Creating Connections: Discussion Group Size and Social Connectedness

in Online Community College Students

A Dissertation

Presented to

The Faculty of the Graduate School

Of Millersville University of Pennsylvania

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Social Work

By Hilary L. Cobb

March 21, 2023

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Abstract of the Dissertation

Creating Connections: Discussion Group Size and Social Connectedness in

Online Community College Students

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Millersville University, 2023

Millersville, Pennsylvania

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Social connectedness among community college students plays a critical role in student retention yet can be difficult to emulate in online education. One way to increase connectedness in asynchronous courses is with discussion boards; however, the existing research is mixed about the effects of large- versus small-discussion board groups on feelings of social connectedness among students. Using a quantitative pretest-posttest control design, this exploratory study sought to understand the effects of group size on feelings of social connectedness in community college students in an online introductory social work course. Results showed that group size did not appear to influence feelings of connectedness; however, both groups showed an increase in feelings of connectedness over the course of the semester, as measured by the Online Student Connectedness Survey (OSCS). In addition, the study provided insight about student feelings of connectedness and comfort across the course of a semester and provides a foundation for future research examining social connectedness and group size among community college students.

Signature of the investigator: <u>Hilary L. Cobb</u>   Date: <u>3/21/2023</u>

Dedication

This is dedicated to the millions of community college students nationally who overcome barriers and challenges to pursue their education and to the local community college students who take my courses and laugh at my jokes. You inspire me daily.

Acknowledgements

It can be difficult to know where to start with acknowledgments. There are so many individuals that have supported me through this process, all of whom I am extremely grateful to.

First, I would like to thank my amazing community college students, who already juggle so many responsibilities, yet took time to participate in this study.

To my committee: Dr. Oliver Dreon, and Dr. A. Nicole Pfannenstiel. Thank you for helping me take a nebulous idea and form it into a study that will provide information for social work educators across the country.

To my chair, Dr. Laura Brierton Granruth, thank you for your wisdom, edits and pep talks. I am grateful for your thoughts and support and many hours you invested in me during this process.

Thank you to the academics who graciously shared their thoughts and time with me during this journey: Dr. Daren Olson, Dr. Carrie Rice, Dr. Aaron Metzger, Dr. Curtis Proctor, Dr. Leonora Foels, Dr. Heather Girvin, Jana McCurdy, Heather Schoenherr, Annie Estvold, and Dr. Karen Rice.

To my colleagues at King University: Dr. Cliff Rosenbohm, Dr. Denise Anderson, Dr. Sean St. Jean, and Dr. Johnny Jones. You have all touched my life with your encouragement.

To my incredible peers at Millersville University who are going to do great things: Aliesha, Linda, Arielle, Lauren, Pam, and Michelle. And to Kelli, there will never be enough words to describe how grateful I am for our friendship.

To my "village:" Jessica, Katie, Kristi, Lindsey, Tony, Krissy, James, Katie, Evan, John, Melissa, Chili, Lena, and everyone else who has cheered me on over the past three years.

To my parents, Rhonda and Clayton, who told me I could be anything and overcame their own challenges to pursue higher education.

To my children, Olivia and Titus, for inspiring me and being okay when I spent hours in my office. I love you both so much.

To my husband, Jesse, for everything. You inspire me, challenge me, and have done an awful lot of housework and kid-wrangling over the past three years. I could not have done this without your love and support.

Finally, without the Lord, I would not be where I am. He has blessed me beyond all measure: "I can do all things through Christ who gives me strength" (Philippians 4:13).

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Chapter One: Introduction

Community colleges play a significant role in educating students of all backgrounds across the United States, especially those from traditionally marginalized populations such as minoritized groups[1], immigrants, those with mental health issues and/or learning disabilities, and those from economically challenged backgrounds (Petrin Lambert, 2018). For example, one study of 84,000 Florida students showed that 26% of community college students came from low-income families compared to 15% of four-year college students, and nationally 37% of students attending community colleges have a family income of less than $20,000 a year (Community College Research Center, 2022).

For the 12.4 million students enrolled in community colleges, there are significant benefits to starting at a public two-year institution. Community college tuition and fees tend to be lower, averaging approximately $3,800 a year nationally compared to $10,740 for public, four-year institutions (Community College Research Center, 2022). Lower tuition rates also allow community college students to exit with fewer student loans; in fact, only 15% of community college students took out student loans compared to 43% of students in public four-year institutions (Community College Research Center, 2022).

An affordable education is critical because it provides a pathway for lower-income and students from marginalized groups to pursue higher education with long-term benefits, such as increased lifetime earnings (Community College Research Center, 2022; Furchtgott-Roth et al., 2009). Furchtgott-Roth et al. (2009) found that the completion of a community college degree can increase an individual's earnings by $7,900 a year, 29% higher than those with a high school

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[1] The term "minoritized" is used instead of "minority" based on the work of Benitez (2010), who noted the term acknowledges "the process [action vs. noun] of student minoritization" (p. 131). It refers to power and equity issues and the institutional construction of marginality instead of numbers or size of population (Bragg et al., 2019; Wingrove-Haugland & McLeod, 2022).

diploma (Furchtgott-Roth et al., 2009). In addition, a report from the Georgetown University Center on Education and the Workforce estimated that workers with associate degrees will make $400,000 more in lifetime earnings than those with a high school diploma (Carnevale et al., 2021).

Community colleges also provide education to a substantial number of students from minoritized groups. In Fall 2020, less than half of students (48%) enrolled in two-year public institutions were White, compared to 54% of students in public four-year institutions (National Center for Education Statistics (NCES), 2022). An analysis of community college student demographics showed that community colleges serve 44% of all undergraduate students, including 55% of Hispanic undergraduates, 45% Asian undergraduates, 44% of Black undergraduates and 41% of White undergraduates (Community College Research Center, 2022), and a study of 23,750 first-year college students indicated that students from under-represented minority groups (Black, Hispanic, and Native American) and first-generation students at two-year institutions reported higher feelings of belonging than their counterparts attending four-year institutions (Gopalan & Brady, 2020).

Online Education in Community Colleges

There are concerns that the traditional four-year institutional educational model, designed for students with the resources to live on campus and attend school full-time, does not accommodate the diverse needs of community college students, many of whom have outside responsibilities such as full-time employment or family obligations (Action Network, 2019; Travers, 2016). These outside obligations mean that for some students, even the "traditional" community college approach, may not be appropriate. One way to increase accessibility to education has been through online education, which has steadily increased over the past twenty

years (Horvitz et al., 2014). In 2002, postsecondary institutions reported that online enrollment made up only 9.6% of their students. By 2018, this number had grown to 36.6%, or 6.9 million students, and it is predicted that this number will continue to grow ("Distance education in college: What do we know from IPEDS?," 2021).

This rapid growth in online education has been especially significant at the community college level. Traditionally, community colleges have been at the forefront of developing and delivering online education to serve students with limited or minimal access to education and those with outside commitments such as jobs or families (Travers, 2016). In 2006, community colleges had more distance education students than all other higher education institutions, and by 2018, 97% of public community colleges offered online courses, more than any other higher education institution ("Distance education in college: What do we know from IPEDS?", 2021; Travers, 2016). Improving technology has made this even easier by allowing community colleges to reach more students across a wider geographic region without maintaining physical classrooms (Robb & Sutton, 2014).

Online education has many important benefits for students and has been found to be as effective as face-to-face teaching (Bolliger & Halupa, 2018; Douville, 2013). For students, online learning allows them far more flexibility to attend classes that meet their needs, regardless of geographic location (Coman et al., 2020; Hustad & Arntzen, 2013; Koh & Hill, 2009). Asynchronous courses, where learning interactions happen at different times and from any location a student chooses (i.e., home office, coffee shop), allow students to engage with their peers and instructor when it is convenient ("Asynchronous learning definition," 2013). In addition, online learning allows students to spend less time and money on travel, which is helpful

for those juggling the responsibilities of working full-time and raising a family (Coman et al., 2020; Koh & Hill, 2009; Travers, 2016).

The Challenges of Online Education

Despite the many benefits, online education at the community college level also presents several challenges. When examining the overall patterns of community college student enrollment and retention, degree and certificate completion rates are typically lower at community colleges than four-year institutions (Levesque, 2018; Gregory & Lampley, 2016). Unfortunately, only 20-40% of community college students complete a certificate or degree within six years of enrollment and transfer rates to four-year institutions and subsequent completion rates of bachelor's degrees are low (Levesque, 2018; Travers, 2016). In fact, one study by the Community College Research Center (CCRC) discovered that while 81% of community college students intended to complete a bachelor's degree, only 33% students had transferred to a four-year institution within six years of enrollment, and only 42% of those students completed a bachelor's degree in six years (Levesque, 2018).

Individuals from minoritized groups have even lower completion rates (Engle & Lynch, 2009; Tate, 2017). Among students who complete a two-year certificate or credential, only 16% are from underrepresented minoritized groups compared to 27% of 18–34-year-old White students, and minoritized students are less likely to earn a certificate or associate degree than their peers (Engle & Lynch, 2009). Minoritized students also transfer to bachelor's degree programs at significantly lower rates than their White counterparts, meaning that while minoritized and low-income college students are "overrepresented" in enrollment, they are underrepresented as completers of community college programs (Chen, 2009).

While these low degree completion rates are concerning, community college students enrolled in online classes may face even more challenges. For example, the average student taking online education courses is more likely to be nontraditional students[2] who are often older than 24, have dependent children at home and are employed full-time (Gregory & Lampley, 2016; "Nontraditional undergraduates: Definitions and data," n.d.; Robb & Sutton, 2014). This nontraditional student may be returning to school after a considerable time away, lack confidence or skills with technology, and struggle to balance work, school, and family obligations (Evans et al., 2020; Gregory & Lampley, 2016). They may also struggle with lower financial resources, decreased self-confidence, reduced time, or ability to focus on school (Gregory & Lampley, 2016). They may also struggle to navigate the complexities of the community college system, especially for those who are returning to school, first-generation students, or recent immigrants (Evans et al., 2020).

There is a growing body of research examining how these barriers affect completion rates of students in online courses compared to those in traditional face-to-face classes (Morris, 2011; Ortagus, 2018; Robb & Sutton, 2014). Jaggars and Xu (2010) found that students in online community college courses were less likely to finish their degree or transfer to a four-year institution, and Xu and Jaggars (2013) found that community college students in Washington state were more likely to withdraw from the course than their peers in face-to-face courses. In a review of four quasi-experimental studies, Xu and Xu (2019) found that students in online classes were between 3-15 percentage points more likely to withdraw than similar peers in face-

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[2] There has been debate about the formal definition of "nontraditional student." According to the National Center for Education Statistics (NCES), nontraditional students are defined as those who are over the age of 24 and have work and family responsibilities outside of school. There are also other variables that characterize this broad group of students such as race, gender, residence (living off campus), and/or being enrolled in nondegree occupational programs ("Nontraditional undergraduates: Definitions and data," n.d.).

to-face courses. While not all research shows a negative relationship between online enrollment and completion, Ortagus (2018) found that community college students who enrolled in at least a few online courses were more likely to complete their associate degree than those only enrolled in face-to-face courses.

The factors that affect online student completion rates are still unclear, demonstrating a need for further research (Xu & Xu, 2019).Some researchers have focused on student characteristics as a factor that affects completion rates and found that students in online courses struggle with lack of engagement, isolation, communication issues, and decreased motivation (Boyer et al., 2006; Coman et al., 2020; Gregory & Lampley, 2016; Khan et al., 2017). Further, because community colleges accept students from a broader range of backgrounds, some students may be less prepared for college and struggle to successfully navigate the challenges of online learning (Travers, 2016). Davis et al. (2019) and Petrin Lambert (2018) found that first-generation college students, those who work full-time or have dependent family members may be drawn to online education because of its flexibility and convenience but need extra support from educators and the college to be successful. Unfortunately, technology issues, large class sizes or a lack of training on best practices in online education may prevent educators from providing that needed support (Davis et al., 2019; Khan et al., 2017).

Social Connectedness and Community

There is a well-researched link between student satisfaction, social connectedness, and retention, leading many researchers to study the strategies needed to do this effectively in an online setting (Croxton, 2014; Diep et al., 2019; Drouin, 2008; Koh & Hill, 2009; Slagter van Tryon & Bishop, 2012; Swan & Shih, 2005; Travers, 2016). Unfortunately, although online courses allow higher education institutions to provide quality education to a more diverse group

of students, for community college students in online courses, this often comes with higher rates of dropout, forcing many institutions to evaluate the effectiveness of online education (Koh & Hill, 2009; Travers, 2016).

