 1 % Asian (Note: Total does not add to 100% due to rounding). 78% were full-time students with a mean of 92 completed credits with 75% majoring in Education (elementary or secondary teacher licensure), 11% Education Studies (teacher preparation coursework without a license), and 14% Pre-Professional (e.g., pre-occupational therapy, pre-physical therapy, social work, psychology, etc. with intentions to work in K-12 schools). The mean GPA was 3.59 and mean distance living from campus of 19 miles. At present, 100% were enrolled in a combination of face-to-face and online courses and prior to this course they all had completed at least one other online course.

In summary, these demographic data support that the participants in this study were emerging online learners (Raza et al., 2020; Seaman et al., 2018; Murphy & Stewart, 2017) and the majority were pursuing teacher licensure or planning to work in K-12 schools in other

capacities (e.g., school psychologist or occupational therapist). It is important to note these data were collected during the COVID-19 pandemic. During this time many students were known to be both taking courses designed for face-to-face delivery in online formats (sometimes referred to as "emergency remote") and living at home rather than on campus for health and safety reasons. The courses that were part of this study were intentionally designed for online delivery. More detailed information for these demographic variables appear in Table 1.

Instrument

I developed a 38-item online questionnaire for this study (see Appendix). The following section provides an overview of the questionnaire and its development as it pertains to the social presence and values constructs (see Appendix, items 14-38).

Social Presence

To measure social presence, I modified an already existing scale from the CoI survey instrument created by Arbaugh et al. (2008). In a meta-analysis, Richardson and et al. (2017), identified 28 commonly used CoI survey instruments. I chose the Arbaugh et al. (2008) survey instrument because it was included on their list, is one of the most widely used, and it has one of the highest internal reliabilities for the social presence construct (9 items; Cronbach's alpha = .91), which is more than adequate (Hancock et al., 2018). It was originally designed to measure the three constructs (social presence, teaching presence, and cognitive presence) of the CoI conceptual framework through 34-items using a Likert-type scale. The original administration indicated it was a valid measure with factor loadings that support the three constructs identified in the CoI survey instrument matching those from the CoI conceptual framework. Moreover, Leader-Janssen et al. (2016) used the entire 34-item CoI survey instrument to evaluate a fully online graduate teacher preparation program and found it to be effective. One critique of this

scale and other CoI scales is these scales are often validated on graduate students with limited validation efforts to include the undergraduate population (James et al., 2021)

Taking that into account, I combined and reduced the social presence scale to 6-items to make them better fit the participants, who were undergraduate students, and the context of this study. I used a five-point Likert-type scale ranging from "1 = Strongly Disagree" to "5 = Strongly Agree." Cronbach's alphas with my participants were .82 and .88 respectively, which is more than adequate (Hancock et al., 2018). The reporting of two Cronbach's alphas reflects two administrations of the social presence questions as part of the within-subjects design. Participants competed the social presence questions one time about the discussion boards and another time about the learning communities for a total of two administrations. The Cronbach's alphas are also available on Table 3.

Values

I used 12-items to measure student values. I developed the values scale, which is comprised of three subscales (e.g., intrinsic, utility, and cost), by adapting scales from Hulleman and et al. (2008), Hulleman and Harckiewicz (2009) and Clinton and Kelly (2019). In all three cases, the researchers had participants report their perceptions of the intrinsic and utility value of tasks based off the expectancy-value theory of motivation. The Clinton and Kelly (2019) study around undergraduate online discussions showed their 6-items addressing intrinsic value (Cronbach's a = .91) and the 9-items addressing utility value (Cronbach's a = .91) to have adequate internal reliability (Hancock et al., 2018).

I once again combined and reduced items to make them better fit the context of this study. I was unable to locate a collection of items related to cost. Therefore, I used ideas from the earlier mentioned researchers to create 4-items to measure cost. I once again used a five-point

Likert-type scale ranging from "1 = Strongly Disagree" to "5 = Strongly Agree." The values scale I used included three subscales: intrinsic (n = 4), utility (n = 4), and cost (n = 4). I included 4-items in each subscale because in order for a set of items to be parsed out of a larger set of items for statistical analysis, it must contain at least 3-items (Hancock et al., 2018). Cronbach's alphas with my participants were .79/.82 (intrinsic), .85/.78 (utility), and .82/86 (cost). The overall reliability for all 12-items was .89/.88. Both the subscales and overall reliability are adequate (Hancock et al., 2018). The reporting of two Cronbach's alphas reflects two administrations of the values questions as part of the within-subjects design. Participants completed the values questions one time about the discussion boards and another time about the learning communities for a total of two administrations. The Cronbach's alphas are also available on Table 3.

Open-ended

I used seven open-ended items to complement and corroborate the social presence and values items. I created 3-items to further illuminate student perspectives on the intrinsic value, utility value, and costs of the two different types of discussion (see Clinton & Kelly, 2019, for a similar design). I also used 4-items to glean further insights into student preferences for discussion type, the overall impact of discussions on the development of social presence, further explore student values, and a catch all for anything else students wanted to share. The responses to these items were gathered via text boxes where students could freely type about their thoughts, ideas, and experiences.

Design/Analysis

This study was a comparison of participant experiences. The same students participated in two types of small group discussions (e.g., discussion boards and learning communities) over

the course of a 16-week semester as part of the course requirements and then they were invited to complete an online questionnaire about their experiences with each type of discussion. Figure 2 provides an overview of the study to include these two phases – 1) student participation in the online discussions 2) data collection about their experiences. This study also was a Scholarship of Teaching and Learning (SoTL) study, which involves instructors studying the students they teach (Grauerholz & Main, 2013). I collected data over three different semesters (Fall 2020, Spring 2021, and Fall 2021).

I conducted analyses of the Likert scale items in R, which is an open-source statistical software package (R Core Team, 2014). First, I examined the significance of any differences between social presence and values for the different types of discussion experiences along with any associations between social presence and values. I used paired t-tests and *Cohen's d* to examine the differences between social presence and values for two different types of discussions. I also utilized Pearson's Correlation to explore the associations between social presence and values for two different types of discussions.

I conducted analyses of the open-ended responses to complement and corroborate the statistical analyses. Specifically, I conducted an inductive content analysis on the open-ended items (Zhang & Wildemuth, 2009). I assigned codes and themes to be used later to contextualize and enhance the quantitative findings (see Barry et al., 2015 and Clinton & Kelly, 2019, for similar approaches). For instance, if there is a significant difference between the two types of discussions for a statistical analysis, the corresponding open-ended question(s) should also reveal differences (Saldana, 2020). In addition, I tallied the frequency of the themes for each open-ended item (see Clinton & Kelly, 2019, for a similar approach). As recommended by Namey et al. (2008), I determined the frequencies based on the number of individual participants that

mentioned a particular theme, rather than the total number of times the theme appears in an individual participant's response. This is based on the assumption that the number of individuals expressing the same idea is a better indicator of overall importance than the number of times a theme is shared. Still some participants provided lengthy responses that contained multiple codes and themes, so there are more tallies than students. For some items, I created percentages for the first responses students shared (e.g., discussion preference – discussion board, learning community, no preference) and then conducted content analyses of the reasons students shared. Table 2 provides an overview of the research questions, data sources, and data analyses.

Procedures

In order to facilitate students successfully participating in the two different types of small group discussions (e.g., discussion boards and learning communities), there were some organization elements that I addressed. At the beginning of the course, I randomly assigned students to small groups of three to five, which is in accordance with best practices for group size that nurtures social presence, community, and group cohesion (Akcaoglu & Lee, 2016; Qui et al., 2014; Plotts, 2020, 2020b; Woodley et al., 2017). To optimally support the development of community and social presence students were in the same small group all semester for both the discussion boards and learning communities. Adhering to additional developing best practices, students took turns facilitating the discussions, but I still identified the overarching lesson topics/objectives, the readings/viewings, and a starter prompt/directive that students could elaborate and build on by sharing their own perspectives, questions, and resources (Page et al., 2020; Correia et al., 2019; Szabo, 2015; Gilpin et al., 2022). I also provided whole class and small group feedback to students in regard to their posts (Phirangee et al., 2016). Further, the discussions counted toward 20% of the students' final grade in the course and specific

examples/guidelines along with grading rubrics were provided to students at the beginning of the semester (Aloni & Harrington, 2018; Ferhman & Watson, 2020).

The discussion boards utilized LMS technology that facilitated students participating in discussions through asynchronous text, audio, and video. Each discussion board assignment required students to take turns being the discussion leader for their small group. The discussion leader posted a peer reviewed article, Tweet, short video, or blog related to the topic/objectives for the lesson along with their initial thoughts/reactions, connections to course materials, and two to three discussion questions. Then the other group members each posted at least three responses on at least two different days to their leader's post and/or in regard to the comments of others in the group. The posting parameters were set for students to encourage a back-and-forth flow as students would need to check back into the discussion board at least twice as they posted their responses; rather, than students doing all of their posts on one day and then not checking back again. The discussion leader was also responsible for acknowledging their peers' posts and keeping the discussion on track. I provided consistent deadlines throughout the course for the opening and closing of discussion forums. Although, throughout the entire course students could at any time view the discussions for their group and for the others. I also monitored the discussion boards to ensure students were adhering to the discussion board guidelines and treating one another with kindness and respect. Additionally, after the discussion board closed for a module, I shared feedback with each small group, and I shared my overall feedback/thoughts in a summary to the entire class via an announcement in the LMS. Based on their contributions, students each received an individual grade for each discussion board.

The learning communities utilized the video conferencing tool Zoom, which provided a platform for students to discuss assigned topics through synchronous text, audio and video. Each

learning community assignment required students to meet with their small groups via Zoom and respond to a series of questions/complete activities related to course content. Sometimes students were required to read/view additional materials prior to their meetings or locate an article/other resources and bring it to the meeting to discuss. Group members took turns leading the discussion, making sure each member was included/able to share their thoughts, and submitting a meeting summary for the group to the course LMS. I read each learning community submission, provided individual feedback to each small group, and I shared my feedback/thoughts in a summary to the entire class via an announcement in the LMS. Based on their contributions, students each received an individual grade for each learning community.

At the end of the course, students who completed all of the activities related to this study (participated in all of the discussion boards and learning communities) were invited to respond to a questionnaire (see Appendix) regarding their beliefs and opinions about the two types of online discussions they experienced in this course. Namely, discussion boards and learning communities. The final discussions were due by the end of week 15. At the beginning of week 16, all students enrolled in the course who participated in all of the discussions, were emailed a link to the study's online questionnaire generated with the institution's Qualtrics software. Students were invited to answer the questions as honestly as possible and to not answer a question if they did not understand or know the answer. Students had two weeks to complete the questionnaire. A proposal for this research, specifying the student data involved, was reviewed and approved by the institutions' Internal Review Board (IRB).

Chapter IV:

Results

The purpose of this study is to explore a new framework, FELOP, and use it to investigate two different types of online discussions that incorporate asynchronous and synchronous text, audio, and video, and share recommendations to support course design that better meets the needs of emerging online learners who are also teacher candidates. Likert scale and open-ended response data was collected to answer the research questions and thereby compare student experiences. In this chapter, I share summaries of both the Likert scale and open-ended response data.