Liu et al. (2009) noted that research does not provide a clear understanding of the student characteristics that lead to persistence and success in online classes. More recently, Xu and Xu (2019) found that it is still unclear if online dropout rates are related to the online course format or the factors and characteristics that draw students to online education. One area that has been explored is social connectedness. Isolation and loneliness have been identified as two factors related to decreased satisfaction or "learner failure," and a feeling of community with peers increases student satisfaction and retention in undergraduate courses (Drouin, 2008; Serrano-Solano et al., 2021). Allen et al. (2008) found in a study of 6,872 students across 23 four-year institutions that feelings of social connectedness had a direct effect on student retention and that students who did not feel socially connected were more likely to drop out (Allen et al., 2008).

Learning activities that promote social connectedness in online education are necessary because social interactions can reduce feelings of isolation and positively increase student confidence, motivation, and satisfaction (Akcaoglu & Lee, 2016; Celik, 2013; Croxton, 2014; Delahunty, 2018). Conversely, a lack of social engagement in the course can decrease overall satisfaction and increase the risk of students dropping out (Croxton, 2014). Delahunty (2018) refers to this as the "paradox of 'flexibility,'" in which the flexibility that students value in online education provides as many opportunities for engagement with peers as it does for lack of engagement. Community college students in online courses are especially vulnerable because they are often first-generation college students, work full-time, have dependent children, and may need extra support to succeed in an online setting (Davis et al., 2019).

Discussion Boards in Online Education

One strategy to promote a sense of connectedness in online education is the use of collaborative learning techniques (Cox & Cox, 2008; Hamann et al., 2012; Khan et al., 2018; Qui & McDougall, 2015). Collaborative learning activities are teaching methods or strategies that bring students together to interact, complete tasks or goals, problem-solve or share experience and knowledge (Hiltz, 1998; Zhu, 2012). Through these activities and the process of engaging with peers, learners work together to construct knowledge and meaning at a deeper level than simply memorizing course content or concepts (Boyer et al., 2006). Students also develop the "soft skills" of communication, teamwork and professionalism needed for collaboration in the workplace after graduation. These skill sets are especially appropriate for those students entering social work, because there is a growing emphasis on interprofessional collaboration (Ambrose-Miller & Ashcroft, 2016; Khan et al., 2017).

Even in fully asynchronous classes, skilled instructors can use collaborative learning methods to increase a sense of community and connectedness (Cox & Cox, 2008). One of the most utilized methods is the asynchronous discussion board, sometimes referred to as a discussion forum or threaded discussion (Bristol & Kyarsgaard, 2012; Delahunty, 2018; Hamann et al., 2012; Osborne et al., 2018; Page et al., 2020). An asynchronous discussion board is a digital "bulletin board," where students can post answers to questions and review and respond to their peers (Cox & Cox, 2008). Many faculty use asynchronous discussion boards to create what Cox and Cox (2008) refer to as an "atmosphere of cooperation and social connectedness" (p. 563), where students collaborate and engage with their peers at times most convenient for their schedules. Discussion boards have become especially popular in online education as a tool to increase student engagement with course content and strengthen feelings of social connectedness

in the online classroom (Hamann et al., 2012; Page et al., 2020). When designed well, online discussion boards engage students in more than simple interactions; they invite collaboration, active learning, and a sense of community for those students affected by feelings of social isolation (Celik, 2013; Cox & Cox, 2008; Page et al., 2020).

Purpose of the Study

The purpose of this study was to look at collaborative learning strategies—specifically asynchronous discussion boards—to determine if variations in discussion board group size affected students' sense of social connectedness in online community college classes. By examining these variables in an online community college course, it addressed a gap in the literature and provided insight about online education at two-year institutions. While there is agreement that building community or connectedness within the online classroom is important (Douville, 2013), it is less clear which factors or practices influence those feelings of social connectedness (Diep et al., 2019). Brindley et al. (2009) and Delahunty (2018) focused on the larger concept of learning communities, while Martin and Bolliger (2018) looked at the impact of learner-to-learner activities such as blogs, group work, or peer assessment. One specific area of focus is the use of discussion boards to increase feelings of social connectedness by encouraging student engagement with the course and each other (Akcaoglu & Lee, 2016; Cox & Cox, 2008; Khan et al., 2017; Lowry et al., 2006). Discussion boards are a convenient and flexible tool that allow students to engage with their peers at times that work for them and can be an effective way to increase engagement and interaction (Khan et al., 2017; Morris, 2011). However, even within existing research about discussion boards, there is debate about best practices. Should discussion boards be mandatory? What is the impact of small-group versus full-class discussion boards? Is quality or quantity of posts more important? Because technology

is always changing, many researchers agree there is a continued need to identify the best practices related to building community, connectedness, and use of collaborative learning strategies in online courses (Akcaoglu & Lee, 2016; Arasaratnam-Smith & Northcote, 2017; Koh & Hill, 2009).

Another limitation to understanding the effectiveness of discussion boards at the community college level is that much of the research looking at collaborative learning is conducted on undergraduate or graduate students in traditional four-year institutions (Akcaoglu & Lee, 2016; Brindley et al., 2009; Diep et al., 2019; Drouin, 2008; Koh & Hill, 2009; Martin & Bolliger, 2018). However, there is little research examining the effectiveness of these practices at the community college level.

Relevance for Social Work Education

As part of the National Association of Social Workers *Code of Ethics* (2021)*, social workers must "expand choice and opportunity for all people, with special regard for vulnerable, disadvantaged, oppressed, and exploited people and groups" (p. 26). Advocating for access to quality education for all individuals allows social workers to support and empower communities. Online education should be more than access to content; online learners should be able to receive quality education, characterized by high levels of social presence and collaborative learning, regardless of their race, gender, or geographic location (Brindley et al., 2009; NASW, 2021). This increased need for quality online education puts pressure on the higher education system to better meet the needs of their students by identifying the techniques that ensure student success in an online setting (Brindley et al., 2009). This also means there is a need for research that examines best practices in online education, specifically to support community college students and their unique needs (Petrin Lambert, 2018).

Community colleges have a broad reach and often provide educational opportunities for a wide range of students, including those from underrepresented and minority groups. By supporting low-income and minoritized students, community colleges often provide a "pathway to upward economic mobility" (Levesque, 2018, para. 6). However, high attrition rates can have significant long-term effects for these groups, putting students at reduced earning potential in the future, which in turn impacts families and communities (Levesque, 2018). The link between education and economic mobility for disadvantaged groups aligns with social work's value of social justice, resulting in a call for social workers to advocate for and engage with community college students who may be struggling academically, financially, or from discrimination (Petrin Lambert, 2018).

As quoted in the *Manifesto for a Networked Nation,* a publication encouraging access to technology for all ages and groups: "Digital literacy is a great enabler of social mobility…it is a powerful weapon in the fight against poverty" (Race Online, 2010, p. 13). To honor social workers' ethical code, social workers must look beyond social work education research to evaluating best practices in *all* disciplines at the community college level. It is the only way to fully support and empower students and the communities in which they live. As social work researchers, we are called to study topics that refine our practice in all levels, including higher education, and advocate for social justice for vulnerable students as they pursue higher education, increase their economic mobility, and strengthen their communities (CSWE, n.d.; Petrin Lampert, 2018). The collected data from this study will help close some gaps in existing research and create a foundation for other researchers to study best practices in online asynchronous discussion boards, particularly with community college students.

Theoretical Framework

While there are multiple learning theories that inform online pedagogy, constructivist learning theory and social constructivism are often cited as robust frameworks to support activities that encourage social connectedness in the online environment (Bellefeuille, 2006; Na Ubon & Kimble, 2003; Pena-Shaff & Nicholls, 2004; Whiteside, 2015).

Constructivist Learning Theory

In the mid-twentieth century, there was an acknowledgement that the theories of behaviorism and cognitivism were inadequate to explain the complexities of learning (Harasim, 2017). Constructivist learning theory, which emerged in the 1970s, profoundly influenced the practice of educational pedagogy in the United States (Harasim, 2017). Constructivist pedagogy ushered in a shift in the practice of education as it acknowledged that people learned through the construction of meaning about the world based on their own experiences and self-reflection (Harasim, 2017; Stacey, 2005). This approach reflected the belief that the acquisition of knowledge was not a fixed state but a fluid, active process that developed as individuals faced new experiences and ideas (Harasim, 2017).

Constructivism is often viewed as a larger "umbrella theory," from which other pedagogical approaches such as cognitive constructivism and social constructivism have emerged (Harasim, 2017). Leading theorists John Dewey, Lev Vygotsky and Jean Piaget looked at learning theory through slightly different lenses and each emphasized different elements of the acquisition of knowledge. While Piaget focused on learning and cognitive development, Dewey and Vygotsky emphasized the role of social interactions in the learning process (Harasim, 2017). Regardless of their differences in focus, a constructivist learning approach includes reflections about experiences, activities and tasks that occur in a meaningful context, and

collaboration and cooperation among peers instead of competition (Harasim, 2017). Thus, constructivist pedagogy views knowledge as actively constructed, not passively learned from someone else (Fernando & Marikar, 2017).

Vygotsky and Social Constructivism

Drawing on the earlier work of American philosopher John Dewey (1859-1952), who focused on the relationship between collaborative learning and the construction of meaning, Russian psychologist Lev Vygotsky (1896-1934) is known for his study of the development of language, cognitive ability, and learning in children and adolescents (Dewey, 2018; Kozulin, 1990; Swan et al., 2009). Like Dewey, Vygotsky believed that human development and consciousness were rooted in social interactions (Harasim, 2017). He believed that social and cultural, or socio-cultural, experiences affected children's sense of self, expectations, and development (Glassman, 2001). Psychologist Jean Piaget (1896-1980) furthered this work and posited a stage-based theory of cognitive development (Zastrow et al., 2019). Piaget emphasized developmental stages as preceding learning while Vygotsky believed that learning contributed to cognitive development (Harasim, 2017). Vygotsky's focus on the connection between social interactions and development led to what many call "social constructivism," and several of his concepts–specifically the Zone of Proximal Development (ZPD) and scaffolding—influence online education today (Powell & Kalina, 2009; Zastrow et al., 2019).

Zone of Proximal Development (ZPD). The Zone of Proximal Development (ZPD) has received much attention and has implications for online discussion boards and groupwork. Vygotsky developed this concept in the late 1920s and continued expanding upon it until his death (Shabani et al., 2010). He defined it in his posthumously published *Mind in Society: The Development of Higher Psychological Process* as "the distance between the actual

developmental level as determined by independent problem solving and the level of potential

development as determined through problem solving under adult guidance or in collaboration

with more capable peers" (Vygotskii & Cole, 1978, p. 86) (Figure 1). Vygotsky argued that

when students worked together in collaboration, the educational process would lead to increased

critical thinking and problem-solving and increased social cohesion (Glassman, 2001).

Additionally, Vygotsky purported that this group interaction should be more than students

copying someone's work; it needed to be an interactive process where someone who was more

experienced, such as a teacher or peer (referred to as a More Knowledgeable Other), could guide

or mentor the student (Erbil, 2020; Hedegaard, 1996).

Educators today can use the principle of the Zone of Proximal Development to structure

asynchronous discussion board groups that foster student growth and include tasks students may

not be able to initially accomplish on their own (Billings & Walqui, 2017; Shabani et al., 2010).

Vygotsky (1978) argued that when children learned through interactions with others, it allowed

them to develop internal processes and problem-solving skills, which would increase their

developmental achievement. This process would help the student feel confident to complete that

same task independently in the future and increase their Zone of Proximal Development level to

a higher cognitive level (Shabani et al., 2010). Increasing learning capacity and problem-solving

skills is especially beneficial for students who are struggling in the classroom. Erbil (2020) noted

that students who have "lower levels of success" (p. 4) benefit from engaging with peers who are

more knowledgeable, creating a need for active learning activities where students work together

and learn from each other. It is important to note that this process of collaboration does not

require physical presence; it can happen synchronously through audio or video or

asynchronously using discussion boards, making the Zone of Proximal Development as relevant to online learning as in-person learning (Borthick et al. 2003).

Figure 1

Vygotsky's Zone of Proximal Development (ZPD)
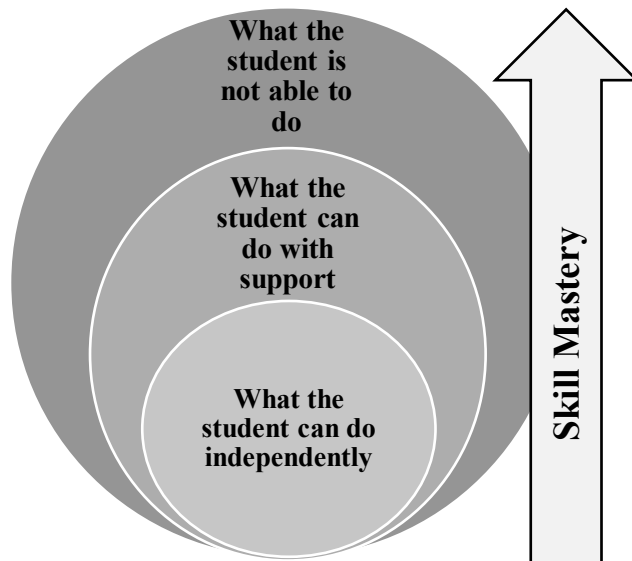
Scaffolding. In the context of collaborative learning activities, one limitation of the Zone of Proximal Development is that instructors must know the developmental stages and levels of their students, which can take more time to determine in the absence of face-to-face interactions (Hedegaard, 1996). Activities that are initially too challenging or beyond their current skill level may leave students frustrated. Scaffolding is a process in which an educator can increase the complexity of a task so students can build competence (Harasim, 2017). Through scaffolding assignments and activities, students develop mastery of skills in a structured way (Harasim, 2017). As the students gradually master the skill, the instructor removes the "scaffolds," allowing the students to take ownership of the process (Harasim, 2017; Zastrow et al., 2019). In the online classroom, students with limited experience may need scaffolding tools to master basic skills for online collaboration (Bellefeuille, 2006; Brindley et al., 2009). Slowly increasing participation,

interaction and complexity through the semester should be part of effective online course design, as this process narrows the distance between individual and group achievement and development (Brindley et al., 2009).

  Vygotsky's Theory and Social Work. Although Vygotsky's work is traditionally viewed through an educational lens, his emphasis on social-cultural experiences and the perspective that an individual's abilities should not be judged on their performance, but on their potential for growth, aligns well with social work's person-in-environment perspective and social work values (Franklin, 2014; Zastrow et al., 2019). Vygotsky's concepts provide a holistic framework for social work educators to maximize social interactions and use collaborative activities such as discussion boards to increase critical thinking, problem-solving skills, and social cohesion (Glassman, 2001). Students are then able to transfer their understanding of the importance of collaboration, impact of socio-cultural experiences, and potential for growth in their clients to their social work practice (Franklin, 2014). One of the challenges for social work educators may be difficulty with integrating tasks such as reflection and collaborative learning into asynchronous discussion boards. This challenge stresses the need for further research to develop best practices for social work educators in the online environment (Bellefeuille, 2006).

Constructivist Learning Theories and Online Education

  Constructivist learning theory and Vygotsky's social constructivism offer a framework for effective learning in the classroom, although some believe they do not fully address the complexities of an online, asynchronous environment (Harasim, 2017). Using Vygotsky's emphasis on collaboration in the classroom, some have proposed contemporary learning theories like "collaborativism," "constructive collaborativism," and the Community of Inquiry framework

to understand the intricacy of social engagement and learning in online education (Garrison et al., 2000; Harasim, 2017; Swan et al., 2009).

Other researchers argue that constructivist learning theory, with its emphasis on reflection and self-paced learning, is a good fit for online education (Bellefeuille, 2006; Na Ubon & Kimble, 2003; Osborne et al., 2018; Pena-Shaff & Nicholls, 2004). Collaborative learning strategies such as discussion boards create a learning environment that promotes critical reflection and knowledge construction through social interactions--principles congruent with social constructivism (Pena-Shaff & Nicholls, 2004; Na Ubon & Kimble, 2003). Even if constructivist learning theories do not fully address the issues inherent in an asynchronous environment, Vygotsky's work speaks to the need for tools, such as discussion boards, which encourage group discourse and collaborative learning in the online educational process (Harasim, 2017; Borthick et al., 2003).

Chapter Two: Literature Review

A comprehensive review of the literature was conducted to better understand the connection between discussion boards, social connectedness or social presence, and the specific variable of group size. Multiple databases, including ERIC, ScienceDirect, Academic Search Ultimate, APA PsycInfo and OpenAIRE, were searched using the following terms: *discussion boards, social presence* or *sense of community, group size, asynchronous, collaborative learning, online learning* or *e-learning* or *distance learning, social work,* and *social work education*. The search returned a significant number of articles discussing how discussion boards affect social connection and student satisfaction at the undergraduate level in four-year institutions (Bristol & Kyarsgaard, 2012; Hamann et al., 2012; Testa & Egan, 2016) and graduate-level students (Akcaoglu & Lee, 2016; Brindley et al., 2009; Celik, 2013; Cox & Cox, 2008; Delahunty, 2018; Diep et al., 2019; Douville, 2013; Koh & Hill, 2009; Martin & Bolliger, 2018; Qiu & McDougall, 2015; Swan & Shih, 2005). The research primarily focused on students in healthcare (Bristol & Kyarsgaard, 2012; Osborne et al., 2018), communication (Pena-Shaff & Nicholls, 2004) and education or educational technology (Akcaoglu & Lee, 2016; Brindley et al., 2009; Cox & Cox, 2008; Delahunty, 2018; Diep et al., 2019; Swan & Shih, 2005).

There were fewer articles examining the use of asynchronous discussion boards in social work courses (Douville, 2013; Testa & Egan, 2016), and only one research study examining the effects of asynchronous discussion boards on community college students (see Barber, 2011). Because there is a lack of research on discussion boards and social connectedness among community college students, this paper reviews the existing research conducted on four-year and graduate institutions. Several themes emerged, including the relationship between social

connectedness, engagement and satisfaction in online education, and how collaborative learning activities, specifically asynchronous discussion boards, can influence those variables.

Defining Social Connectedness and Social Presence

While there is an acknowledgement that social connectedness is a critical factor in student achievement and satisfaction with online courses (Diep et al., 2019), there is variation in the terms researchers use to study social interactions in online settings (Lowenthal & Snelson, 2017). In the literature, the terms *social connectedness, social presence,* and *community* are often used interchangeably, making it difficult to define them clearly (Trespalacios et al., 2021). Lowenthal and Snelson (2017) noted this is problematic since varying definitions may lead researchers to study similar, but different constructs. In this literature review, both social connectedness and social presence were used to understand how students engage with each other and the learning process through asynchronous discussion boards. This resulted in articles where some researchers used the term *social connectedness* (Diep et al., 2019; Slagter van Tryon & Bishop, 2012) and others used the term *social presence* (Akcaoglu & Lee, 2016; Celik, 2013; Koh & Hill, 2009; Lowry al., 2006; Swan & Shih, 2005), both of which are valid constructs to examine this phenomenon.

Social Connectedness

A review of the literature by Trespalacios et al. (2021) found there was no universally accepted definition of social connectedness or community; however, most definitions included a sense of belonging, the creation of meaningful relationships with peers and educators, and an overall growth of the students based on their similar interests and goals. For example, Ijsselsteijn et al. (2003) noted that connectedness includes a sense of sharing, intimacy and belonging with peers, Diep et al. (2019) defined it as "the feeling of being close to other people and society" (p.

326), and Slagter van Tryon and Bishop (2012) described it as the "extent to which students in online learning environments perceive themselves as being socially connected to their peers" (p. 347). Defining social connectedness in the context of online education is important because there is a correlation between students' feelings of connectedness and academic success in online education (Kim, 2011).

To conceptualize social connectedness, Bolliger and Inan (2012) reviewed the existing literature and identified four elements that comprise social connectedness: community, facilitation of learning, comfort, and collaboration and interaction. They then used this framework to develop a 25-item survey tool that has been used in several studies to examine student perceptions of connectedness in online education (see Ford & Inan, 2013; Jamison & Bolliger, 2020; Zimmerman & Nimon, 2017). The four elements are described below.

Community. *Community* relates to a student's sense of belonging and includes a sense of membership, emotional connection, influence, and a fulfillment of needs (Bolliger & Inan, 2012). Jamison and Bolliger (2020) noted that on-campus students frequently develop community based on proximity. In online courses, this is challenging due to geographic distance, so instructors must intentionally create activities to build community (Jamison & Bolliger, 2020).

Facilitation of Learning. *Facilitation of learning* emphasizes the instructor's role in communicating with students and creating opportunities within the course to encourage connection between students (Bolliger & Inan, 2012). In the online classroom, there is a strong link between educator involvement and student connectedness (LaBarbera, 2013; Page et al., 2020). In a study of undergraduate and graduate students, LaBarbera (2013) found a strong correlation between students' sense of connectedness, instructor involvement and satisfaction with the course. The educator plays a valuable role as Vygotsky's "more knowledgeable other,"

and creates relevant and purposeful discussions and activities to motivate and encourage students (Delahunty, 2018; Erbil, 2020; Trespalacios et al., 2021).

Comfort. *Comfort* is conceptualized as the student's feelings of security in the online environment. This includes comfort with the technology and course materials, as well as the freedom to engage with peers without fear of penalty or judgement (Jamison & Bolliger, 2020). Safety in the online classroom is necessary for meaningful engagement and self-reflection, especially in social work education where students often disclose their life experiences to their peers (Garran & Rasmussen, 2014). When students are uncomfortable or feel unsafe, they may limit engaging with others, resulting in decreased opportunities for learning (Bolliger & Inan, 2012).

Collaboration and Interaction. The element *collaboration and interaction* emphasizes the effects of collaborative activities on feelings of connectedness. Congruent with Vygotsky's emphasis on collaborative learning, Jamison and Bolliger (2020) noted the integration of discussion forums and group activities is a way to foster collaboration and interactions between students and increase connectedness.

Social Presence

The term *social presence* is often used to capture the "feeling of community or connection among learners" (Koh & Hill, 2009, p. 73). Short et al. (1976) first defined social presence as the "degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (p. 65). Lowry et al. (2006) expanded this definition to capture the complexities of asynchronous learning, describing social presence as:

> The degree to which a communication medium allows group members to
> perceive (sense) the actual presence of the communication participants…despite

the fact that they are located in different places, that they may operate at different times, and that all communication is through digital channels (p. 633).

There have been several frameworks or models over the past several decades used to describe the level of social presence in online communication, although Liu et al. (2009) posited that social presence can be difficult to measure because it is a complex process that includes factors such as social relationships, privacy, feedback, and immediacy, among others. To better understand the research cited in this literature review, it is important to examine some of the models used to operationalize *social presence.*

Models of Social Presence. One of the most well-known frameworks used to understand the facets of social presence is the Community of Inquiry (COI) framework (Dikkers et al., 2017). Developed in the 1990s by Garrison et al. (2000), the Community of Inquiry framework is comprised of three components needed for a quality educational experience: teaching presence, cognitive presence, and social presence (Garrison et al., 2000). Within the realm of social presence, Garrison et al. (2000) proposed three elements needed for social presence in the online classroom: effective communication, open communication, and group cohesion (Barber, 2011). Rourke et al. (1999) examined this concept and identified three types of communicative responses that can be coded to indicate social presence: *affective responses,* which involve students' expressions of feelings, beliefs and emotions; *interactive responses,* which relate to "attending" behaviors such as agreement or disagreement, or references to previous posts; and *cohesive responses,* which are behaviors that increase group commitment such as encouragements or greetings (Rourke et al., 1999).

Twenty years later, researchers continue to study and examine the factors that influence social presence in an online classroom (Akcaoglu & Lee, 2016; Arasaratnam-Smith & Northcote,

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2017; Brindley et al., 2009; Delahunty, 2018; Koh & Hill, 2009; Swan & Shih, 2005). This process of continued study has led to several other proposed models of social presence such as the Social Presence Model. Proposed by Whiteside (2015), the Social Presence Model emphasizes social presence as the primary concept needed to understand learning in online environments (Dikkers et al., 2017). Whiteside (2015) expanded upon Garrison and Rourke's work by combining the elements of affective association, community cohesion, and interaction intensity, with instructor involvement and knowledge and experience to create the Social Presence Model. Dikkers et al. (2017) noted that because the Social Presence model includes a focus on instructor involvement, it provides information about how educators can use best practices to encourage social presence in online education (Dikkers et al., 2017).

Because of the close relationship between social presence, student achievement, and satisfaction, there is a need to find different strategies that engage students and create a sense of social connectedness or social presence (Diep et al., 2019). Garrison et al. (2000) explained that social presence in an online setting marks the difference between a collaborative community of students and simply exchanging information. When a classroom has a high level of social presence and strong educator involvement (referred to as *teaching presence*), it can lead to higher levels of engagement, critical thinking and inquiry, which are the primary goals of constructivist learning theory and higher education (Garrison et al., 2000; Hamann et al., 2012).