Using R (R Core Team, 2014), I conducted analyses to assess the significance of any differences between the means of the measures and to assess for any associations. Before conducting these analyses, student responses (See Appendix, items 14-31) were combined and averaged to form variables representing the overall scores for each measure. As I was preparing these data, I noticed some participants (9 or less per construct condition) missed completing at least one of the items. After reviewing the data and looking for patterns, I concluded the data was missing at random, which is considered to be the best scenario as some loss of data is inevitable (Hancock et al., 2018). Possible explanations for the missing data include the following: (1) participants missed certain items accidentally, (2) declined to answer sensitive items, and (3) became fatigued as the survey progressed. However, these explanations are purely speculative, as I do not have data to support them. According to Hancock et al. (2018) there are two common options for dealing with missing data. Pairwise deletion excludes cases with missing values only on variables included in a particular analysis. The downside of pairwise deletion is each analysis may have a different sample size that could lead to result bias. Nonetheless, pairwise deletion is

deemed better than the other most common strategy of listwise deletion where all cases with any missing values are excluded from all analyses. I wanted to preserve as many cases as possible within the relatively small sample collected, so I chose to use pairwise deletion. With this in mind, 80 participants completed the questionnaire but some missed items on certain variables leading to their responses for that case not being included in a particular analysis. Therefore, the sample sizes of the analyses ranged from 71 to 77 participants.

The means and standard deviations appear in Table 3. The mean scores for both social presence and values (overall) along with the intrinsic value (interesting or enjoyable) and costs (downsides) subscales were all higher for the asynchronous discussions as compared to the synchronous discussions. While the synchronous discussion mean score was higher for the utility or usefulness subscale. A higher mean score for costs does not mean the downsides for the asynchronous discussions were perceived to be more than those of the synchronous discussions. Rather, due to the reverse coding of the cost items, a high score means the opposite, and that the costs for asynchronous discussions were actually less. In other words, there were not as many perceived downsides for discussion boards or learning communities were more costly. I then examined the significance of these differences and I also assessed for associations. Those results are shared in the following subsections and also appear on Tables 3 and 4.

I conducted a paired samples t-test along with *Cohen's d* using the combined and averaged variables representing the 6-items from the social presence scale for each of the experiences (asynchronous and synchronous). Cohen (1988) defines effect sizes as small (d=0.20), medium (d=0.50), and large (d=0.80). The difference was not statistically significant, t(73)=o.387, p>05; *Cohen's d* =0.05. In other words, the results indicate no evidence of differences between levels of social presence for the two different types of discussions.

I conducted paired samples t-test along with *Cohen's d* using the combined and averaged variables representing the 12-items from the values scale as a whole and also the 3 subscales (intrinsic, utility, and cost) each containing 4-items for each of the experiences (asynchronous and synchronous). Since each subscale contained at least 3-items (Hancock et al., 2018), for these statistical analyses I was able to include them in the overall values scale and as stand-alone scales. The differences in the means were not statistically significant for asynchronous values overall and synchronous values overall, $t(70)=0.975$, $p>05$; *Cohen's d* =0.06. Another similar result was true for the subscale of asynchronous intrinsic and synchronous intrinsic, $t(75)=0.938$, $p>05$; *Cohen's d*=0.14, as the differences were not shown to be statistically different. However, two of the other subscales did have differences in means that were statistically significant, yet the effect sizes were small. First, the results for asynchronous utility and synchronous utility, $t(76)=2.114$, $p<.05$; *Cohen's d* =0.13, indicates students found the synchronous discussions more useful. Also, the results for asynchronous cost and synchronous cost, $t(71)=2.272$, $p<.05$; *Cohen's d* =0.12, suggests students found asynchronous discussions less costly or the synchronous discussions are more costly. In other words, even though the means are different for the overall value and intrinsic value of the discussions these analyses indicate there are no differences. But there are differences in the cost and usefulness means between the discussions.

I conducted Pearson's Correlation tests using the combined and averaged variables representing the 6-items from the social presence scale for each of the conditions (asynchronous and synchronous) and the 12-items from the values scale for each of the conditions (asynchronous and synchronous). I used the overall values variables and not the subscale variables. There were significant and positive correlations between levels of social presence and values for both types of discussions – asynchronous $r(73)=.688$, $p<.05$ and synchronous

r(70)=.582, p<.05. Generally, a correlation of greater than 0.70 is considered a strong correlation, between 0.50 and 0.70 a moderate correlation, and less than 0.40 a weak or no correlation (Hancock et al., 2018). Accordingly, the correlations are significant and positive yet both are considered moderate (asynchronous .688 and synchronous .582). In other words, both social presence and values indicators generally move in the same direction. As one increases so does the other and as one decreases so does the other (Hancock et al., 2018).

I conducted analyses of the open-ended responses to complement and corroborate the analyses of the Likert scale items. I used an inductive content analysis (Zhang & Wildemuth, 2009) on the 7 open-ended items (See Appendix, items 32-38). For some items, I created percentages for the first responses students shared (e.g., discussion preference – discussion board, learning community, no preference) and then conducted content analyses of the reasons students shared. First, I used 3-items (See Appendix, items 32-34) to further illuminate student perspectives on the intrinsic value, utility value, and costs of the two different types of discussions. I determined the frequencies based on the number of individual participants that mentioned a particular theme, rather than the total number of times the theme appears in an individual participant's response. Some participants provided lengthy responses that contained multiple codes and themes, so there are more responses than participants. Other participants did not provide a response as observed by them not typing anything in the text box. Those types of responses were coded as no answer (question left blank). As a result, once again the number of respondents per question varies. These results are shared in the following subsections.

For asynchronous discussions, the most frequently noted source of perceived intrinsic value (what makes discussion boards interesting or enjoyable) was the ability to interact with peers "the social aspect" of learning followed by exposure to other viewpoints. In terms of utility

value (the usefulness of discussion boards), the most common response was also exposure to other viewpoints followed by the opportunity to develop career related skills. With regard to costs (the downsides of discussion boards), the most prevalent downsides were that discussion boards are time consuming as well as unengaged peers and those who do not adhere to the discussion board guidelines. Moreover, it is important to note several students indicated there were not any costs. A listing of the most common themes pertaining to the intrinsic value, utility value, and costs for the discussion boards to include examples and frequencies are presented in Table 5. Complete listings of the themes, examples, and number of responses are presented in Tables 6, 7, and 8.

For synchronous discussions, the most frequently noted source of perceived intrinsic value (what makes learning communities interesting or enjoyable) was collaborating with others (teamwork) followed by exposure to other viewpoints. In terms of utility value (the usefulness of learning communities), the most common response was the opportunity to develop career related skills followed by the chance to enhance collaborative skills (teamwork). With regard to costs (the downsides of learning communities), the most prevalent downsides had to do with the difficulty of scheduling these real time meetings with peers along with unengaged peers and those who do not adhere to the learning community guidelines. Further, it is important to note several students indicated there were not any costs. A listing of the most common themes pertaining to the intrinsic value, utility value, and costs for the learning communities to include examples and frequencies are presented in Table 9. Complete listings of the themes, examples, and number of responses are presented in Tables 10, 11, and 12.

Additionally, I used 4-items (See Appendix, items 35-38) to glean further insights into student preferences for discussion type, the overall impact of discussions on the development of

social presence, further explore student values, and a catch all for anything else students wanted to share. To begin, participants were asked, "After experiencing both types of discussions (discussion boards and learning communities), which do you prefer and why?". Of the 75 students that responded to this question, 40 (53%) reported preferring learning communities, 28 (37%) discussion boards, and 7 (10%) no preference. The most common reason given by students preferring learning communities or synchronous discussions was that they perceived these discussions to be more authentic and personal. This is an indicator of social presence. On the other hand, for students that preferred discussion boards or asynchronous discussions the most common reason they gave was due to the perceived flexibility and convenience. This is an indicator of value. For those that indicated no preference, the most common reason had to do with an appreciation for both types of discussions. Once again, this is an indicator of value. Moreover, the majority of students' value or appreciate a discussion format that includes synchronous discussions (learning communities) in some form either as the only type of discussion or as a choice/option along with asynchronous discussions (discussion boards). In summary, the driving factor for students in regard to their preference for synchronous discussions was related to social presence and the desire for discussions that are more authentic and personal while those who preferred asynchronous discussions indicated a desire for flexibility and convenience. A listing of the themes to include examples and frequencies are presented in Tables 13, 14, and 15.

In order to further contextualize the data about social presence, I asked students specific questions about the peers in their discussion groups. Of the 77 students that responded to the question, "Which type of discussion format (discussion boards or learning communities), helped you better get to know your peers?", 53 (69%) reported learning communities with 24 (31%)

indicating discussion boards. Further, of the 78 students that responded to the question, "Did you interact with those in your discussion groups outside of assigned course activities?", 45 (58%) reported to have not while 33 (42%) reported to have. The most common way students reported to engage with their discussion group members outside of the assigned class activities was via text messaging, apps (e.g., Snap Chat, Instagram, etc.), and email. Some indicated to have created group chats they used regularly to check in with one another personally and about other classes. Another common way was seeing one another in other classes. Additionally, some students shared their group members were familiar from previous classes taken together. Smaller numbers of students also indicated seeking out others to answer questions, supporting one another, studying together, and interacting socially. In summary, the majority of students reported learning communities or synchronous discussions helped them to better get to know their peers with a smaller number reporting they interact with discussion group members outside of assigned course activities. Put together, these pieces of data indicate synchronous discussions (learning communities) nurture social presence and community that sometimes even extend beyond the online classroom.

Chapter V:

Discussion

Through this study I aim to explore a new framework, FELOP, and use it to investigate two different types of online discussions that incorporate asynchronous and synchronous text, audio, and video, and share recommendations to support course design that better meets the needs of emerging online learners. In this chapter, using both the analyses of the Likert scale items and of the open-ended responses, I will share interpretations based on those results, connect those to the research questions and to the research base. Also, I will share recommendations for instructors and course designers based on these results. Finally, I will outline limitations of this study and suggest future studies.

Interpretations

RQ1: What differences in social presence, if any, did online students report between discussions using synchronous tools versus discussions using asynchronous tools?

Although there was no evidence of a significant difference in social presence for the two types of discussions, through open-ended items, a majority of students did indicate synchronous discussions helped them to better get to know their peers as compared to asynchronous discussions. The most common reason shared why had to with the synchronous conversations being more authentic, personal, and relational. With this, students shared an appreciation and desire for the back-and-forth flow of these conversations, immediate responses, and being able to see their peers' faces. To illustrate, a student shared, "They allow for conversation in real time and I got more out of them because of that." Another student added, "I like talking back and forth and being 'in-person' to ask questions and help each other understand." These examples align with the research showing online students desire dynamic and organic interaction (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020). Some students also shared they interact with

their peers outside of assigned course activities to include communicating via text, group chats, and social media. This finding is consistent with those from previous studies that show today's emerging online learner use and engage with their peers via social media and digital platforms (Morrell, 2021). An unexpected finding that could impact baseline levels of social presence had to do with students sharing they knew some of their small group members from previous classes taken together. Thus, students may have entered the discussions in this course with already established relationships with some of their group members. As a result, some students had a head start in the development of social presence as compared those who did not have relationships with their group members prior to this course. This is purely speculation, as I do not have any data to support this assertion. Yet, elevated levels of social presence due to already established relationships need to be considered as we review the social presence data.

All together, these results indicate perhaps that for these emerging online learners, the synchronous discussions in fact did better support social presence development as getting to one's peers and interacting with them outside of class is the ultimate outcome of social presence (Garrison et al.,2000). Given the positive impact of social presence on online student motivation and participation (Jorge, 2010; Swan & Shih, 2005), actual and perceived learning (Hostetter & Busch, 2013; Picciano, 2002; Richardson & Swan, 2003; Richardson et al., 2017), satisfaction (Akyol & Garrison, 2008; Gunawardena & Zittle, 1998; Richardson et al., 2017), and persistence (Boston et al., 2009), it seems synchronous discussions check all of the boxes. However, there was not a significant difference in the mean scores between the two types of discussions and several students also indicated the asynchronous discussions helped them get to better know their peers.

In order to further explore the social presence nuances between these two discussions, I took a closer look at the open-ended responses. I looked for evidence that the social presence nurtured by these discussions was doing more than building community. Therefore, I looked for other CoI indicators that are known to be impacted by social presence, namely cognitive and teaching presences (Garrison & Cleveland-Innes, 2005; Rovai, 2001). These indicators were evident in the thematic analyses across both types of discussions. For example, students provided responses regarding the application of learning, building knowledge and understanding, and teaching/learning from others. This is evidence of both students acting as teachers for their peers (teaching presence) and deep learning (cognitive presence) supported by social presence (Shea et al., 2014). This shows the CoI is embodied fully in both types of these discussions, which is promising as other researchers have also found that by that shifting the facilitation back into the hands of the learners and letting them steer asynchronous (Correia et al. 2019) and synchronous (Gilpin & Rollag Yoon, 2022; Brown & Eaton, 2022) online discussions that through social presence deeper learning occurred.

Overall, these data provide evidence that both types of discussions tend to support social presence for this group of emerging online learners while also creating spaces for deep learning. Two student responses sum it up. One student shared that discussion boards supported them to "work with others and build relationships." Another student shared that learning communities "helped me get to know my peers on a personal level." So far, the results seem indicate a blend of discussions is the way forward.

RQ2: What differences in values (intrinsic, utility, and cost), if any, did online students report between discussions using synchronous tools versus discussions using asynchronous tools?

There was no evidence of significant differences for the overall value and intrinsic value for the two discussion types. But there was evidence of significant differences in the cost and

usefulness. In other words, students tend to value both types of discussions and find them interesting due opportunities to interact with their peers, hear other perspectives/viewpoints, and to develop career skills. However, they indicated synchronous discussions to be more useful in spite of synchronous discussions also being more costly. The open-ended items add context to this as students commonly shared synchronous discussions were more useful, in part, due to opportunities for teamwork/collaboration. For example, a student shared, "They provide team collaboration in order to understand a topic. It promotes interdependent thinking." Both the utility and intrinsic value students place on synchronous discussions was evident throughout the open-ended responses. Not surprisingly though the open-ended responses were filled with costs related in particular to synchronous discussions.

For costs, students commonly shared the synchronous discussions impacted the flexibility they desire. Students elaborated by sharing it was difficult to schedule live meetings with their peers and preferring discussion boards because those types of discussions can be done anytime, anywhere. Additionally, students commonly shared the task of scheduling meetings became even more difficult when peers would not respond to group emails or texts about meeting times. On the other hand, students shared discussion boards afford them the opportunity to post anytime, anywhere. All in all, this is a typical complaint about synchronous discussions and a prominent reason as to why these discussions are often not part of online courses due to the real time component infringing on the anytime, anywhere aspect online students desire (Drefs et al., 2015; Raza et al., 2020; Seaman et al., 2018; Simpson, 2013). It should also be noted several students in their open-ended responses indicated there were no perceived costs or downsides' to both the asynchronous and synchronous discussions.

A small side finding contrary to this was brought up by students who indicated they actually value the flexibility and convenience of synchronous discussions. This might seem counterintuitive, but a student makes sense of this finding when they shared, "I did not have to keep checking back for responses after we met, I knew I had done my part." This student's response about the synchronous discussions connects to a common cost shared by students about the discussion boards being time consuming. Another student added, "They [discussion boards] are time consuming as they need to be worked on during three separate days." Specifically, this student was talking about the posting parameters I set for students to encourage a back-and-forth flow as students would need to check back into the discussion board at least twice as they posted their three responses: rather, than students doing all of their posts on one day and then not checking back again. The time-consuming nature of discussion boards was also reported by students in a study by Clinton and Kelly (2019). In sum, two of the costs that likely impact the value of these online discussions are scheduling difficulties for synchronous discussions and the time-consuming nature of asynchronous discussions.

Another widely shared cost or downside for both types of discussions that came through the open-ended responses had to do with unengaged peers to include those not following discussion guidelines. A similar finding to this also came out of the study by Clinton and Kelly (2019). This seems contradictory though as students also commonly shared, they value both types of discussions due to interacting with their peers, hearing other perspectives and collaborating with their peers. So, the value students have for discussing with their peers seems to outweigh the costs. Nonetheless, these costs should not be overlooked as the costs could and likely do to some extent impact student motivation, learning, and persistence. One reason for the peer issues could have been a result of the student-led nature of the discussions which led to

limited instructor presence at different points in the discussion cycle. For example, students were in charge of setting up and facilitating their learning community meetings and likewise taking the lead on creating the discussion board topics and picking someone to start off the posts. Also, some students mentioned the discussion board guidelines were hard to remember, which could cause students to become frustrated or forget leading to a lack of engagement and not following the guidelines. This issue of missing deadlines likely arises for most assignments in online courses (Clinton and Kelly, 2019); yet, in this circumstance missing a deadline impacts more than just one student. Rather, three to four other group members could potentially be waiting for a peer's post. Others noted the learning community meetings sometimes felt like a checklist and the discussion boards repetitive. Both issues could potentially lead to unengaged and frustrated students, impacting their social presence, learning, success, and persistence. Once again this is merely speculation and I do not have data to support my explanations.

Another side finding that came out of the open-ended responses was that students shared a dislike with having to type everything, even though the discussion boards used in this study were multimodal (supporting text, audio, and video posts). This finding might be surprising to some, but it was not to me because as the instructor for the courses that were part of this study, I can report rarely observing a student post an audio or video recording. This indicates the full functionality of the multimodal technology was not being used by students nor any potential benefits being reaped, such as more authentic feeling conversations resulting from recorded audio and video (Bartlett, 2018; Ching & Hsu, 2013; Correia et al., 2019; Delmas, 2017; Dominguie, 2016; Fehrman & Watson, 2020; Gay, 2010; Griffith & Graham, 2009; Iona, 2017; Page et al., 2020; Pinsk, 2014). A possible reason shared by researchers about why students don't utilize multiple modalities has to do with comfort level with them. Some researchers surmise

students might need more training and support in recording and uploading files to the LMS than anticipated by instructors (Seery, 2017). Other researchers also acknowledge students are used to mostly typing and writing about academic topics, so students may need to be explicitly taught how to instead talk about these topics (Delahunty, 2018; Griffin & Roy, 2019). I did not do any training or modeling about how these technologies work, which might be why students did not use them. Another possible reason has to do with students wanting to maintain anonymity, so they chose to only type their posts. Students being able to maintain anonymity like this is important though because, in some cases, it has shown to lead to increased participation (Haythornthwait & Andrews, 2011; Jenkins, 2011). However, these explanations are purely speculative, as I do not have data to support them.

One additional side finding that is worth mentioning as it is interconnected to the finding about students predominantly using text, has to do with the stagnant nature and the indefinite audience of asynchronous discussion boards. On one hand, some students found the stagnant nature to be something they value. Students called it a "record" and found it useful to go back and look at older posts. This leads to an additional possible explanation as to why students are not recording audios and videos because those are harder to refer back to than typed text. Other students found the stagnant environment to be useful because they have more time to process other's posts and curate their own posts in response. For example, a student shared, "I felt like since it wasn't live, we could go more in depth and ask more meaningful questions because we could get our thoughts in order more." The stagnant nature also tends to provide time and space for dealing with microaggressions and other sensitive topics (Gilpin et al., 2022). On the other hand, students shared the stagnant format caused them difficulty. For example, a student shared "DB made me anxious because I couldn't discuss prior." An explanation for this dislike or

anxiety might have to with the feeling of permeance of discussion boards for students who lack confidence and the thought of an indefinite audience (Andrews & Smith, 2011), which can feel threatening (Darby et al., 2020). These explanations are once again speculative as I do not have data to support it. Regardless it is important to note some students prefer typed posts and it is vital to ensure that students feel safe using their discussion tools because if students do not, this will likely impact their motivation, learning, and persistence.

Furthermore, an interesting finding related to the usefulness of these discussions had to do with students' desire for cutting edge and responsive pedagogy and technology in online courses (Bay View Analytics, 2021; Kadika & Owens, 2016). The future teachers in these courses often mentioned the moment they are in with the COVID-19 pandemic and the increased prevalence of online learning making it important for them to know how to use both discussion boards and video conferencing technologies with their future students and also to collaborate in the workplace. A student shared, "I was able to practice working in groups over zoom, which I believe will stick around even after we go back face-to-face." Students felt using both types of multimodal tools in the discussions in this course helped them develop what some of them called "digital" and others "virtual' career skills.

With all of this in mind, when given a choice between asynchronous or synchronous discussions, the majority of students chose synchronous or a blend of both and shared reasons related to their desire for at least some real time and dynamic interactions rather than those that feel repetitive and static. This aligns once again with the research around students' desire for authentic and organic online interactions (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020). Students also shared an appreciation for the sense of community they were able to create with their peers through Zoom meetings, which once again indicates social presence

development via these synchronous discussions. It seems that even though synchronous collaboration can be hard and at times difficult to schedule, it was still worth it to students in order to authentically engage with their peers. This finding aligns with previous studies which indicated students preferred discussions via synchronous technologies rather than asynchronous (Sylar, 2009; Ragusa & Crampton, 2018; Bonnici et al., 2016; Gilpin & Rollag Yoon, 2022). Moreover, it seems that for these emerging online learners, outside of the factor of convenience, they preferred synchronous discussions over asynchronous discussions for the connection with peers that supports their learning. This is similar to the findings of Bonnici et al. (2016),

Taken together, these results seem to indicate for these emerging online learners, synchronous discussions are more valuable. Yet, the value these emerging online learners place on asynchronous discussions should not be discounted. Ginny (pseudonym, a student in this study), perhaps sums it up best when she shared "No preference. There were upsides and downsides to both. The boards weren't bound by schedule conflicts, but they were not as authentic of conversations." A blend of discussions continues to be the direction the results point to.

RQ3: What relationship, if any, is there between student reports of social presence and student reports of values for discussions using synchronous tools and discussions using asynchronous tools?