Differentiating Between Social Connectedness and Social Presence

One of the challenges researchers have with defining social connectedness and social presence is that they are often used interchangeably in research (Trespalacios et al., 2021). However, Trespalacios et al. (2021) argued that while social presence and connectedness are related, they are not synonymous terms. The primary difference is that connectedness relates to

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the emotional experience of other students' presence, and social presence is more about student perceptions of the "nearness" of others and increases based on psychological or intellectual engagement with peers (Kim, 2011; Rettie, 2003). Rettie (2003) described the difference as receiving a letter in the mail may increase feelings of social connectedness without producing an awareness of social presence since there is no further engagement, whereas a call with a telemarketer may stimulate feelings of social presence related to intellectual engagement but produce little connectedness or emotional connection. Ideally, in online education, courses should have both social connectedness and presence. Students should have a sense of social connectedness, or emotional experience related to other students' presence, and social presence, resulting from intellectual engagement with others.

For this dissertation, the term *social connectedness* is primarily used since this author believes it refers to the broader emotional perspective of feeling connected to others, which can help socially isolated students in online education, although *social presence* is used when researchers specifically used that construct to study the relationship between asynchronous discussion board group participation and social connection with their peers.

Discussion Boards in Online Education

Group projects, collaborative written assignments, group presentations, debates, and critiques are all examples of collaborative learning activities used in online education (Gillett-Swan, 2007; Zhu, 2012). Some activities are synchronous, or happen in "real-time," others are asynchronous, where students are online and engaging with the material at various times (Bristol & Kyarsgaard, 2013). The asynchronous discussion board is one of the most used collaborative tools in online education (Delahunty, 2018; Hamann et al., 2012; Osborne et al., 2018; Page et al., 2020). This is, in part, because the integration of discussion boards into an online course may

increase social presence, help students enhance their written communication skills, increase

opportunities for reflection and build critical thinking skills (Khan et al., 2017; Osborne et al.,

2018; Pena-Shaff & Nicholls, 2004; Ringler et al., 2008; Tu & McIsaac, 2008). Also called a

threaded discussion or discussion forum, asynchronous discussion boards developed from early

digital "bulletin boards" and allow students to take part in the same discussion at times that are

most convenient for them (Bristol & Kyarsgaard, 2013; Celik, 2013; Cox & Cox, 2008). Osborne

et al. (2018) observed that discussion boards blend well with a constructivist approach since it

encourages both active learning and social interaction and is a positive way for online educators

to meet pedagogical goals.

Benefits of Discussion Boards

A well-designed discussion board may promote collaboration and connectedness between

students and has many documented benefits (Cox & Cox, 2018; Page et al., 2020; Ringler et al.,

2015). For example, researchers have found that because the discussion is asynchronous,

students have more time to read and reflect on their own and peers' posts, which can lead to

increased communication skills, writing skills and more thoughtfully constructed posts

(Delahunty, 2018; Khan et al., 2017; Pena-Shaff & Nicholls, 2004; Ringler et al. 2015). The

delay in peer feedback allows students to formulate a response and fully elaborate their position,

which may strengthen writing skills and the ability to share their values and beliefs with peers

(Khan et al., 2017; Osborne et al., 2018; Pena-Shaff & Nicholls, 2004).

Participation in asynchronous discussion boards also minimizes several factors that

negatively affect in-person discussions. For example, online discussions can "neutralize" social

cues, such as gender and race, creating a more democratic environment (Hamann et al., 2012).

Social interactions are limited by time and access, not socioeconomic status or geographic

distance (Walker & Fraser, 2005). Students communicate without time constraints or interruptions, and all can have an equal voice in the discussion (Celik, 2013; Croxton, 2014; Hamann et al., 2012). Engaging with peers can intimidate some students, so communicating through writing can reduce feelings of social awkwardness and increase willingness to engage in discussions (Croxton, 2014). Online discussion also decreases the likelihood that the instructor or one peer will dominate the discussion, something that occurs in face-to-face discussions (Celik, 2013). As a result, students often perceive online discussions as "more equitable and more democratic" (Swan & Shih, 2005, p. 116).

Research confirms the value of asynchronous discussion boards in building cognitive skills and self-reflection, congruent with constructivist learning theory (Hamann et al., 2012; Pena-Shaff & Nicholls, 2004). In a study of undergraduate students, Hamann et al. (2012) discovered that discussion boards enhanced student learning. Interestingly, although students did not always enjoy participating, they rated online discussion as a positive way to share their thoughts, rethink their values and apply the material to current issues. Testa and Egan (2016) found similar results in a study of undergraduate social work students, noting discussion board participation allowed students to analyze changes in their assumptions and beliefs over the course of the semester. Research also shows that when students use discussion boards to share their beliefs and apply personal experience to scenarios and real-world issues, it can increase their knowledge about the subject, engagement with peers and build a sense of community and connectedness (Khan et al., 2017; Osborne et al., 2018; Page et al., 2020).

Limitations of Discussion Boards

While asynchronous discussion boards have many benefits, there are also limitations. Challenges related to communication are commonly cited as barriers to student motivation and

engagement in discussion boards (Celik, 2013; Delahunty, 2018; Hamann et al., 2012; Lowry et al., 2006). A lack of immediate feedback may affect the relationship quality and sense of community between peers and decreased "attending" behaviors, such as reading and responding to peers' posts, can leave students feeling unheard (Delahunty, 2018; Lowry et al. 2006; Tu & McIsaac, 2002). Another concern is the risk of "serial monologues," where students write lengthy posts that do not invite discussion or feedback (Hamann et al., 2012). Further, some students may be underprepared to contribute meaningful posts or dialogue. Without a "more knowledgeable other" in the online classroom, students' growth and cognition can be limited based on Vygotsky's Zone of Proximal Development (ZPD) (Hamann et al., 2012).

The spontaneity of in-person discussion can also be challenging to emulate in an online setting. Biesenbach-Lucas (2003) found in a study of 36 students who had to post weekly, some reported positive interactions, but others felt that responding to peers felt "forced" (p. 24). Biesenbach-Lucas (2003) speculated that this could have been because the time spent to respond to other peers' posts may have stifled students' ability to expand on their own topic and interests. Others have questioned the use of mandatory, rubric-graded discussion board posts and responses since it can limit creativity and negatively affect student satisfaction (Hamann et al., 2012; Ringler et al., 2015). Despite these concerns, research finds that even if students do not fully enjoy discussion boards, they view them as a positive strategy to increase engagement with the content and with each other (Hamann et al., 2012; Osborne et al., 2018). Although discussion boards have limitations, there remain many benefits to their use in online education (Osborne et al., 2018).

Discussion Boards and Social Connectedness

   Aligning with Vygotsky's emphasis on social interaction and learning, students can use discussion boards to encourage each other and increase engagement with their peers through debates, role-plays, and peer teaching (Khan et al., 2017). This process of community building is especially important as students are more likely to engage in online discussions when they feel connected to their peers (Page et al., 2020). Cox and Cox (2008) conducted a study of 35 graduate students to determine if threaded asynchronous discussions could create a collaborative learning environment. They concluded that the asynchronous nature of the discussion boards still lent itself to the creation of a cooperative environment with increased social connectedness by the end of the semester (Cox & Cox, 2008). Emphasizing elevated levels of social connectedness in the classroom is crucial because a sense of belonging can lead to the engagement and collaborative behavior needed for learning (Page et al., 2020; Qiu & McDougall, 2015).

   However, the use of asynchronous discussion boards may not automatically create a sense of community among students. Cox and Cox (2008) found that relationships in online settings took longer to establish than in the classroom and warned against equating social interactions with a sense of community. Tu and McIsaac (2002) found in a study of 51 graduate students, that while social presence affected online interactions, frequency of participation in discussion boards did not always equal high social presence. Other researchers noted that student activity does not equate to learning and that frequency of social interaction is different from group participation (Cox & Cox, 2008; Pena-Shaff & Nicholls, 2004). Osborne et al. (2018) concluded that despite research showing the benefits of discussion boards, there is still a lack of clarity about how to most effectively use discussion boards to encourage student growth and development. Thus, there remains a need for research to determine which factors increase

student engagement and learning through discussion boards. Otherwise, students view them as "tacked on" or a chore, instead of a powerful way to connect with their peers (Harasim, 2017; Osborne et al., 2018).

Group Size and Online Discussion Boards

Pena-Shaff & Nicholls (2004) noted that initial research about the effectiveness of asynchronous discussion boards in promoting student connection and learning was studied quantitively, using variables such as frequency of posts or message length to determine if learning occurred. However, in the mid-1990s, a shift occurred towards examining the quality and content of posts, the factors that increase engagement and social presence, and the overall process of group discourse (Pena-Shaff & Nicholls, 2004; Tu & McIsaac, 2002). One area of research focuses on the relationship between group size and engagement in online discussion boards and identifying the "optimal" group size to increase engagement and connectedness between students (Cox & Cox, 2008; Hamann et al., 2012, Qiu & McDougall, 2015).

Once an educator has decided to use discussion boards as a collaborative learning tool, they face a choice: should they have large-class discussions, small-group discussions, or a combination of both? Qiu and McDougall (2015) observed that much of the research about group size has been conducted in face-to-face settings, but there is less information about what works for online collaboration. There is a growing body of research comparing the effects of small-groups versus large-groups in online settings, as well as determining the "optimal" size for small group participation (Akcaoglu & Lee, 2016; Bristol & Kyarsgaard, 2013; Hamann et al., 2012; Lowry et al., 2006; Reonieri, 2006; Tu & McIsaac, 2002).

Large-group vs. Small-group. Although it may be simpler for instructors to create one whole-class discussion board where everyone participates, this can have a negative effect on

student engagement (Qiu & McDougall, 2015). Large-group or whole-class discussion groups can result in many posts, leaving students overwhelmed and at risk of "information overload" (Page et al., 2020; Reonieri, 2006). Tu and McIsaac (2002) discovered that graduate students in large groups reported feeling "lost" in multithreaded discussions. When there were too many posts, students had difficulty tracking the original speaker and stopped responding, moving into a more passive observer role (Tu & McIsaac, 2002). Qiu & McDougall (2015) found comparable results when they divided graduate students into small and large, whole-class groups. In the whole-class discussion groups, students were also negatively affected by "information overload" and would either skim through posts or only read posts about topics they were interested in, decreasing engagement in the discussion (Qiu & McDougall, 2015).

Research also shows other risks of using large or whole-class groups in discussion boards (Douville, 2013; Lowry et al., 2006; Qiu & McDougall, 2015). For example, as the discussion group size increases, there is a shift in how students see their role. As groups become larger, it is common for students to stop viewing their contribution as necessary to success, feel less committed to the group and stop participating in their full capacity (Douville, 2013; Lowry et al., 2006; Qiu & McDougall, 2015). Often referred to as *social loafing,* this can create frustration among other students trying to engage in collaborative learning (Aggarwal & O'Brien, 2008). Students in a larger group may also feel less connected to peers and need to use more effort to find common ground with others (Qiu & McDougall, 2015).

One way to reduce the negative effects of a large group is to separate students into small-group discussions. Smaller groups can positively increase feelings of social presence and quality of interactions (Akcaoglu & Lee, 2016; Bliss & Lawrence, 2009; Page et al., 2020). For example, it may be easier for students to identify with their peers in small groups, which can

positively affect participation and a sense of belonging (Qiu & McDougall, 2015). Qiu and McDougall (2015) found that graduate students in small groups felt they missed less information and could construct higher quality responses to their peers, which enhanced their perceptions of social presence. In a study of masters-level education students, Akcaoglu & Lee (2016) found that graduate students who participated in both large and small online group discussions reported more positive perceptions of sociability, commitment, and connection to their peers in small groups compared to large group discussions. This connection with their peers and the ability to interact more effectively can lead to the development of higher-order critical thinking skills (Hamann et al., 2012).

        Optimal Group Size. While there is research showing the positive effects of small-group discussions on student engagement and social presence, groups can be too small, leading researchers to study the "optimal" size (Hamann et al., 2012; Reonieri, 2006). Estimates of the optimal small-group size vary from 8-15 students (Hamann et al., 2012; Qiu & McDougall, 2015; Reonieri, 2006). In groups of less than ten students, students are not exposed to enough perspectives and may be unable to generate ideas for an engaging discussion (Hamann et al., 2012; Reonieri, 2006). A lack of diversity in student experience and backgrounds may result in what students perceive as uninteresting discussions and decreased interaction. Students divided into small groups may also worry they are missing other people's perspectives if they are only focused on their small-group members (Qiu & McDougall, 2015).

        It is important to note that, although there is a growing number of studies looking at the effects of group size on collaborative learning and social presence, the results are mixed. A study of undergraduate nursing students showed no difference between groups of 12 students or 24 students in student perceptions of effectiveness, although Bristol & Kyarsgaard (2012) posited

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this could be because of a small sample size ($n = 22$). Hamann et al. (2012) found that students who took part in both in-person discussions and online discussions were less satisfied with online discussions due to the complexity of asynchronous discussion boards. Although research shows that group size can have effects of student engagement, social presence, and satisfaction and retention (Akcaoglu & Lee, 2016; Hamann et al., 2012; Qiu & McDougall, 2015), there is still limited research examining the relationship between social presence and group size in an online setting (Qiu & McDougall, 2015). This is unfortunate because group size is an effective variable that educators can easily adjust in an online course (Aggarwal & O'Brien, 2008). After studying group size in 25 graduate-level courses, Qiu and McDougall (2015) concluded that group size is "the most important determinant of online group effectiveness" (p. 152), which speaks to the need for research examining this variable in the online classroom for students in higher education settings.