There was evidence of significant and positive associations between social presence and values for both types of discussions. In other words, both social presence and values indicators move in the same direction. As one increases so does the other and as one decreases so does the other. This positive association makes sense because when reviewing the open-ended responses, it seemed values and social presence were becoming hard to separate from one another as the responses to social presence items and values items often overlapped. It almost seemed the

questions could have been interchangeable. For example, interactions with peers, sense of community, learning from others, teamwork, collaboration, and authentic conversations were student responses across both values and social presence-oriented items. Thus, illuminating a positive connection and almost overlap between social presence and values for both types of discussions.

The positive association between social presence and values was not surprising to me as that is what I hypothesized. This is because social presence has to do with getting to know and forming relationships with others, while the premise behind the expectancy value-theory of motivation is one's attitudes and the value one places on tasks influences their motivation to complete them (Eccles & Wigfield, 2002). Therefore, if students value the discussions, they will be motivated to engage in them with their peers, by proxy develop social presence through interacting with their peers, resulting in learning and persistence. The opposite could also occur. To my knowledge there are not any previous studies that have assessed for an association between social presence and values. This could be because it seems obvious to some that students will only develop relationships and community when they value the discussions.

In sum, since the associations are positive this illuminates the importance of values in determining the blend of discussions to include in courses for emerging online learners to ensure optimal levels of social presence leading to motivation, learning, and persistence. When considering the blend of discussions, I want to bring the control-value theory alongside the expectancy value-theory to highlight the importance of student autonomy. Namely, students having control or a voice in the type of discussion they participate in and how students are able to interact within these discussions influences motivation through the impact on values (Pekrun et al., 2007). When students come into an online discussion feeling like they have high control

and high value this will contribute to emotions that foster motivation and learning. If students come into an online discussion feeling like they are being made to interact with peers in a manner students are not wanting to or comfortable with then this would likely have a negative impact on both values and social presence. This amplifies the need for instructors and course designers to be acutely aware of the value students place on discussion activities, the impact on social presence, and design with an eye toward high value and high control activities/tasks. The blend of discussions continues to be the way the results are pointing along with the element of choice as the best way to support the success of emerging online learners.

In conclusion, the results validate FEOLP with this group of emerging online learners and demonstrate that (1) both types of discussions tend to support social presence, (2) outside of the factor of convenience, students' value synchronous discussions over asynchronous discussions for the connection with peers that supports their learning, and (3) there are positive associations between social presence and values. There is a connection between social presence, online course tools, student values, and perhaps their collective impact on student persistence. Also, that student values, in combination with indicators of social presence, are essential to consider when determining the type of discussions (e.g., synchronous and asynchronous) and the amount of each to include in online courses. Remember, too much or too little interaction can lead to adverse student outcomes (Angelino et al., 2007; Cho & Tobais, 2016; Downing et al., 2007; Garrison & Cleveland-Innes, 2005; Moore, 1989). Furthermore, the results add to the findings of other researchers related to the critical role interactions and collaboration play in online spaces for emerging online learners (Bawa, 2016; Croxton, 2014; Walker & Kelly, 2007).

The general picture emerging from this study aligns with the research that calls for the incorporation of more multimodal asynchronous (Bartlett, 2018; Ching & Hsu, 2013; Correia et

al., 2019; Delmas, 2017; Dominguie, 2016; Fehrman & Watson, 2020; Gay, 2010; Griffith & Graham, 2009; Iona, 2017; Page et al., 2020; Pinsk, 2014), synchronous (Bonnici et al., 2016; Garrison et al., 2000; Gilpin and Rollag Yoon, 2022; Gilpin et al., 2021; Gilpin, 2020; Gororshit, 2018; Hart 2012; Leeds et al., 2013; Liu et al., 2009; Moallem, 2015; Northrup, 2009; Ragusa & Crampton, 2018; ; Skylar, 2009; Zhan & Mei, 2013) and blended (Clark et al., 2015; Gilpin & Rollag Yoon, 2022; Gilpin et al., 2021; Gilpin, 2020; Hart, 2012: Joksimovic et al., 2015; Leeds et al.; 2013; Liu et al., 2009; Watts, 2016; Zhan & Mei, 2013) technologies in online discussions. This gives emerging online learners the option of a real time and more relational component for those that want that without infringing on the anytime, anywhere aspect of online learning other students desire (Drefs et al., 2015; Raza et al., 2020; Seaman et al., 2018; Simpson, 2013). In other words, a blended model that includes both multimodal asynchronous and synchronous opportunities for communication as a way to increase social presence leading to student satisfaction, engagement, and overall success for this group of emerging online learners, who are mostly teacher candidates. By embracing the diversity of online learners, and using that information to plan online pedagogy, persistence rates should improve.

Designing Online Discussions Using FEOLP

The research suggests a way forward for online instructors and course designers is to move past a factory model of education and instead match interactive activities to the needs and preferences of distinct groups of online learners (Croxton, 2014). When designing this blended model that addresses the needs and preferences of emerging online learners who are also teacher candidates, five themes flow from the results of this study that enhance FEOLP. Online instructors and course designers should consider the following enhancements as the design of discussions should (1) fully embody the CoI, (2) nurture autonomy, (3) offer scheduling

assistance, (4) utilize innovative technologies and pedagogies, and (5) develop digital communication skills. Figure 3 provides an overview of the discussion format used for this study along with the five enhancements. Taken together, these elements strengthen the original discussion design and support online discussions that nurture persistence for emerging online learners. While not generalizable in the traditional sense, these recommendations may also apply beyond teacher preparation courses to other online post-secondary courses and programs.

Fully Embody the CoI

Since social presence and the CoI has proven to be key to FEOLP, it is important that students understand the CoI and its role in online course design to include online discussions. This is particularly important in online courses for future educators as the CoI is a well-known and validated framework that has implications for the design of instruction in K-12 face-to-face and virtual classes. And as evidenced in this study, students are eager to apply skills from their online courses and discussions to their future classrooms and workplaces. The small group student-led format creates opportunities for online students to work intimately with their peers, facilitate learning, and steer conversations, both asynchronously and synchronously, that nurture social presence and deep learning in ways the larger group formats do not (Brown & Eaton, 2022; Correia et al. 2019; Gilpin & Rollag Yoon, 2022). Brown and Eaton (2020) offer seven CoI principles, modified from Garrison (2017), that embody social and cognitive presences and can be used with students to co-create their learning experiences. I assert one of the ways these following principles could be used is as the foundation for the creation of online discussion guidelines (also sometimes referred to as structures or norms – see "nurture autonomy") within FEOLP:

- Nurture open communication and trust

- Make space for critical reflection and discourse
- Establish community and cohesion
- Establish inquiry dynamics
- Sustain respect and responsibility
- Sustain inquiry that moves to resolution
- Ensure assessment aligns with processes and outcomes

Using these principles will support online discussions that are more relational and impactful such as those in this study. By fully embodying all three CoI presences, discussions go beyond merely developing social presence and the formation of relationships to those that also lead to deep learning for emerging online learners.

Nurture Autonomy

There are two ways student autonomy could also be further supported through FELOP. One is through letting students choose the kind of discussions they want to participate in and a second is by providing students space to create their small group discussion norms. Both of these instructional design moves increase the likelihood that the discussions are both 'high control' and 'high value', which is optimal for motivation and learning (Pekrun, 2007). Letting students assert agency like this is sometimes hard for instructors because instructors are used to students that are dependent on them and students are used to depending on their instructors (Reeve, 2009). But once both instructors and students get used to the paradigm shift of instructors acting as facilitators and co-collaborators with students, these new moves for online discussion are likely to lead to emerging online learners that thrive in their online discussions.

First, the benefits and limitations of both synchronous and asynchronous discussions were illuminated in this study. And while neither is perfect, both types of discussions were

shown to foster social presence and were valued by students. Some students desired the real-time interaction with their peers that synchronous discussions afford them, while others still value that type of authentic interaction, their learning preferences or the need for flexibility and convenience make the asynchronous discussions more appealing. So, it seems instructors should let students chose their discussion format as participating in the discussions students value the most will also support motivation, learning, and success. Choice can be offered on a semester long basis or first half and second half of the semester. There are more short-term ways to offer choice, but those can become cumbersome when using small groups because the small group composition will be made, in part, based on discussion preference (see "take the stress out of scheduling"). And to optimally nurture social presence, the small groups should stay intact for a longer duration (Gilpin et al., 2022). An alternative for students who prefer both types, is to put them in a group that agrees to decide on a week-to-week basis how to discuss content. Refer to Figure 4 for an example syllabus statement that provides an overview of how to explain this choice to students. Regardless, by offering choice in this manner, it ensures the online discussions are authentic, flexible, and equitable. For students that desire real time and dynamic interaction that is available (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020), along with the flexibility and convenience others crave (Drefs et al., 2015; Simpson, 2013; Raza, 2020; Seaman et al., 2018), threats to the anonymity are mitigated (Berry & Kowal, 2020), issues of bandwidth are addressed (Johnson & Cuellar-Mejia, 2014; Stanford, 2020), as are access to quiet spaces to fully participate (NYU Steinhardt, 2020).

Second, provide students space so they can create the discussion norms or structures for their discussions, rather than giving them ready made guidelines, as I did in this study. This is important because a common cost or downside for both types of discussions had to do with peers

not following the discussion guidelines, the guidelines were hard to remember, and too restrictive. There is an added layer importance in student-led discussions, like those in FEOLP, because with the autonomy afforded students they interact less with the instructor and more with one another. As a result, students should have a bigger voice in how things will work and when issues arise, they will be the first to problem solve. When students work collaboratively with their small discussion groups to craft norms for their discussions that make sense to them, work with their busy lives, and allow them to use the CoI to deeply learn course content, students also have the opportunity to share their values and bring their cultural norms to their learning experiences (Gilpin et al., 2022). Plus, as students in this study referenced, through participating in and leading these online discussions they develop valuable career related collaboration and problem-solving skills as students work with their peers, and crafting norms will only add to this. This type of norm creation could be accomplished through a process like that outlined in Figure 5. Further, after students create their small group norms, instructors might also consider having students create grading rubrics based on their small group norms. Thus, ensuring the activity and assessment align, which is one of the seven CoI principles (Garrison, 2017).

Take the Stress out of Scheduling

To address the costs of scheduling synchronous discussions that were highlighted in this study, instructors need to be more intentional about grouping students with a focus on the types of discussions students prefer and their availability for live meetings (if students desire those types of discussions). This can be accomplished by surveying students prior to class instead of randomly grouping, as I did in this study. Gilpin (2020) suggests instructors survey students prior to the start of the course to not only get to know them as people and their previous educational experiences, but also to gather information about the kinds of online discussions they prefer,

their access to technology and internet, availability of quiet meeting spaces, and time frames they are available for live meetings. In the K-12 setting a common practice is for teachers to have students complete an *About me* assignment or a *Getting to know you* questionnaire to start the school year (Sejdic, 2021). The information collected can then be used by instructors to put students in discussion groups based on both discussion preference (asynchronous, synchronous, or a blend), and for those who are interested in synchronous meetings, availability for those live meetings. Additionally, the information can be used by instructors to help students access institutional support with things such as high speed-internet, reliable computers, and quiet workspaces. In the end, instructors getting to know their students as people, asking students what they value in regard to discussions, and any support they might need in participating in these discussions will go far in supporting the persistence of emerging online learners.

Innovative Technologies and Pedagogies

As noted by the participants in this study and shared by other researchers, emerging online learners desire cutting edge and responsive pedagogy and technology in their online courses. (Bay View Analytics, 2021; Kadika & Owens, 2016). Thus, when choosing online discussion tools for use with FEOLP, instructors and course designers need to make sure the tools are cutting edge and, if possible, multimodal because those tools provide more than one point of entry. For example, one way these robust technologies can be used is to alleviate the concerns illuminated in this study about asynchronous discussions and the indefinite audience along with stagnant posts. Some researchers recommend the use of social annotation tools as these texts tend to be safer because these tools are inherently collaborative and fluid (DeRosa, 2021). As students annotate shared texts, the authors of the annotations almost become inconsequential as the text takes on collective rather than individual ownership (DeRosa, 2021).

The most common way to annotate is via text, however, students can externally record audio and video, and then upload it as their annotation instead of typing (Hypothesis, 2021). Another innovative technology that supports social annotation is Voice Thread. Students can post slides and similar to the social annotation tools, comment on one another's slides using text, audio, and video (Ching & Hsu, 2013). The audio and video features are built into Voice Thread, which makes the multimodal aspect very user friendly. Additional benefits of Voice Thread, shared by students included students were able to communicate emotion, personality, and other non-verbal cues which allowed them to better interpret others' thoughts (Ching & Hsu, 2013) and others reported students liked adding their voice (Delmas, 2017). Through the process of social annotation online discussions become more communal rather than individual and perhaps safer for students.

Further, still others suggest the use of blogging, instant messaging, and other forms of social media to facilitate online discourse (Zhan & Mei, 2013). As indicated by other researchers (Morrell, 2021) and the participants in this study, students already communicate with one another through groups chats and social media platforms such as Snap Chat. Why not make these tools part of online courses? As a way to provide additional asynchronous discussion possibilities for students, instructors can capitalize on these tools students are already using. For instance, have students create memes and share them on Twitter (Riser et al., 2020). Or make their own promotional videos via TicToc. Activities and assignments like these are sometimes referred to as open pedagogy or open educational resources (OER) design projects. When students act as creators of course content rather than consumers this can have positive impacts on their learning by making the knowledge students construct publicly available online (Trust & Maloy, 2022).

But then the issue of stagnant posts and indefinite audience (Andrews & Smith, 2011) once again arises. A study by Rollag Yoon and Gilpin (2022) showed students were more confident and comfortable with open pedagogy type activities when students completed them with a small group rather than independently. Accordingly, students could do this type of activity collaboratively with their discussion groups, where they together create a meme and post it. And they get to decide how long their post stays up – it could be indefinite or maybe students remove it after a few days. Thus, autonomous interaction is supported beyond the parameters of the online course. Thereby, meeting the demand by emerging online learners for innovative technologies by using those platforms and apps that students are already familiar with to create a variety of opportunities for interaction beyond online classrooms, leading to motivation, learning, and emerging online learner persistence.

Digital Communication Skills

Regardless of the discussion tools used, emerging online learners will likely need support learning how to effectively and efficiently use the new and innovative technologies they demand within their learning experiences for academic purposes. For example, as shared by researchers (Seery, 2017; Delahunty, 2018; Griffin & Roy, 2019) and observed in this study, there is a concern about students limited usage of the multimodal features of both types of discussions tools, but in particular, the audio and video features of discussion boards. Some instructors might think because students are recording and uploading videos to Tic Toc that students should know how upload these sorts of videos to the LMS discussion board or share their screen in a Zoom meeting. But students often do not.

To address this concern, it is recommended that instructors highlight the technological capacities of their discussion tools with their online students (Seery, 2017). Instructors can do

this by allocating time early on in courses for mini lessons that include examples, screencasts, and other materials that explain how to use the different tools. To motivate students to engage with these lessons, instructors might consider incorporating them into brief assignments early on in the course, so students see their value and take the time to view, read, or listen. Students also may need similar types of explicit support with speaking about academic topics, so they feel confident creating their audios and videos (Delahunty, 2018; Griffin & Roy, 2019) and communicating in virtual spaces (Zhan & Mei, 2013). In sum, instructors need to explicitly share information with students about digital tools, how to talk about academic topics, and generally interact in virtual spaces.

Finally, remember too much interaction might be considered busy work (Moore, 1989), interactions need to be thoughtful and intentional (Moore, 1989), and emerging online learners want their interactions to be dynamic and meaningful (Kadkia & Owens; 2016; Majid et al., 2015; Mehall, 2020; Schultz et al., 2020). Therefore, there might be students who for a variety of reasons do not want to interact with their peers and based on the results of this study, if they do not value any of the discussion options made available to them, perhaps students should not be forced to engage with peers. Further, there could be courses and topics that do not have content or topics that need to be discussed so much as exercises that could benefit from partner work. Choo and Tobias (2016) recommend instructors consider the nature of their course before requiring discussion as a mandatory activity. For example, computer science and statistics instructors sometimes have students do paired programming or coding. This is when students work together at one desk or using a shared screen. One, the driver, writes the code while the other, the navigator, reviews each line of code as it is typed in. The two switch roles frequently (Codementor, 2022). Therefore, social presence is supported through this type of activity instead

of a traditional discussion. Just because the LMS comes with a discussion board or students are given a Zoom account does not mean those tools need be used in all courses. Instead, FEOLP begins with the values of emerging online leaners front and center with pedagogical moves flowing outwardly from that information.

Limitations and Future Studies

There are limitations to be sure in this study that should be noted. These limitations flow from the design and results, connect to the research base, and provide a way forward. Each limitation provides an opportunity to improve and expand the research with regard to online discussions. Taken in sum, and addressed, these limitations and future studies could add to the online discussion research base while also providing additional validation for FEOLP. Thereby, supporting emerging online learner persistence for those who are also teacher candidates and perhaps also the success of a wide variety of other online learners who have flooded online learning environments since the start of the COVID-19 pandemic.

First, this study assessed for any differences and associations for values and social presence for two types of online discussions in one undergraduate education course over the period of three separate terms at just one institution. Most of the students enrolled in the course were upper-level education students; thus, students may have found the content of the course more interesting and useful. Also, as upper-level students they were typically older as the mean age was 23 years. Both of these factors could have also impacted their views of the online discussions. Future research should expand this study to include younger students from a variety of disciplinary backgrounds and institutions, which would make this work more generalizable. Specifically, expanding to other fields would determine the extent, if any, the results of this study were a function of the participants being prospective teachers.

Second the design of the study could be further improved through additional scales, research methodologies, and technologies. Scales that include control-value and satisfaction items could further illuminate the impact of the two types of discussions on student motivation and learner satisfaction not only with the discussions but also impacts of the discussions on overall student perceptions of their online learning experiences. And simultaneously, add additional data collection methods beyond the open-ended responses. For example, there could be a question at the end of the electronic questionnaire asking students to volunteer for a short interview. Then researchers could interview participants more in-depth about their discussion experiences and interactions. Furthermore, a content analysis of the discussion board posts, and synchronous meeting notes could be used to investigate the presence of all three CoI dimensions. Additionally, multimodal tools like those in this study need to be included in these studies to gain a more detailed understanding about them along with novel tools and practices such as social annotation, Voice Thread, social media, and open pedagogy. Results of a study such as this would contribute to the triangulation of future findings.

Third, there was potentially response bias in the sample as not all students answered all of the questionnaire items. I concluded the following possible reasons for students not answering an item: (1) participants seemed to miss certain items accidentally, (2) appeared to refuse to answer sensitive items, (3) and/or perhaps became fatigued as the survey progressed. However, these explanations are purely speculative, as I do not have data to support them. Future research should strive to reduce instances of missing data as much as possible or take additional measures to remedy it.

Fourth, another limitation had to do with some of the students having previous relationships with the peers in their discussion groups. For example, students indicated through

the open-ended responses that they knew peers from other classes. These relationships could impact student social presence scores because students might already come into the discussions with these peers with already established relationships, so the discussions in the course may not be the reason for their levels of social presence, but rather prior relationships. In future studies, researchers need to ask students about any relationships they might have with peers prior to putting them in small groups to avoid, if at all possible, grouping peers that already know one another well. This will help decrease the potential for inflated perceptions of social presence that are not a result of the online discussions.

Fifth, the overwhelming majority of students in this study used text for their asynchronous discussion posts with limited usage of the audio and video features. Similar data for the synchronous discussions was not collected. I did not provide any training to students about how to any of the discussion tools. Therefore, it is not perhaps fair to say this was a true study of two discussions that incorporated multimodal technologies if students were not made aware ahead of time how to use them. Or on the other hand, perhaps students figured out on their own how to use them but chose not to. This also leads to questions about whether students were using the video feature of the video conferencing tool. Or instead, just the audio or text features. Once again, these explanations are purely speculative. Regardless, of the aim of future studies, researchers need to be more direct about collecting data in regard to how students are using specific features (e,g, audio, video, and text) of these multimodal technologies within online discussions and what impacts their choice of modality. And if the impacts of multimodal tools are being studied, those conducting the studies should then provide training and support to students to ensure students know how to use them.

Sixth, to my knowledge since the onset of the COVID-19 pandemic, there has not been a large multi-institutional descriptive type study about online discussions. Specifically, in regard to views and experiences about (1) technology platforms (LMS, external tools), (2) media modalities (text, videos, audios, etc.), (3) student arrangements (individual, small groups, larger groups), and (4) timing arrangements (asynchronous and synchronous tools). With more students than ever having experienced online learning during the COVID-19 pandemic, it would seem that there would be a plethora of potential study participants from across a variety of demographics and content areas. In order to provide a comprehensive and contextualized picture of online discussions, a study like this should be conducted using a mixed methods approach that includes both instructor and student surveys along with some in-depth interviews. Results of a study such as this would contribute to the research base by providing a jumping off point for future studies and to guidance about best practices for online instructors.

Seventh, to improve persistence rates institutions must respond to and capitalize on the ever more diverse and complex identities students bring to digital learning spaces. To accomplish this, researchers should use novel theories and frameworks in their studies of online discussions beyond the commonly used social presence or the CoI frameworks that were evidenced through my review of literature. For example, Gilpin and Rollag Yoon (2022) drew on feminist theory (hooks, 1994; Kamler, 2001) and the CoI to illuminate the link between collective experiences and identities to the learning that is made visible through the CoI. Plotts (2018) developed A Model of Cultural Presence that enhances the CoI framework to create online spaces that are more culturally responsive for students from historically underrepresented groups. Another possibility is sociocultural theory, which recognizes that learning is mediated by social interactions and identities that are fluid and dialogical, changing based on context, rooted in their

own histories, experiences, and the audiences students are encountering (Dyson, 1993). These types of innovative approaches and use of frameworks, bring different perspectives, sometimes underrepresented voices, and overlooked learner assets to the study of online discussions. Eventually research like this could support the study of distinct groups of learners and provide guidance about more equitable online discussion design.