Chapter Three: Methodology

The purpose of this study was to examine the effects of discussion board group size on community college students' feelings of social connectedness in online courses and answer the following research question:

How does participation in small-group discussion boards (10 students) impact feelings of social connectedness among community college students compared to those who participate in larger-group discussion boards (25 students)?

Research Design

A quantitative research design using a pretest-posttest control group design was selected to answer the research question and test the following hypothesis:

Ho: There is no difference in feelings of social connectedness between students who participate in small-group discussion boards and those who participate in large-group discussion boards.

$H_{a:}$ There is a statistically significant difference in feelings of social connectedness between students who participate in small-group discussion boards and those who participate in large-group discussion boards.

The pretest-posttest control group design is a commonly used experimental research design used to evaluate the effects of an intervention, or in this study, the use of small groups to increase social connectedness (Rebok, 2016). It is commonly notated as:

$$R \quad O_1 \quad X \quad O_2$$

$$R \quad O_1 \quad \quad O_2$$

The R referred to random assignment of students to either the experimental group or the control group. O_1 represented the pretests, in this case, the Online Student Connectedness

Survey, and O_2 represented the posttests. Finally, X represented the intervention, which was placement into small discussion board groups for Weeks 5-14 of the semester, while control group students participated in a large discussion board group during that same time (Rubin & Babbie, 2016).

The pretest-posttest control group design is appropriate to test the hypothesis because it allows for randomization, which makes it stronger over other possible designs. After students are randomly assigned to either the control or experimental group, a standardized measurement tool is administered as a pretest. This allows the researcher to assess differences between groups that might affect the results and creates a baseline for the groups prior to the intervention (Baldwin, 2018). In addition, when compared to a posttest-only design, the use of a pretest and posttest design for both groups displays changes between the pretest and posttest and strengthens the inferences made about the effects of the intervention (Baldwin, 2018; Bell, 2010). The pretest-posttest control group design is commonly used in educational research because it shows the differences between groups prior to the intervention and the changes within groups that happened between the pretest and posttest (Baldwin, 2018; Bell, 2010).

Threats to Validity

Despite the strength of the design, threats to internal and external validity remain (Baldwin, 2018). The pretest-posttest control group design is often used in research because it can control for threats to internal validity. This design controls for *history* and *maturation* since hypothetically both groups have experienced the same external events, and one would expect to see changes related to external events in both groups, instead of one (Campbell & Stanley, 1963; Rubin & Babbie, 2016). Random assignment also reduces the effects of differences between the groups in motivation or functioning and controls for *regression* (Campbell & Stanley, 1963;

Rubin & Babbie, 2016). A standardized measurement tool can control for *instrumentation*, and random assignment reduces *selection bias,* where students might self-enroll in a small or large discussion board group based on their existing desire to connect. The one threat to internal validity the pretest-posttest control group design does not address is the effects of *testing and retesting*; however, the pretest-posttest control-group design was selected for this study because it controls the other threats to internal validity so effectively (Rubin & Babbie, 2016).

Variables

Independent Variable

The independent variable in this research study was discussion board group size, either small-group or large-group.

Small-group definition. In the literature, the definition of an optimal small-group size ranges from 2-15 students (Bliss & Lawrence, 2009; Hamann et al., 2012; Qiu & McDougall, 2015; Reonieri, 2006). Qui and McDougall (2015) defined a small group size as five to ten students, and Bliss and Lawrence (2009) defined it as two to five students. In a study of graduate students ($n = 93$), Reonieri (2006) found that students viewed a group size of 10 to 15 participants as optimal for a quality discussion board experience. Hamann et al. (2012) noted small groups of ten students provided enough perspectives to stimulate discussion and generate new ideas as the semester progresses. Based on previous research, a discussion board small-group size was operationalized as 10 students. Starting with 10 students allowed room for attrition, as students sometimes withdraw from classes, and kept the size commensurate with the literature.

Large-group definition. Based on the literature, the definition of a "large" discussion board group varies greatly between studies. For example, Reonieri (2006) defined a large

discussion board group size as 15 to 24 students while Bristol & Kyarsgaard (2012) used 23 nursing students as a "large" group. Some researchers such as Hamann et al. (2012) compared small discussion board groups to a "whole-class" group size of 53 students and Akcaoglu and Lee (2016) used "whole-class" group sizes of 16 and 17. Celik (2013) had a whole-class discussion board group size of 19, while Gagne et al. defined large groups as seven or more students (Qiu & McDougall, 2015). The "large" group size in this study was initially defined as 20 students, similar to comparable studies by Celik (2013) and Reonieri (2006). However, this number was adjusted to compensate for the total number of students enrolled in the course by Week 3, which was 35 students. For this study, students were placed into either a small discussion board group of 10 students or a large discussion board group of 25 students.

Dependent Variable

The dependent variable was the student's level of social connectedness, specifically the student's score on the Online Student Connectedness Survey (OSCS). Bolliger and Inan (2012) developed the Online Student Connectedness Survey, a 25-item, self-report scale to measure feelings of student connectedness in online education. Students used a Likert scale from 1 (strongly disagree) to 5 (strongly agree) to respond to 25 statements such as "I feel emotionally attached to other students in my online courses" or "I collaborate with other students in my online courses" (Bolliger & Inan, 2012). A higher score on the OSCS represented a higher perception of social connectedness by the student.

The survey also included four subscales, which Bolliger & Inan (2012) proposed are the components of social connectedness: *community*, *comfort*, *facilitation*, and *interaction and collaboration*. Because the scale is only ten years old, psychometric testing is limited (see Bolliger & Inan, 2012; Zimmerman & Nimon, 2017). However, initial testing demonstrates that

it is a reliable and valid instrument to measure student connectedness in online undergraduate and graduate students.

Sample

Setting

This study was conducted at a community college in the Intermountain West part of the United States. The community college serves approximately 31,000 students pursuing associate degrees, career and technical training, basic skills education, workforce development training, and dual credit students through local high schools ("Facts at a glance," 2021). The majority of students (90%) of students are part-time and 62% of these are high school students enrolled in local dual credit programs. The other 10% are full-time students, either online or in-person ("Facts at a glance," 2021). Classes are delivered in both classroom and online formats. In 2020, 8,602 students engaged in fully asynchronous online classes ("Facts at a glance," 2021).

The community college was selected because of the researcher's relationship with the academic institution. The researcher developed and taught several sections of a fully online, asynchronous Introduction to Social Work and Social Welfare (Social Work 101) course, twice a year for the past three years. Additionally, the community college was amenable to having research conducted that demonstrates best practices in online education, since there are a considerable number of students attending classes delivered in this format.

Social Work Course Overview

The Introduction to Social Work and Social Welfare (Social Work 101) is a 16-week course offered twice a year in the fall and spring semesters. The community college offers two sections each semester with a capacity of 25 students in each section. The online course is fully asynchronous and uses a modular approach, where students complete a weekly module that

includes readings, videos, and participation in a weekly discussion board. The course also includes four reflection papers and other small assignments to help students better understand social work and the complexities of social issues.

In addition to the main course assignments, students complete a 20-hour service-learning group project with 4-5 students over the course of the semester. Service-learning projects in social work courses combine reflection, community service, and academic learning to help students bridge the gap between theory and practice (Gruslyte, 2021). In this social work course, the service-learning group project included the creation of educational materials used to help local community agencies. For example, some groups partnered with a local foodbank to create a series or infographics about nutrition for children and seniors. Other groups created policy briefs related to workers' rights or housing, and several groups created newsletters describing child development for parents at the community college.

All the students enrolled in the course participated in the service-learning group project. The Researcher considered minimizing contamination between the discussion board groups by placing students into service-learning small groups based on their discussion board group size. However, to ensure the service-learning experience was meaningful for students, they were assigned to a service-learning group based on their project preference regardless of the discussion board group they had been assigned to for this research.

Sampling Method

This research study utilized a convenience sampling method, a common choice in social work research because it is cost- and time-effective (Rubin & Babbie, 2016). While the use of convenience sampling is limited in generalizability, it can provide tentative findings and insights about an issue, i.e., social connectedness and group size, to set the foundation for future studies

(Rubin & Babbie, 2016). In addition, Emerson (2021) noted that thoughtfully selecting the research design and statistical analyses can reduce the limitations of convenience sampling. For example, although a lack of random selection in this study decreases external validity, random assignment to the control or experimental group improved the internal validity. The sampling frame was the students on the class roster. To maximize the sample size, all students were invited to participate in the study if they met the inclusion criteria, listed below.

Sample Characteristics

The introduction to social work class was a fully online asynchronous course, meaning enrolled students may live in multiple states, and represent diverse backgrounds, age groups, and racial and ethnic groups. The community college where the study was conducted serves a large number of high-school students who take online courses as part of a dual-credit program, including a small number who take the online introduction to social work course. However, this study focused on the experience of adult community college students ranging from 18-75+ years of age, so students under 18 years old were excluded. The full inclusion criteria for the sample was:

- Students enrolled in the online introduction to social work course during the duration of the study (from Week 4 to Week 16)

- At least 18 years of age

- A part-time or full-time student enrolled at the community college

Exclusion criteria for the sample were:

- Any students who dropped out of the class prior to the start of the study in week four

- Students younger than 18 years of age

- Students from the in-person introduction to social work course

- Those who did not consent to participate in the study or elected to participate in an alternative assignment

Recruitment

All students participated in whole-class discussions for the first four weeks to allow them time to acclimate to the online LMS platform (Blackboard). Once the study was approved by the community college's institutional review board (IRB) and the Millersville University IRB, students were invited during Week 3 to participate in the study and provided consent forms through a link to Qualtrics within the course. This consent process is both a critical component of the IRB process and a way to adhere to Section 5.02: Evaluation and Research in the NASW *Code of Ethics* as a social work researcher. The consent form included detailed information about the study, potential risks and benefits of participation, and affirmation that students' decision to participate in the study or not would have no impact on their grade in the course nor their academic standing in the college. The consent form also described the process of keeping participant responses and demographic data confidential and a statement informing participants could withdraw from the study at any time without penalty (Appendix A) (NASW, 2021.; Rubin & Babbie, 2016).

A total of 50 extra credit points was offered for participation in the study, a commonly used technique to encourage participation and reduce attrition in higher education research (Padilla-Walker et al., 2005). While extra credit can incentivize students to participate in the study, it also carries the risk of influencing students to participate in research they are not comfortable with (Padilla-Walker et al., 2005). To reduce this influence or perception that participation is more important than other types of assignments, the amount of extra credit points was equivalent to other extra credit opportunities and assignments in the course. In addition,

students who are under 18 years old or those who declined to participate in the study were given an opportunity to respond to a short assignment for the same amount of extra credit to avoid the risk of potential coercion.

Sample Size

The participants for the sample were recruited from two sections of an introduction to social work class (SWRK 101) taught during the fall 2022 semester at the Intermountain Western community college. Each class section had a maximum enrollment of 25 students and were pooled under one large "parent course" in the learning management system (LMS). In prior years, this course had a higher enrollment, often closer to 45-50 students; however, due to internal changes and a higher level of attrition within the first few weeks of school, the initial enrollment of 43 students had decreased to 35 students enrolled by Week 4. During the recruitment period, 25 students initially consented to participate in the study. By Week 15, four students of the 25 students had dropped out of the course or stopped participating, and four students declined to complete the posttest, resulting in a final sample size of 17 students.

There are several strategies for determining if this is an appropriate sample size for this study. One strategy is to determine sample size based on the research design and/or statistical analysis. Delice (2010) recommended a sample size of at least 30 for a relational survey design, and more than 50 participants for causal-comparative and experimental studies. Kohn and Senyak (2022) recommended a sample size of 34 when using a paired t-test and Burmeister and Aitken (2012) suggested using the 20:1 rule for sample size when using regression analysis.

Another strategy to determine sufficient sample size is by using the same sample size as comparable studies (Israel, 1992). Previous studies looking at group size and social connectedness tend to have similar sample sizes. For example, Hamann et al. (2012) had a

sample of 53 undergraduate students, Akcaoglu and Lee (2016) used a sample of 33 graduate-level students, and Bristol and Kyarsgaard (2012) had a sample of 23 nursing students. In this study, the initial number of students who consented to participate was 25, making it comparable to other studies. However, after attrition, the final sample was only comprised of 17 students: seven from the small discussion board group and ten from the large discussion board group. Because of this, there were some limitations in the tests that could be completed on the data and limited generalizability of the results. Further discussion of the effects of limited sample size are discussed in Chapter 5.