Chapter VI:

Conclusion

The online learning landscape is varied and taking variety of shapes and forms, including technology platforms (LMS, external tools), media modality (text, videos, audios, etc.), student arrangement (individual, small groups, larger groups), and timing arrangements (asynchronous and synchronous tools). The challenge for online instructors and course designers is to consider all of these factors when crafting online discussions. However, this is a daunting task as there is little consensus about best practices (Ferhman & Watson, 2020). As a result, researchers have called for studies exploring best practices related to online discussions to include alternatives to text-based asynchronous discussion boards and robust frameworks (Ferhman & Watson, 2020; Gilpin, 2020Lee and Brett; 2015). This study answered that call by arguing a way forward for one distinct group of online learners at a crucial time because the COVID-19 pandemic has increased interest and demand for online courses (Bayview Analytics, 2021; Inside Higher Ed, 2021; Strada Center for Education Consumer Insights, 2020). To my knowledge this study is the first to investigate two different types of online discussions that incorporate asynchronous and synchronous text, audio, and video. And the first to jointly look at the variables of social presence and values.

This study highlighted a subset of emerging online learners, who are the fastest growing consumer of online courses, yet in a field that is steadily declining. Specifically, those that are teacher candidates. On one hand it was shared time and time again that emerging online learners understand, value, and engage in social interaction and collaborative learning and possess strong interpersonal and communication skills while craving authentic interactions. On the other hand, it was shared multiple times by multiple researchers that the prevalent use of asynchronous text-

based discussions is not utilizing emerging online learners' strengths nor addressing their needs. I argued the lower persistence rates in online courses were perhaps a result of instructional design not meeting the student-to-student interaction needs of students. And I articulated how improving students' connections and relationships with one another could lead to improvements in motivation resulting in emerging online learner persistence. I drew from key theories and frameworks related to the psychological attributes of community, connectedness, and belonging to advance a new framework. I showed how the use of relational small group online discussions using a variety of multimodal tools, both asynchronous and synchronous, presents a way to improving online instruction and student persistence for emerging online learners that are prospective teachers and likely other distinct groups. This study is also important because online learning might also be untapped in its potential to address the teacher shortage by providing access to teacher preparation programs for those from more diverse backgrounds. But if this is to happen, sound pedagogical practices like those outlined in this study that capitalize off the diversity of online learners, must be in place.

In conclusion, despite the limitations, this study adds to the empirical and theoretical research-base and begins to give credence to FELOP as framework for better supporting course design for one distinct group of emerging online learners. The results demonstrate that for teacher candidates in this study (1) both types of discussions tend to support social presence, (2) outside of the factor of convenience, students' value synchronous discussions over asynchronous discussions for the connection with peers that supports their learning, and (3) there are positive associations between social presence and values. The recommendations I share call for teachers educators to use a blended model of online discussion design that includes both asynchronous and synchronous opportunities. All in all, affirming that perhaps multimodal synchronous

discussions in combination with asynchronous discussions influenced by social presence and values could be the way to increase persistence for one group of emerging online learners. While not generalizable in the traditional sense, these recommendations may also apply to other online post-secondary courses and programs.

I continue to see this moment as an opportunity to expand access, equity, and persistence rates in online learning by reflecting on and creating new opportunities for online course design for other distinct groups of emerging online learners and online learners in general. My hope is this study can be part of structural change through making online discussions more accessible and engaging for all learners, and in the end, improving persistence for all. Charity (pseudonym, a student in this study), sums it up like this, "They both have their pros and cons. Discussion boards gives enough time to post and reply. It does not involve setting a time to meet. VLC [learning communities] allows us to share ideas, so it gives a clearer understanding of course materials. Less work in a way." In the end, provide students some authentic interactions while still affording them the flexibility they desire as they juggle their busy lives. It may not seem like a lot, but it could go a long way in supporting emerging online learner persistence. In this moment, as we move through, and hopefully past the COVID-19 pandemic, online learning is more important than ever, and more students than ever are counting on their instructors to provide more dynamic and innovative options for online discussions. "Boring discussion *boreds*" are no longer something online learners must tolerate.

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Tables

Table 1

Participant Characteristics

Variable	N	% of total sample
Gender Identity		
Man	17	21.25
Woman	62	77.50
Another gender identity	1	1.25
English as First (Native) Language		
Yes	76	95.00
No	4	5.00
Ethnicity of Hispanic, Latinx, or Spanish Origin		
Yes	5	6.25
No	75	93.75
Race		
American Indian or Alaska Native	2	2.50
Asian	1	1.25
Black or African American	4	5.00
White	71	88.75
Another race	2	2.50
Enrollment		
Full-time	78	97.50
Part-time	2	2.50
Major		
Education	60	75.00
Education Studies	9	11.25
Another major	11	13.75
	M	SD
Age (years)	22.56	5.61
Distance to campus (miles)	18.63	35.33
Grade point average (gpa)	3.59	0.37
Credits		
Completed (total number)	91.90	31.89
Completed (face-to-face%/online%)	70.34/29.66	26.97
Currently enrolled (face-to-face%/online%)	29.75/70.25	34.11

Note. The above data is representative of the 80 students who completed the questionnaire.

Table 2

Overview of Research Questions, Data Sources, and Data Analysis Alignment

Research Question	Data Sources	Data Analysis
RQ1: What difference in social presence, if any, did online students report between discussions using synchronous tools versus discussions using asynchronous tools?	Qualtrics Survey – Social Presence	Paired samples t-test, *Cohen's d*
	Open-ended Items	Content analysis
RQ2: What differences in values (intrinsic, utility, cost), if any, did online students report between discussions using synchronous tools versus discussions using asynchronous tools?	Qualtrics Survey – Values	Paired samples t-test, *Cohen's d*
	Open-ended Items	Content analysis
RQ3: What relationship, if any, is there between student reports of social presence and student reports of values for discussions using synchronous tools and discussions using asynchronous tools?	Qualtrics Survey – Social Presence and Values	Pearson's Correlation
	Open-ended Items	Content analysis

Table 3

Summary of the Measures

Measures	Discussion Boards (Asynchronous)		Learning Communities (Synchronous)	
	α	M(SD)	α	M(SD)
Social Presence	.82	4.14 (0.60)	.88	4.11 (0.66)
Values (overall)	.89	3.70 (0.69)	.88	3.66 (0.68)
Intrinsic	.79	3.53 (0.80)	.82	3.42 (0.82)
Utility	.85	3.91 (0.81)*	.78	4.01 (0.75)*
Cost	.82	3.65 (0.87)*	.86	3.54 (0.90)*

Note. N= Varies depending on the measure and discussion experience. *p<.05 for comparison of means between Discussion Boards and Learning Communities. Likert scale anchors ranged from "1 = Strongly Disagree" to "5 = Strongly Agree."

Table 4

Pearson's Correlations

Experiences	r
Asynchronous Social Presence and Asynchronous Values	.688*
Synchronous Social Presence and Synchronous Values	.582*

**p<.05*

Table 5

*Examples and frequency of themes for the **most common** responses to the intrinsic value, usefulness, and cost of **discussion boards** (asynchronous discussions).*

Theme	Example	Number of responses
Intrinsic value		
Interacting with peers	"To participate in a learning group with other students."	24
Other perspectives/viewpoints	"They provided many different points of views and allowed us to have a debate with each other."	20
Usefulness		
Other perspectives/viewpoints	"It let me see other people's views and let me see things from another perspective."	22
Career skills	"With how distance learning has become part of our world I think it's important to know how to use them because I may potentially need to use them with my students."	15
Cost		
Unengaged peers/not adhering to guidelines	"The biggest cost is participation. Some people only do the bare minimum, which makes it hard to interact and participate with them. If the other people aren't willing to put in the work or put in as much work as I do, it can be very frustrating."	18
No cost	"I can't think of any downsides."	17
Time consuming	"They are time consuming as they need to be worked on during three separate days."	14

Table 6

*Examples and frequency of themes for responses to the **intrinsic value** of discussion boards (asynchronous discussions).*

Theme	Example	Number of responses
Interacting with peers	"To participate in a learning group with other students."	24
Other perspectives/viewpoints	"They provided many different points of views and allowed us to have a debate with each other."	20
Teaching/learning from others	"To learn from my peers."	14
Build knowledge & understanding	"The discussion boards helped us work with a community of peers to better understand the content of each unit."	10
Sense of community	"To work with others and build relationships."	6
Response does not convey value	"I understand the purpose of discussion boards but feel that it is much more productive to have a live conversation vs continuously having to check back."	6
Opportunity to express opinions/share ideas	"Discussion boards are a place to put ideas, opinions and perspectives about education and the services we want to provide students within our future classrooms."	6
Engagement in learning	"To be able to actively engage in discussions when being in an online format."	5
Teamwork/collaboration	"They taught me how to work and collaborate better with others".	4
Flexibility/convenience	"We were able to participate on our own time instead of trying to find a shared time to meet.	4
Career skills	"I think they are great because the boards copy a PLC we might have in the future education world."	3

Apply learning	"The discussion boards encouraged us to apply our knowledge and construct our discussions ourselves."	3
Ask questions	"We were able to ask questions."	1
No answer (question left blank)		3

Note: $N = 77$

Table 7

*Examples and frequency of themes for responses to the **usefulness** of discussion boards (asynchronous discussions).*

Theme	Example	Number of responses
Other perspectives/viewpoints	"It let me see other people's views and let me see things from another perspective."	22
Career skills	"With how distance learning has become part of our world I think it's important to know how to use them because I may potentially need to use them with my students."	15
Digital communication skills	"It gives you the valuable skill of communicating online and explaining all of your thoughts."	12
Build knowledge & understanding	"They build up knowledge and understanding."	11
Teamwork/collaboration	"I had more experience WORKING WITH OTHERS."	8
Response does not convey usefulness	"I felt like I wasn't really learning anything, like we were just participating to receive a grade."	4
Sense of community	"I was able to still develop a connection with my classmates, despite being only online, and I can use these people as resources if needed in my future."	3
Apply Learning	"They were useful to me because they allowed freedom to choose topics that I could relate to the real world."	3
Refer back to (record)	"I can always go back and look at them."	3
Teach/learning from others	"It allows me to share my ideas and gain feedback. It also allows me to hear my peer's ideas and thoughts."	2
Ask questions	"They were extremely useful for me because I was able to ask my group questions about things I did not understand."	2

Opportunity to express opinions/share ideas	"I was able to bounce ideas off my peers."	2
Engagement in learning	"They motivate me to learn, they're unique and amazing discussions with my peers that are able to be formed that help deepen my knowledge on a topic and expand my thinking."	2
Enjoyment	"I enjoy reading other groups' discussions!"	1
Interacting with peers	"They were useful in an online class because it was really our only form of interaction with classmates in the course."	1
Critical thinking	"They were useful mostly to explore and think more critically about a specific resource."	1
Flexibility/convenience	"I think it's a great online resource because sometimes people aren't able to find a good time to meet, so everyone was on their own schedule."	1
No answer (question left blank)		3

Note: $N = 77$

Table 8

*Examples and frequency of themes for responses to the **cost** of discussion boards (asynchronous discussions).*