Data Collection

Procedures

Two weeks prior to the start of the semester, the two sections of the social work course were merged into one large course through Blackboard, the Learning Management System, creating a group of approximately 43 students. For the first four weeks of the semester, students completed activities and increased their comfort navigating Blackboard. They participated in three weekly text-based, written asynchronous discussion boards with the whole class during weeks two, three and four. There was some attrition in the first four weeks resulting in 35 students at the end of Week 4.

Using a scaffolding approach, the discussion boards were very structured to provide a clear framework for students who were possibly unfamiliar with written discussion boards in an online, asynchronous setting. Each discussion board was worth 20 points and had a specific prompt, rubric for grading, and detailed description of expectations for the initial posts and response to peers' posts (see Appendix B for examples of discussion board prompts). The

instructor then graded the posts and provided feedback for students who were struggling to help increase their confidence using discussion boards when divided into smaller groups in Week 5.

In Week 3, an introduction to the process and a link to a Qualtrics survey was directly embedded into Blackboard. Students were asked to complete the survey by the end of Week 3, and a reminder in Week 4 was sent through the Announcements section of Blackboard. The first page of the survey included a copy of the informed consent form and asked students if they would like to a) consent to participate in the study and earn extra credit points, b) declined to participate, but would prefer to complete an alternative assignment for extra credit, or c) declined to participate in the study or complete an alternative assignment and would not be able to decide to participate later in the semester. They were also asked if they were at least 18 years old.

Those students who consented to participate in the study and were at least 18 years old were then asked to complete the pretest which included the OSCS and eight demographic questions. The 25 survey items from the OSCS were integrated into Qualtrics so students could immediately complete the pretest after they reviewed the informed consent, answered the question about consent and answered "yes" to the question about being at least 18 years old. The survey was separated into the four subscales with the following directions listed above each: "Please respond to each of the following statements by selecting the response you feel best fits your current experience." Students reviewed each of the subscale survey statements and responded using a 5-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5).

In addition to the 25 survey items, there were eight demographic questions at the end of the survey about race, ethnicity, gender, age, sexual orientation, number of dependent children and work status (full-time, part-time, or not currently working). Demographic data helped the

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researcher determine if study participants are representative of the target population, i.e., community college students taking online courses (Lee & Schuele, 2011). Demographic variables, such as age or work status, were also used to explore moderating effects on the dependent variables (Lee & Schuele, 2011). Since demographic data can be sensitive, participants were assured during the informed consent process that their answers would be kept confidential and reported as aggregated characteristics, not individual data.

Measurement Tool: The Online Student Connectedness Survey (OSCS)

While there are other scales used to examine social connectedness in online education such as Rovai's Classroom Community Scale (CCS) and the Community of Inquiry (COI) Scale, the Online Student Connectedness Survey (OSCS) was selected because it focuses specifically on student connectedness and has been used to study this concept in both online community college and graduate-level courses (Bolliger & Inan, 2012; Ford & Inan, 2013; Jamison & Bolliger, 2020). The survey consists of 25 items scaled from 1 (strongly disagree) to 5 (strongly agree) and includes four subscales identified by Bolliger and Inan (2012) as elements of social connectedness: community, comfort, facilitation, and interaction and collaboration (Ford & Inan, 2013).

Community. The *community* subscale has six items and represents students' feelings of connectedness to their peers (Jamison & Bolliger, 2020). It includes statements such as "I feel emotionally attached to other students in my online courses," "My peers have gotten to know me quite well in my online courses," and "I have gotten to know some of the faculty members and classmates well" (Bolliger & Inan, 2012).

Comfort. The *comfort* subscale examines participants' comfort level with technologies and feelings of safety in an online environment (Bolliger & Inan, 2012; Jamison & Bolliger,

2020). Jamison and Bolliger (2020) noted these qualities are crucial since students need a sense of security to be successful in online courses. The subscale includes eight items such as, "I feel my instructors have created a safe online environment in which I can freely express myself," and "I feel comfortable in the online learning environment provided by my program" (Bolliger & Inan, 2012)

Facilitation. Bolliger and Inan (2012) included facilitation of learning as a key component of social connectedness. Instructors play a crucial role in creating safety and community, and effective facilitation of a course can contribute to that process (Bolliger & Inan, 2012). The *Facilitation* subscale measures students' perception of instructor engagement through six items such as "My online instructors are responsive to my questions," "Instructors promote collaboration between students in my online courses," and "I receive frequent feedback from my online instructors."

Interaction and collaboration. The fourth subscale, *Interaction and Collaboration*, examines students' perceptions of interactions and collaboration with their peers. Bolliger and Inan (2012) noted that projects that require collaborative learning and interaction are a part of social connectedness and valuable since they can reduce feelings of student isolation. The subscale has five items that includes statements such as "I discuss my ideas with other students in my online courses," "I collaborate with other students in my online courses," and "I relate my work to others' work in my online courses." A list of the questions is available in Appendix C.

Psychometric Testing

Because this is a newer scale, psychometric testing is limited. However, in the initial testing, it has been shown to be both valid and reliable. Bolliger and Inan (2012) developed the tool in 2012 and had a panel of experts review the questionnaire to ensure construct validity of

the survey questions. After it was refined and administered in a pilot study, several more items were removed from the survey, resulting in the final version which included 25 items and four subscales (Bolliger & Inan, 2012). Initial testing demonstrated the reliability of the overall scale was very high ($a = .98$), as well as the internal reliability of the four subscales: community (.96), comfort (.96), facilitation (.94), and interaction and collaboration (.97) (Bolliger & Inan, 2012). Other studies since its development have shown the OSCS has a high overall reliability along with the four subscales (Finn, 2018; Jamison & Bolliger, 2020; Zimmerman & Nimon, 2017). In addition, Zimmerman and Nimon (2017) demonstrated the scale had high factor validity and adequate convergent validity in a study of undergraduate and graduate students ($n = 477$).

Discussion Board Group Assignment

Once students consented to participate and completed the pretest by the end of the fourth week, the instructor used block randomization to randomly assign students into one of two types of discussion board groups: small-group and large-group. In Week 4, there were 35 students enrolled in the course. 25 students consented to participate (71.4%), and the remaining 10 students did not (28.5%), either electing to complete the alternative assignment ($n = 3$) or not responding at all ($n = 7$). Originally, the intention was to have two small groups of 10 students: discussion groups A and B, and the remaining students would be assigned to discussion group C, a large-group group discussion board. However, due to attrition and a smaller class size than anticipated (35 students instead of 50), two groups were created instead of three. Discussion group A (small group) had 10 students in it and discussion group B (large group) had 25 students.

Complete randomization into groups can result in imbalanced samples, where all consenting participants primarily end up in one group, so block randomization was used to

ensure that similar percentages of consenting participants were randomized into each group (Burger et al., 2021). The students who consented to participate represented 71.4% of the sample; therefore, 7 out of 10 slots (70%) in discussion group A (small-group) and 18 out of 25 slots (72%) of slots in discussion group B (large-group) were allotted for students who consented to participate. The group of students who consented to participate were assigned a number (1 through 25). Those numbers were placed into a random number generator[3] and the seven students whose numbers were randomly selected were placed into discussion group A. The remaining 18 students were placed into discussion group B.

The students who elected to complete an alternative assignment or did not respond to the initial survey were also assigned a number (1 through 10). The numbers were placed into the random number generator. The first three students whose numbers were selected were placed into discussion group A, while the remaining 7 students were placed into discussion group B (see figure 2).

Figure 2

Group Structure for Research Design

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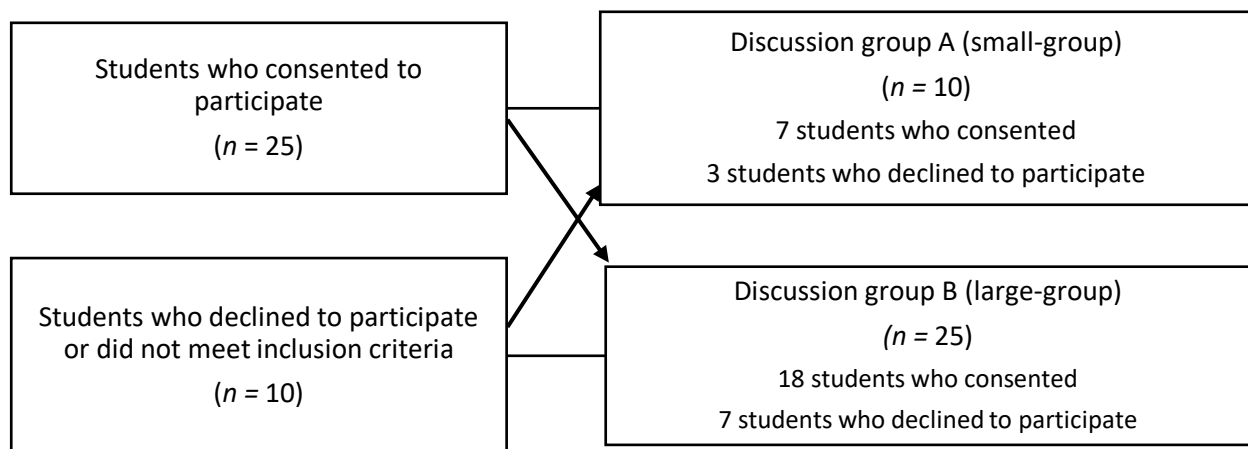
[3] The random number generator used was: www.calculator.net/random-number-generator.html.

From weeks 5 to 14, students were instructed to participate in their assigned discussion board group. Blackboard was configured so students would only see their discussion group's posts and responses and were asked to create one discussion board post per week within their discussion group using the prompts in Blackboard. In addition to being graded on the structure, length and content of their initial discussion board post, students were graded based on the length and frequency of their responses to at least two peers per week.

In Week 15, 24 of the 25 students who consented to participate in the study during Week 4 were sent an email with a link to the Qualtrics posttest. One student had dropped out of the class due to significant life circumstances, so a posttest was not sent to that individual. The 24 students were provided with directions asking them to select one of three options: complete the posttest, an alternative assignment, or decline participation, with the understanding they would receive partial credit for completing the pretest only. Students were also provided with a link embedded within the directions to the informed consent document from Week 3 in case they had questions or wanted to review the information.

Once students consented to the posttest, they were asked to complete the OSCS, using a Likert Scale to rate themselves on the 25 items. In addition to the OSCS questions, they were asked to answer three open-ended questions to elaborate on their experiences with group discussion boards and projects; however, the three open-ended questions were not included in the data analysis for this study.

To maintain fairness, the students who completed the alternative assignment in Week 3 were sent the survey link and told they could complete a second alternative assignment or decline to participate and receive partial credit for the first alternative assignment they competed in Week 3. One of the three students who completed the alternative assignment in Week 3 had

dropped the class, so the link was sent to the remaining two students. Students were sent two reminder emails about completing the posttest and assured results would not be analyzed after the close of the semester and grades were posted. 17 of the 24 students completed the posttest and were awarded the extra credit points.

Once the semester had ended and the grades were posted, a debriefing email was sent to participants thanking them for their participation and encouraging them to contact the researcher or the community college Human Protection Administrator if they had concerns or questions. The data was also downloaded into SPSS and analyzed.

Chapter Four: Data Analysis

Quantitative Data Analysis Process

Results were downloaded from the Qualtrics survey after the close of the semester and analyzed using IBM SPSS 28.0. Demographic data was analyzed using frequencies for nominal variables such as gender, ethnicity, and student status and descriptive statistics for scale variables such as age. The data from the standardized measurement tool, the Online Student Connectedness Survey (OSCS) including the overall average score and the average scores for each of the four subscales, was analyzed using inferential statistical tests. A series of independent t-tests were conducted on the scores to determine if there were differences between groups on both the pretest and the posttest. Paired samples t-tests were run on the pretest and posttest scores for the small discussion board group and large discussion board group to determine if there was a statistically significant increase in survey scores within each group. A two-way mixed ANOVA test was then conducted to determine if there was a statistically significant difference in feelings of social connectedness between those who participated in small discussion board groups and those who participated in large-group discussion boards. Several ad-hoc tests were also run to look at the differences between scores on the OSCS based on demographics.

Results

Demographics

The final sample consisted of 17 students. As part of the pretest, students were asked a series of eight demographic questions about their student status, enrollment status, employment status, if they had dependent children, race, ethnicity, gender identification and age. The demographics of the whole sample were assessed (see Table 1), as well as the demographics of the two specific groups: large discussion board group and small discussion board group.

Sample demographics. A review of the sample (n = 17) showed student status (full-time or part-time) was almost evenly split: Nine students (52.9%) were part-time and eight (47.1%) were full-time. Eight students (47.1%) reported they were enrolled in online classes only and nine students (52.9%) were enrolled in a mixture of online and other classes (such as face-to-face, hybrid, or hyflex[4]).

The participants were asked several questions about their employment status, gender identification, and age. Nine students (52.9%) reported they were employed full-time, five students (29.4%) were employed part-time, and three (17.6%) were not currently employed at the time of the pretest. Half of the students (n = 8; 47.1%) students reported they had dependent children under 18 years old in their home at least part of the time, and the other half (n = 9; 52.9%) did not. Students were also asked their age on the pretest. Student ages ranged from 20 to 37 years old with 29.94 as the mean age and 29.00 as the median age (n = 17, SD = 9.13).

Table 1

Sample Demographics: Student Status, Employment, Age, and Children (N = 17)

Demographic categories	Whole sample (n = 17)
Student status	
Full-time student (12 or more credits)	9 (52.9%)
Part-time student (less than 12 credits)	8 (47.1%)
Online class enrollment	
Enrolled only in online classes	8 (47.1%)
Enrolled in mix of online and other types	9 (52.9%)
Employment status	
Full-time (work > 32 hours a week)	9 (52.9%)
Part-time (work < 32 hours a week)	5 (29.4%)
Not currently employed	3 (17.6%)
Age	
Average age	29.94 (0.13)
Dependent children at home	

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[4] Hyflex classes are courses that allow students to choose to whether they want to attend virtually or in-person during specific class times.

Yes	8 (47.1%)
No	9 (52.9%)

Note. Scores are listed as frequency (percentage of sample) except for age, which is listed as the average age of participants with standard deviation in parentheses.

Participants were asked three demographic questions about race, ethnicity, and self-identified gender (Table 2). The majority of students were White/Caucasian ($n = 14$, 82.4%), two identified as bi- or multi-racial (11.8%), and one participant declined to answer (5.9%). Four students (23.5%) identified as Hispanic or Latinx and the remainder were not ($n = 13$, 76.5%). Students were provided a blank line and asked to identify their gender or leave it blank if they did not want to answer. Fourteen identified as female (82.4%), 1 was male (5.9%), 1 student did not answer the question (5.9%), and 1 wrote in "Caucasian," which was coded as "other" (5.9%).

Table 2

Sample Demographics: Gender, Race, and Ethnicity (N = 17)

Demographic categories	Whole sample ($n = 17$)
Gender identification	
Female	14 (82.4%)
Male	1 (5.9%)
Other	1 (5.9%)
Prefer not to answer	1 (5.9%)
Ethnicity	
Hispanic or Latinx	4 (23.5%)
Not Hispanic or Latinx	13 (76.5%)
Race	
White/Caucasian	14 (82.4%)
Bi- or Multi-racial	2 (11.8%)
Prefer not to answer	1 (5.9%)

Demographics of Small and Large Discussion Board Groups. After reviewing the demographics of the sample, the demographics of the small discussion board group and large discussion board group were analyzed. The two groups were similar in several variables

including student status, average age, gender, and dependent children under 18 in the home

(Table 3).

Table 3

Similarities Between Groups: Student Status, Age, Children, and Gender (N = 17)

Demographic variables	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)
Student status		
Full-time student (12 or more credits)	4 (57.1%)	5 (50.0%)
Part-time student (less than 12 credits)	3 (42.9%)	5 (50.0%)
Age		
Average age	27.714 (6.07)	31.500 (10.82)
Dependent children at home		
Yes	3 (42.9%)	5 (50.0%)
No	4 (57.1%)	5 (50.0%)
Gender identification		
Female	5 (71.4%)	9 (90.0%)
Male	1 (14.3%)	
Other		1 (10.0%)
Prefer not to answer	1 (14.3%)	

Note. Scores are listed as frequency (percentage of sample) except for age, which is listed as the average age of participants with standard deviation in parentheses.

Some differences between the groups were in relationship to online class enrollment, employment, race, and ethnicity (Table 4). For example, 100% of the students in the small discussion board group (*n* = 7) identified as White/Caucasian and not Hispanic or Latinx, compared to the large discussion board group (*n* = 10), where almost half of the students (*n* = 4, 40.0%) identified as Hispanic or Latinx, and only 70% identified as White/Caucasian (*n* = 7).

Students between the two groups also had variation in employment status. In the small group, slightly less than half of the students were employed full-time (*n* = 3; 42.9%), whereas 60% of the large-group participants were full-time (*n* = 6; 60.0%). The large group also had three participants who were not currently employed (30.0%) versus small-group participants, all of

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whom were employed either part-time or full-time. Another difference related to online class enrollment. The majority of students in the small discussion board group (*n* = 6, 87.5%) were enrolled in a mix of online classes and other types of classes such as face-to-face, hybrid, or hyflex, whereas the majority of students in the large discussion board group (*n* = 7, 70.0%) were enrolled only in online classes.

Table 4

Differences Between Groups: Class Enrollment, Employment, Race, and Ethnicity (N = 17)

Demographic categories	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)
Online class enrollment		
Enrolled only in online classes	1 (14.3%)	7 (70.0%)
Enrolled in mix of online and other types	6 (87.5%)	3 (30.0%)
Employment status		
Full-time (work > 32 hours a week)	3 (42.9%)	6 (60.0%)
Part-time (work < 32 hours a week)	4 (57.1%)	1 (10.0%)
Not currently employed		3 (30.0%)
Race		
White/Caucasian	7 (100%)	7 (70.0%)
Bi- or Multi-racial		2 (20.0%)
Prefer not to answer		1 (10.0%)
Ethnicity		
Hispanic or Latinx		4 (40.0%)
Not Hispanic or Latinx	7 (100%)	6 (60.0%)

Note. Scores are listed as frequency (percentage of sample).

Reliability

Cronbach's alpha was run to determine the reliability of the OSCS measurement tool for both the pretest and the posttest. Cronbach's alpha was first run using the pretest scores. The reliability of the overall tool based on all 25 questions was high (*a* = .91). All four subscales also showed moderate to high reliability with the *comfort* subscale (questions 1-8) having the highest reliability (*a* = .84). The scores for both the *community* subscale (questions 9-14; *a* = .76) and the

facilitation subscale (questions 15-20; $a = .78$) had good reliability. The *interaction and collaboration* subscale had the lowest reliability score ($a = .69$), although further analysis showed that removing question 21 ("I relate my work to others' work in my online courses") would increase the reliability to .83.

Based on the posttest scores, the reliability of the overall tool (questions 1-25) remained high ($a = .91$). All four subscales had a slightly higher Cronbach's alpha score than the pretest: comfort ($a = .86$), community ($a = .88$), facilitation ($a = .84$), interaction and collaboration ($a = .81$). A review of other studies using the OSCS shows similar reliability scores on the overall OSCS scale (Table 5). While the reliability for some subscales, especially the *interaction and collaboration* subscale, was lower than other studies, this could be in part due to a smaller sample size, which can influence the accuracy of Cronbach's alpha (Kennedy, 2022).

Table 5

Reliability Testing of the Online Student Connectedness Survey (OSCS) Across Studies

OSCS Scale	Bolliger & Inan (2012) ($n = 146$)	Zimmerman & Nimon (2017) ($n = 477$)	Finn (2018) ($n = 82$)	($n = 17$) Pretest	Posttest
Overall OSCS scale	.98	.91	.91	.91	.91
Community subscale	.96	.84	.90	.76	.88
Comfort subscale	.96	.92	.85	.84	.86
Facilitation subscale	.94	.86	.96	.78	.84
Interaction and collaboration subscale	.97	.92	.91	.69*	.81

*Removal of question 21 increased this to .83.

Pretest Score Analysis

The OSCS is comprised of 25 statements that students respond to using a Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5), meaning students could have up to a total score ranging from 25 points to 125 points, or an average score of 1 to 5. Lower scores would suggest students felt less connected to their peers, or selected *strongly disagree* or

disagree more frequently, and higher scores represented stronger feelings of connectedness. For the whole sample (n = 17), students' responses ranged from 67 to 107 points with a mean total points of 84.53 (SD = 12.82), and the average score was 3.38 (SD = .51), which is between *neutral* (3) and *agree* (4) on the Likert scale (Table 6).

An independent samples *t*-test was calculated for both the overall points and the average score for the small discussion board group and the large discussion board group (see Table 5). The mean pretest scores were very similar between the two groups, and there was no statistically significant difference in scores, $t(15) = .048$, $p = .96$, 95% CI [-13.59, 14.22], Hedges $g = .02$.

Because this study had a small sample size which can influence traditional null-hypothesis significance testing (NHST), both Cohen's d and Hedges g scores were examined for significant and nonsignificant results. Ferguson (2009) noted that effect sizes are more resistant to sample size and provide a "truer measure of the magnitude of effect between variables" (p. 532), so Hedges g was reported for effect size since it reduces bias and is a good choice for ANOVA designs with small samples (Ferguson, 2009; Lakens, 2013).

Table 6

Overall Pretest Scores on the Online Student Connectedness Survey (OSCS) (N = 17)

Score on Online Student Connectedness Survey (OSCS)	Whole sample (n = 17)	Small discussion board group (n = 7)	Large discussion board group (n = 10)
Total score on OSCS	84.53 (12.83)	84.71 (11.84)	84.40 (14.11)
Average score on OSCS	3.38 (.51)	3.39 (.47)	3.38 (.56)

Note: Numbers are listed as mean(standard deviation).

OSCS subscale pretest score analysis

Once the overall scores on the OSCS were analyzed, a series of independent samples t-tests were conducted to examine the scores on each of the subscales and the specific questions (Table 7).

Table 7

Online Student Connectedness Survey (OSCS) Subscale Pretest Scores (N = 17)

Subscale scores	Small Discussion Board Group (*n* = 7)	Large discussion board group (*n* = 10)
Overall average score on OSCS	3.39 (.47)	3.38 (.56)
Comfort subscale average score	4.00 (.47)	3.98 (.69)
Community subscale average score	2.00 (.66)	1.97 (.53)
Facilitation subscale average score	4.02 (.69)	4.10 (.61)
Interaction and collaboration subscale average score	3.31 (.59)	3.24 (.76)

Note. Standard deviations are presented in parentheses.

Perceptions of comfort. The *comfort* subscale had a total of eight questions with statements such as "I feel comfortable introducing myself in online courses" and "I have no difficulties with expressing my thoughts in my online courses." A higher average score indicated a higher level of comfort in the online classroom, and a lower score suggested decreased feelings of comfort or safety. Of the four subscales, the average overall score on the *comfort* subscale was the second highest, with average scores ranging from 2.80 to 4.80. Both small discussion board group participants (*n* = 7, *M* = 4.00, *SD* = .47) and large group participants (*n* = 10, *M* = 3.98, *SD* = .69) averaged closest to 4.00, or *agree* (4) on the Likert scale (Table 8). Small discussion board group participants reported a high comfort level with introducing themselves in online courses (*M* = 4.43, *SD* = .54), expressing opinions and feelings (*M* = 4.29, *SD* = .76), and comfort in the online learning environment (*M* = 4.29, *SD* = .76). Large discussion board group participants also reported higher levels of comfort introducing themselves in online courses (*M* = 4.20, *SD* = 1.03) and in the online learning environment provided by the program (*M* = 4.40, *SD* = .70), as well as a perception that instructors have created safe online environments (*M* = 4.80, *SD* = .42).

Large discussion board group participants responded with the lowest average score to the statement, "I feel comfortable asking other students in online courses for help" (*M* = 2.80, *SD* = 1.39). Small discussion board group participants had the lowest average score in response to the statement: "I feel my instructors have created a safe online environment in which I can freely express myself," (*M* = .33, *SD* = .90), whereas large group participants had the highest score in response to the same statement (*M* = 4.80, *SD* = .42).

An independent samples t-test was conducted to determine if there was a difference between groups on the overall average score. It showed no significant difference between groups on the overall average score, *t*(15) = .082, *p* = .94, 95% CI [-.62, .67], Hedges *g* = .04.

Table 8

Comfort Subscale Pretest Scores (N = 17)

Subscale Item	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)
Q1. If I need to, I will ask for help from my classmates.	4.00 (.00)	3.50 (1.18)
Q2. I feel comfortable expressing my opinions and feelings in online courses.	4.29 (.76)	3.80 (.92)
Q3. I feel comfortable introducing myself in online courses.	4.43 (.54)	4.20 (1.03)
Q4. I can effectively communicate in online courses.	4.00 (.58)	4.20 (.63)
Q5. I feel comfortable asking other students in online courses for help.	3.29 (.76)	2.80 (1.40)
Q6. I have no difficulties with expressing my thoughts in my online courses.	3.86 (.90)	4.10 (.99)
Q7. I feel my instructors have created a safe online environment in which I can freely express myself.	3.26 (.90)	4.80 (.42)
Q8. I feel comfortable in the online learning environment provided by my program.	4.29 (.76)	4.40 (.70)
Overall score	4.00 (.47)	3.98 (.69)

Note. Standard deviations are presented in parentheses.