Theme	Example	Number of responses
Unengaged peers/not adhering to guidelines	"The biggest cost is participation. Some people only do the bare minimum, which makes it hard to interact and participate with them. If the other people aren't willing to put in the work or put in as much work as I do, it can be very frustrating."	18
No cost	"I can't think of any downsides."	17
Time consuming	"They are time consuming as they need to be worked on during three separate days."	14
Not meaningful	"The one thing I don't like about discussion boards is that when we all agreed I sometimes felt like I was repeating myself when it came to my responses."	8
Do not feel authentic	"There is no face-to-face contact where we could bounce ideas off each other." "It's not an immediate response or reaction." "I dislike the impersonal nature of them, which is a little weird for me as I have social anxiety and a hard time talking to others in person, but I think that I get more out of that." "They are much less dynamic and engaging than real live discussion".	7
Waiting for peers to post	"Not everyone in the group posted at the same time. Many times, I was done without one post from the other group mate. This caused the group discussion to be lost for me."	6
Difficulty with format	"DB made me anxious because couldn't discuss prior."	4

Hard to remember guidelines	"There are a lot of requirements and it can be hard to keep track of how many times we have to post."	2
Don't get to know peers as well	"You may also not get to know your peers if you only use discussion boards."	1
No answer (question left blank)		5

Note: N = 75

Table 9

*Examples and frequency of themes for the **most common** responses to the intrinsic value, usefulness, and cost of **learning communities** (synchronous discussions).*

Theme	Example	Number of responses
Intrinsic value		
Teamwork/collaboration	"The value in learning communities is that they provide team collaboration in order to understand a relevant topic. It promotes interdependent thinking."	24
Other perspectives/viewpoints	"They are a great way to hear people's opinions and interpretations of content in a direct way without having class in-person."	12
Usefulness		
Career skills	"I will be able to use this learning style in my future classroom."	16
Teamwork/collaboration	"They helped me learn teamwork in a different way through an online lens."	14
Cost		
Scheduling difficulties	"With everyone having different schedules, it was hard to find a time where we were all available to participate in them. I liked the discussion boards better because you could do it when you had time." "I liked the discussion boards better because we could do them at our leisure, not trying to plan something for four overscheduled individuals."	36
No cost	"There were no downsides."	13
Unengaged peers/not adhering to guidelines	"Sometimes people don't speak up or one person dominates the whole discussion."	13

Table 10

*Examples and frequency of themes for responses to the **intrinsic value** of learning communities (synchronous discussions).*

Theme	Example	Number of responses
Teamwork/collaboration	"The value in learning communities is that they provide team collaboration in order to understand a relevant topic. It promotes interdependent thinking."	24
Other perspectives/viewpoints	"They are a great way to hear people's opinions and interpretations of content in a direct way without having class in-person."	12
Build knowledge & understanding	"Engaging in conversations with peers about content you are learning so you can have a better understanding."	11
Sense of community	"Establishing community and connection with students in the class."	11
Teaching/learning from others	"It helps understand the topic because your group mates explain it in their way."	10
Authentic conversations	"You get face to face interaction with your peers and more flow of conversation. You can form better relationships with your peers." "Real time interaction with my group was more meaningful." "Being able to talk to others in a class similar to before or after a class in person and understand the content."	8
Interacting with peers	"There is a social aspect. Getting to connect and share ideas. Makes homework and reading meaningful."	7
Ask questions	"I was able to ask my peers questions about course assignments and that was really helpful."	5

Career skills	"Learning to work collaboratively with other future educators and related service providers as we will need to do in future careers."	4
Digital communication skills	"Learn how to participate in a discussion online."	3
Response does not convey value	"I don't find a lot of value in learning communities if they are being graded. It forces people to participate instead of inviting them to form connections."	3
Opportunity to express ideas/share opinions	"Being able to share your ideas with like-minded peers."	3
Enjoyment	"I enjoy the learning communities much more than the discussion boards."	2
Engagement in learning	"Since the learning community is live, it allowed participants to be more engaged and present."	1
Apply learning	"Learning communities helped me to see the content in new perspectives, as well as in real-life applications."	1
Least time consuming	"I also thought this was the least time-consuming method of discussion because we can get it done in essentially one day and usually less than an hour."	1
No answer (question left blank)		6

Note: $N = 74$

Table 11

*Examples and frequency of themes for responses to the **usefulness** of learning communities (synchronous discussions).*

Theme	Example	Number of Responses
Career skills	"I will be able to use this learning style in my future classroom."	16
Teamwork/collaboration	"They helped me learn teamwork in a different way through an online lens."	14
Digital communication skills	"I was able to practice working in groups over zoom, which I believe will stick around even after we go back to face to face."	8
Sense of community	"They were useful because it gave an overall sense of community to the fully online class making it seem less scary."	6
Other perspectives/viewpoints	"They helped me learn more through the viewpoints and ideas of others."	5
Build knowledge and understanding	"They helped now by understanding the materials."	5
Teach/learn from others	"I developed new ideas from my peers that I did not have before."	4
Apply learning	"They're useful for me because I can see real-life applications of the content, I am learning which makes it relatable to me and I remember it better."	4
Engagement with learning	"Helped motivate me to do my part for the team and come prepared."	3
Ask questions	"Peers who I feel comfortable asking questions."	3
Response does not convey usefulness	"I can't say I can see how they are helpful."	3
Opportunity to express opinions/share ideas	"I was able to voice my opinion and course material rather than type it, which will aid me in my future for advocating for my point of view on a topic even if I am more shy."	3

	"It helped me bounce ideas off of other people."	
Organizational skills	"I have learned how to become a better planner."	3
Authentic conversations	"It was helpful to be able to have real conversation with my peers about the material and upcoming assignments. I am a verbal processor, so this was really helpful for me."	2
Interacting with peers	"That was the only chance this whole semester I got the chance to discuss with peers about school related content."	2
Leadership skills	"They helped me become more of a leader and notice areas that you must assist the group in to get to the final result."	2
Enjoyment	"I liked the topics of the learning communities."	1
No answer (question left blank)		4

Note: N = 76

Table 12

*Examples and frequency of themes for responses to the **cost** of learning communities (synchronous discussions).*

Theme	Example	Number of responses
Scheduling difficulties	"With everyone having different schedules, it was hard to find a time where we were all available to participate in them. I liked the discussion boards better because you could do it when you had time." "I liked the discussion boards better because we could do them at our leisure, not trying to plan something for four overscheduled individuals."	36
Unengaged peers/not adhering to guidelines	"Sometimes people don't speak up or one person dominates the whole discussion."	13
No cost	"There were no downsides."	13
Time consuming	"They took a lot of time to do, also had a hard time getting group members to participate."	9
Rely on peers	"The downside is trusting other people do put in as much effort as I do. I have had people do the minimal amount of work which makes it hard for me to engage further and sometimes even meet the goals of the discussion."	3
Zoom fatigue	"I feel like during the pandemic everyone was zoomed out so I think that element was kind of a drag."	1
Access to high-speed internet	"If ones wifi isnt good that individual might have a hard time participating."	1
Awkward talking with peers	"It's an awkward assignment, especially being placed together randomly."	1
Not meaningful	"It sometimes felt like we were only there to answer the questions assigned."	1

Do not feel authentic	"You miss out on the interpersonal communication aspects (body language, eye contact, etc)."	1
No answer (question left blank)		5

Note: N = 75

Table 13

*Examples and frequency of themes for responses to the reasons given by students who **preferred learning communities (synchronous discussions).***

Theme	Example	Number of responses
Authentic interactions	"I prefer learning communities because they seem more direct and personal. They allow for conversation in real time and I got more out of them because of that." "I like talking back and forth and being "in person" to ask questions and help each other understand." "We could go with the flow and bounce ideas off each other." "It was more of an immediate response and reaction."	17
Build understanding & knowledge	"I liked them better to actually work together with other peers and understanding the class materials we were learning about."	9
Sense of community	"Learning communities were more helpful in getting to know my peers through Zoom meetings and having verbal interactions." "I preferred the VLC's, they allowed me to get to know peers on a personal level."	6
Prefer interacting verbally	"I struggle more with conveying my thoughts in text than I do verbally." "I also am a verbal processor, so talking through material with my peers is really beneficial to me and my learning."	2
Flexibility/convenience	"I enjoyed only having one night or day dedicated to a meeting and not all week." "I did not have to keep checking back for responses after we met I knew I had done my part."	3

Other perspectives/viewpoints	"I think this was much more flowing and easier to get multiple perspectives and have everyone's voice heard."	3
Easier for everyone to be on the same page	"It helped with distance learning to make sure we were all on the same page of what we are supposed to be doing."	2
Interesting	"The interactions I had with my peers through zoom calls were so insightful and interesting to be a part of."	1
No answer (question left blank)		1

Note: N = 39. This table shares data in regard to 39 of the 40 participants who indicated a preference for learning communities (synchronous discussions) and provided at least one reason.

Table 14

Examples and frequency of themes for responses to the reasons given by students who ***preferred discussion boards (asynchronous discussions).***

Theme	Example	Number of responses
Flexibility/convenience	"Discussion Boards, because I can work on my own time and make it work for me. In VLC's you have to be in a certain place at a certain time and it takes more planning and communication." "Discussion boards because it allowed me to write responses on my own time and not have to incorporate another meeting with everyone else on top of my busy schedule." "I preferred discussion boards as it provides a more flexibility, as many college students have multiple jobs and other classes, we found it difficult to find zoom meeting times."	20
More time to process	"I felt like since it wasn't live we could go more in depth and ask more meaningful questions because we could get our thoughts in order more."	3
Interesting/enjoyment	"I like to see my group members comment and come up with interesting comments."	3
Less anxiety	"DB reduces the anxiety that comes from talking with people you've never met. Especially with being online."	2
Other perspectives/viewpoints	"Creates space for healthy disagreement or debate." "Hear different ideas."	2
Familiar with format	"The discussion boards have been done in other online formats. I think that as students we are trained from our earliest classes how to do in class discussions. In this same way over covid we have been working with discussion board every single class online. I think that if classes are going to be online they need to follow the general path that the college has been on for online classes. I think that	2

	when covid hit and online learning got hard. All the teachers went off and tried to be creative and give something their own touch or something new. The only thing students actually needed was continuity so they could learn the content."	
Refer back to (record)	"They can be looked at later and fully understood by everyone involved."	1
Less bandwidth (wifi)	"I also preferred it because my internet was really spotty and my computer was very old, so many times I couldn't video call and open the shared google document at the same time."	1
No answer (question left blank)		1

Note: N = 27. This table shares data in regard to 27 of the 28 participants who indicated a preference for discussion boards (asynchronous discussions) and provided at least one reason.

Table 15

*Responses given by students who **indicated no preference.** Names listed are pseudonyms.*

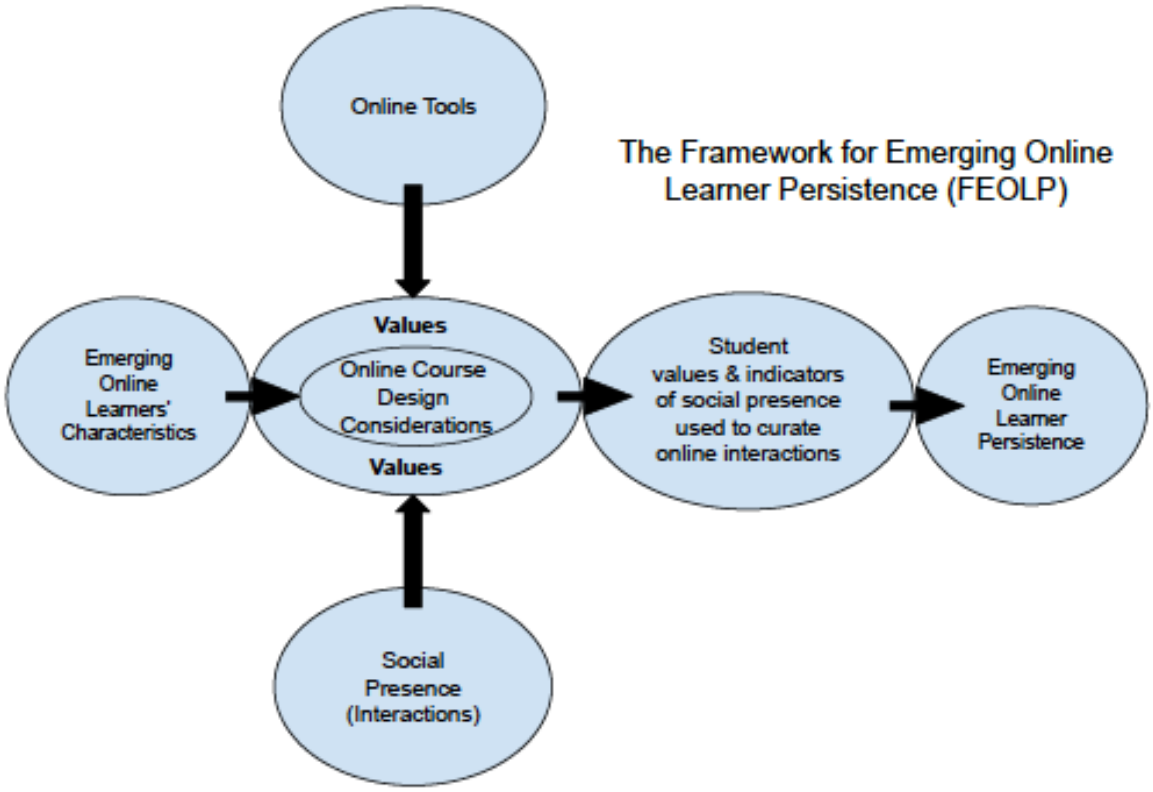
Student	Response
Marie	"I don't have a preference because I think that myself and my classmates enjoyed their differences. I enjoyed the challenges that they both brought in aiding me develop my weekly schedule and interacting with my peers verbally or though text."
Charity	"They both have their pros and cons. Discussion board gives enough time to post and reply. It does not involve setting a time to meet. VLC allows us to share ideas, so it gives a clearer understanding of course materials. Less work in a way."
Jack	"I think a mix is perfect because it allows for both styles to be utilized."
Roscoe	"I don't really have a preference; I think both can be useful dependent on what the subject is."
Ginny	"No preference. There were upsides and downsides to both. The boards weren't bound by schedule conflicts but they were not as authentic of conversations."

Note: N = 5. This table shares complete responses for 5 of the 7 participants who indicated no preference and provided a reason. Since there were only 5 responses, complete responses were shared. 2 participants left this question blank/did not provide an answer.

Figures

Figure 1

The Framework for Emerging Online Learner Persistence



Note: Created by Staci Gilpin, The University of North Dakota. I would like to acknowledge the very helpful comments from Zarrina Azizova, The University of North Dakota, on an earlier draft of this visual.

Figure 2

Phases of the Study

<table>
<tr><th>Phase One</th><th colspan="4">Phase Two</th></tr>
<tr><td rowspan="4">All of the students participated in both types of online discussions:

Discussion Boards

<u>AND</u>

Learning Communities</td><td colspan="4">At the end of the course, participants were emailed a Qualtrics link and asked to complete <u>ONE</u> questionnaire with <u>FOUR</u> parts about their experiences.</td></tr>
<tr><td colspan="4">Questionnaire</td></tr>
<tr><td>Part One</td><td>Part Two</td><td>Part Three</td><td>Part Four</td></tr>
<tr><td>Demographics</td><td>Discussion Boards -

Social Presence & Values Measures</td><td>Learning Communities -

Social Presence & Values Measures</td><td>Open-Ended</td></tr>
</table>

Figure 3

The Evolution of Online Discussions

Designing Online Discussions Using FEOLP	
Original Format	Enhancements
• Instructors put students into small groups of 3-5 students. • Students were provided a discussion schedule that included both synchronous and asynchronous discussions. ● Instructors shared guidelines and rubrics. ● Students were given prompts to discuss and a two-week time frame to meet on their own. Students took turns facilitating the conversations. ● Instructors connected with the groups, focusing on connections and questions across the groups. ● Instructors then shared feedback to the entire group in video or written format, highlights connecting questions, resources, and insights.	● CoI principles ● Options for synchronous or asynchronous discussions ● Student created norms ● Scheduling assistance ● Innovative technologies & pedagogies ● Develop digital communication skills

Note: Adapted from an earlier version created by Stephanie Rollag-Yoon, The College of St. Scholastica.

Figure 4

Online Discussions Syllabus Statement

Online Discussions in Our Course

This course relies heavily on your reflection and critical thinking. Through readings and videos, you will be asked to share your viewpoints and experiences via small group discussions.

Purpose. Your peers have a lot to share with you and amazing stories to tell. As a result, the purpose of the discussions is to create a sense of community and facilitate a shared understanding of course materials. This experience provides a relational feel and emulates a real-time conversation as much as possible.

Expectations. The discussions are an important part of this course and will be used to engage topics related to the program and course outcomes. In each learning module, guiding questions will be posted. These guiding questions will be related to readings, activities, and/or issues that are addressed in the course.

Options. There are two options for engaging with your small discussion group this semester.

Option 1 - Synchronous learning communities (highly recommended): The expectation is that you schedule a synchronous discussion session (45-60 minutes) with your group sometime during each module. This experience differs from the Brightspace discussion board in that you'll get to interact in "real-time" with your peers via Zoom.

Option 2 - Asynchronous discussion board: The expectation is that you individually post to the online discussion thread by Thursday of each module and then substantially respond to your peer's posts again by Monday (final day of the module).

Norms/Structures. Each discussion group will craft more detailed discussion guidelines during the first week of the course.

Note: Adapted from an earlier version created by Jana LoBello Miller, University of Minnesota, and Stephanie Rollag-Yoon, The College of St. Scholastica.

Figure 5

Directions for Creating Online Discussion Norms

Establishing Our Online Discussion Norms

First, each person should respond to the below prompts in the "Establishing Our Online Discussion Norms." Make a copy of the table, put it into a google doc, and share it with your group.

Best group		Not-so-great group	
What made it a good experience?	*Suggestions to ensure this happens in this course.*	*What made it an unsatisfactory experience?*	*Suggestions to ensure this does not happen in this course.*
Example: We were able to ask one another questions without judgement	Example: Be vulnerable and understand everyone has different experiences.	Example: Not meeting deadlines and ghosting the group.	Example: Create deadlines that are attainable for everyone. And communicate if they need to be adjusted.

Then, using responses in the table, work either asynchronously or synchronously with your small group to discuss them and create 3-5 norms. Be sure to consider how you will nurture engagement for everyone? What if there are disagreements? What if the norms are violated? You should craft your norms in the same shared document.

Next, also record your group's norms in the "Establishing Norms - Shared" google document. You do not need to include your names with your group's norms. This gives everyone in the course an opportunity to review the norms other groups created, get new ideas/perspectives, and then together revise your group's norms.

Finally, try to finalize your group's norms by the end of week two and shared them with me. After each discussion and at different points throughout the course, I will ask groups to reflect on their norms, assess how things are going, and then revise their norms as need.

Note: Adapted from an earlier version created by Jana LoBello Miller, University of Minnesota, and Stephanie Rollag-Yoon, The College of St. Scholastica.

Appendix

Questionnaire Items

Part 1.

Demographics and student experience

1. What is your gender?

(1) Man
(2) Woman
(3) Another gender identity, please specify [text box]
(4) I prefer not to report

2. What is your age in years?

3. Do you consider English your first (native) language?

(1) Yes
(2) No

4. Is your ethnicity of Hispanic, Latinx, or Spanish origin?

(1) No
(2) Yes, Mexican, Mexican American, Chicano
(3) Yes, Puerto Rican
(4) Yes, Cuban
(5) Yes, another Hispanic, Latinx, or Spanish origin (e.g., Salvadoran, Dominican, Columbian, Guatemalan, Spaniard, Ecuadorian, etc.)

5. What is your race? (select all that apply)

(1) American Indian or Alaska Native
(2) Asian (e.g., Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, Native Hawaiian, Samoan, Chamorro, etc.)
(3) Black or African American
(4) White
(5) Other, please specify [text box]

6. What is you student status?

(1) Undergraduate
(2) Graduate

7. Do you consider yourself to be a full-time or part-time student?

(1) full-time
(2) part-time

8. What is your major?

(1) Education
(2) Education Studies
(3) Other, please specify [text box]

9. What is your grade point average (gpa)?

10. Prior to this term, how many credits have you completed?

11. What percent of your previously completed credits have been…

[Must sum to 100% - online __% face-to-face __%]

12. What percent of your current credits are…

[Must sum to 100% - online __% face-to-face __%]

13. How many miles do you live from campus? If you live in on-campus, housing, enter "0."

Parts 2 & 3.

Social presence [discussion boards/learning communities]

14. I felt comfortable participating.

15. I was satisfied with my interactions.

16. My point of view was acknowledged by other participants.

17. I was able to form distinct individual impressions of some participants.

18. I disagreed with other participants while still maintaining a sense of trust.

19. The interactions helped me to develop relationships with other participants.

Values [discussion boards/learning communities]

Intrinsic Value

20. They were interesting.
21. I looked forward to them.
22. They were boring for me (reverse).
23. I would like more of them.

Utility Value
24. The skills I developed by participating in them are important for my future.
25. They helped me develop my teamwork skills.
26. I understood course material better because of them.
27. In general, they were pointless (reverse).

*Cos*t
28. They demanded too much of my time (task effort cost - reverse).
29. Because of other things that I do, I didn't have time for them (outside effort cost - reverse).
30. I had to sacrifice too much for them (loss of valued alternatives cost – reverse).
31. They were too stressful (emotional cost – reverse).

Part 4.

Open-ended

32. What is the value of [discussion boards/learning communities]?

33. How are the [discussion boards/learning communities] useful for you now, or in the future?

34. What are the costs or downsides of [discussion boards/learning communities]?

35. Which type of discussion format helped you better get to know your peers?

36. After experiencing both, which type of discussion format do you prefer and why? If you don't have a preference, please also share and explain.

37. Did you interact with those in your discussion group outside of assigned course activities?

38. What else would you like to share about the discussions in this course?

Note: I would like to acknowledge the very helpful comments from Virginia Clinton-Lisell, The University of North Dakota, and Rob Stupinksy, The University of North Dakota, on earlier drafts of this questionnaire.