Perceptions of community. The *community* subscale included six statements that focused on feelings of emotional connection and relationship between students. Students responded to statements such as: "I have gotten to know some of the faculty members and classmates well" (Q14) and "I feel emotionally attached to other students in my online courses" (Q9). Scores could range from 6 to 30 points, with a lower score implying a lower sense of community and emotional connection to peers, and a higher score representing stronger feelings of emotional connectedness.

Average scores on the *community* subscale were the lowest of the four subscales for both groups, suggesting a lower feeling of community with their peers. Small discussion board group participants had an overall average of 2.00 (SD = .66) on the six questions in the community subscales (questions 9-16), and large discussion board group participants averaged slightly lower (M = 1.97, SD = .53), closest to *disagree* (2) on the Likert scale. The scores on the specific questions ranged from 1.27 to 2.57 (Table 9). The small discussion board participants had the lowest score in response to the statement, "I spend a lot of time with my online course peers" (M = 1.27, SD = .79), and large discussion board group participants reported the lowest average score in response to the statement, "My peers have gotten to know me quite well in my online courses" (M = 1.60, SD = .52). Both the large group (M = 2.50, SD = 1.43) and small group participants (M = 2.57, SD = .98) had the highest average scores in response to the statement, "I can easily make acquaintances in my online courses."

The independent samples t-test did not show a statistically significant difference between the groups on the overall average score on the community subscale or a significant effect, $t(15)$ = .116, p = .91, 95% CI [-.58, .65], Hedges g = .054.

Table 9

Community Subscale Pretest Scores (N = 17)

Item	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)
Q9. I feel emotionally attached to other students in my online courses.	2.00 (.82)	1.90 (.74)
Q10. I spend a lot of time with my online course peers.	1.57 (.79)	1.90 (.57)
Q11. My peers have gotten to know me quite well in my online courses.	1.86 (.90)	1.60 (.52)
Q12. I feel that students in my online courses depend on me.	1.57 (.54)	1.60 (.70)
Q13. I can easily make acquaintances in my online courses.	2.57 (.98)	2.50 (1.43)
Q14. I have gotten to know some of the faculty members and classmates well.	2.43 (1.13)	2.30 (.82)
Overall score	2.00 (.66)	1.97 (.53)

Note. Standard deviations are presented in parentheses.

Perceptions of facilitation. The *facilitation* subscale included six questions and the total score could range from 6 to 30. A lower average score would suggest a less positive view of instructor involvement in the course, and a higher score would imply students felt the instructor was more involved. This is important because research shows that educator involvement can contribute to feelings of connectedness (LaBarbera, 2013; Page et al., 2020). Of the four subscales, the average scores on the facilitation subscale (questions 15 – 20) were the highest for both the small group (*M* = 4.02, *SD* = .69) and the large group (*M* = 4.10, *SD* = .61), which is closest to *agree* (4) on the Likert scale. An analysis of specific question scores showed a range of averages from 3.29 to 4.60 (Table 10). The majority of the small group students' responses (83.33%) were an average of 4.00 or higher. The highest scores were in response to the statements: "In my online courses, instructors promote interaction between learners" (Q16) (*M* = 4.29, *SD* = .49), "Instructors promote collaboration between students in online courses" (Q17)

(M = 4.29, SD = .49), and "My online instructors are responsive to my questions" (Q18) (M = 4.29, SD = .76). The lowest score, and only one below 4.00, was in response to the statement, "My instructors participate in online discussions" (Q20) (M = 3.29, SD = 1.38).

The majority of the scores (66.66%) for large discussion board group participants on this subscale were also 4.0 or higher. The highest scores were in response to the question about instructors being responsive to questions (Q18) (M = 4.60, SD = .70), instructors promoting interaction between students (Q16) (M = 4.20, SD = .79), and receiving frequent feedback from instructors (Q19) (M = 4.30, SD = .95). Like the small group participants, the lowest average score was in response to the statement, "My instructors participate in online discussions" (Q20) (M = 3.60, SD = 1.17).

An independent samples t-test showed there was no statistically significant difference between the large and small group average scores and very little effect size, $t(15)$ = -.240, p = .81, 95% CI [-.75, .60], Hedges g = -.11.

Table 10

Facilitation Subscale Pretest Scores (N = 17)

Item	Small discussion board group (n = 7)	Large discussion board group (n = 10)
Q15. Instructors integrate collaboration tools (e.g., chat, rooms, wikis, and group areas) into online course activities.	4.00 (.82)	3.90 (.99)
Q16. In my online courses, instructors promote interaction between learners.	4.29 (.49)	4.20 (.79)
Q17. Instructors promote collaboration between students in online courses.	4.29 (.49)	4.00 (.94)
Q18. My online instructors are responsive to my questions.	4.29 (.76)	4.60 (.70)
Q19. I receive frequent feedback from my online instructors.	4.00 (1.16)	4.30 (.95)
Q20. My instructors participate in online discussions.	3.29 (1.38)	3.60 (1.17)
Overall score	4.02 (.69)	4.10 (.61)

Note. Standard deviations are presented in parentheses.

Perceptions of interaction and collaboration. The *interaction and collaboration subscale* included five questions and scores could range from 5 to 25. A lower score implied that students perceive less involvement and collaboration with their peers, and a higher score suggests a more positive view of collaboration with peers in the online classroom. In examining the pretest scores for the *interaction and collaboration* subscale (questions 21 – 25), the overall average score for both groups was closest to *neutral* on the Likert scale (3), with the small discussion board group having an overall average score of 3.31 ($SD = .59$) and the large discussion board group averaging 3.24 ($SD = .76$).

Responses for the small group ranged from 2.71 to 3.86 (Table 11). The two highest average scores were in response to statements about sharing information with other students in online courses (Q25) ($M = 3.86$, $SD = 1.07$), and discussing ideas with other students (Q22) ($M = 3.71$, $SD = .76$). The lowest scores were related to collaboration, including a response to the statement "I collaborate with other students in my online courses" ($M = 2.71$, $SD = .76$) and "I work with others in my online courses" ($M = 2.86$, $SD = .69$).

The independent samples t-test did not show a statistically significant difference between groups in overall average scores and had a small effect size, $t(15) = .217$, $p = .83$, 95% CI [-.66, .80], Hedges $g = .10$.

Table 11

Interaction and Collaboration Subscale Pretest Scores (N = 17)

Item	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)
Q21. I relate my work to others' work in my online courses.	3.43 (1.13)	3.60 (1.17)
Q22. I discuss my ideas with other students in my online courses.	3.71 (.76)	3.30 (1.25)
Q23. I collaborate with other students in my online courses.	2.71 (.76)	3.10 (1.20)
Q24. I work with others in my online courses.	2.86 (.69)	3.20 (.92)

| Q25. I share information with other students in my online courses. | 3.86 (1.07) | 3.00 (.82) |
| Overall score | 3.314 (.59) | 3.24 (.76) |

Note. Standard deviations are presented in parentheses.

Posttest Score Analysis

Students completed the same OSCS in Week 15 of the semester. A series of independent samples t-tests were run to examine the average posttest scores and determine if there were significant differences between groups. Both groups had a similar overall average score (Table 12). The small discussion board group ($n = 7$) had a slightly higher average score of 3.79 ($SD = .52$) than the large discussion board group ($M = 3.75$, $SD = .55$), which is closest to *agree* (4) on the Likert scale. The t-test showed there was no statistically significant difference in the mean scores between the groups, $t(15) = .175$, $p = .86$, 95% CI [-.52, .61], or effect size ($g = .08$).

Subscale posttest scores. Like the pretest, the *facilitation* subscale average score was the highest of the four subscales for both the small discussion board group ($M = 4.45$, $SD = .44$) and the large discussion board group ($M = 4.28$, $SD = .62$). The *comfort* subscale average scores for both groups were also high. The small discussion board group participants had an average score of 4.14 ($SD = .67$) and the large group had an average score of 4.16 ($SD = .75$), which are both closest to *agree* (4) on the Likert scale. The *community* subscale had the lowest average score for both small group participants ($M = 2.55$, $SD = .94$) and large group participants ($M = 2.67$, $SD = .77$), averaging halfway between *disagree* (2) and *neutral* (3).

The independent t-test showed there was no significant statistical difference between groups on the overall average posttest score on the OSCS, $t(15) = .175$, $p = .86$, 95% CI [-.52, .61], Hedges $g = .08$. Further analysis of the subscales found there was no significant difference or effect between the groups on the posttest *comfort* subscale average score, $t(15) = -.055$, $p = .96$, 95% CI [-.78, .74], $g = -.03$, *community* subscale, $t(15) = -.268$, $p = .78$, 95% CI [-1.00,

.77], Hedges *g* = -.13, or the *facilitation* subscale, *t*(15) = .620, *p* = .55, 95% CI [-.41, .75], *g* = .29. Finally, the independent samples t-tests showed no statistically significant difference between the two groups on the *interaction and collaboration* subscale overall average score, *t*(15) = .609, *p* = .55, CI [-.51, 91], although it did have a small effect size, (*g* = .29).

Table 12

Comparison of Pretest and Posttest Mean Scores (N = 17)

	Pretest scores		Posttest scores	
Subscale scores	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)
Overall average score on OSCS	3.39 (.47)	3.38 (.56)	3.79 (.52)	3.75 (.55)
Comfort subscale average score	4.00 (.47)	3.98 (.69)	4.14 (.67)	4.16 (.75)
Community subscale average score	2.00 (.66)	1.97 (.53)	2.55 (.94)	2.67 (.77)
Facilitation subscale average score	4.02 (.69)	4.10 (.61)	4.45 (.44)	4.28 (.62)
Interaction and collaboration subscale average score	3.31 (.59)	3.24 (.76)	3.94 (.53)	3.74 (.76)

Note. Standard deviations are presented in parentheses.

Within-Groups Differences Between Pretest and Posttest

After the pretest and posttest scores were analyzed to determine if there were significant differences between the groups, a series of paired samples t-tests were conducted to see if there was a change in mean scores between the pretest, administered in Week 3, and posttest, administered in Week 15 (Table 13). For the sample (*n* = 17), there was a statistically significant difference between the average OSCS score on the pretest and posttest (*M* = .39, *SD* = .45, *p* = .003, 95% CI [.15, .62]) and a large effect size, Hedges *g* = .83. Analysis of the subscales showed a significant difference between the pretest and posttest average scores in three of the subscales with moderate to large effect sizes: *community* (*M* = .64, *SD* = .66, *p* = .001, 95% CI [.30, .97], *g* = .97), *facilitation* (*M* = .28, *SD* = .51, *p* = .04, 95% CI [.02, .55], *g* = .55), and *interaction and collaboration* (*M* = .55, *SD* = .85, *p* = .02, 95% CI [.12, .99], *g* = .64) (Table 13).

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The two groups, small discussion board group and large discussion board group, were then separated and analyzed to examine differences between the two groups' change in mean scores on the overall scale and each subscale (Table 13). In the small discussion board group ($n = 7$), there was a statistically significant difference in scores between the pre- and posttest on the overall score with a large effect size ($M = .41$, $SD = .32$, $p = .016$, 95% CI [.11, .70), $g = 1.18$). Two of the four subscales showed a statistically significant difference in average scores between the pre- and posttest and a large effect size as measured by Hedges' g. The *community* subscale ($M = .55$, $SD = .48$, $p = .02$, 95% CI [.11, .99], $g = 1.07$) and the *facilitation* subscale ($M = .43$, $SD = .30$, $p = .009$, 95% CI [.15, .71], $g = 1.33$). The *interaction and collaboration* subscale showed a statistically significant difference between pre- and posttest scores and a moderate effect size ($M = .63$, $SD = .60$, $p = .03$, 95% CI [.07, 1.19], $g = .97$). There was a slight difference between the pre- and posttest scores for the *comfort* subscale, but it was not statistically significant and had only a slight effect ($M = .14$, $SD = .42$, $p = .41$, 95% CI [-.25, .53], $g = .32$).

For the large discussion board group, the difference in overall average score did not show a statistically significant change between the pretest and posttest ($M = .37$, $SD = .54$, $p = .058$, 95% CI [-.16, .76]), although it did have a moderate effect ($g = .66$). Of the four subscales, the *community* subscale was the only measure that showed a statistically significant difference between the pre- and posttest scores ($M = .70$, $SD = .78$, $p = .02$, 95% CI [-.14, 1.26]), with a large effect size ($g = .86$) for large discussion board group participants. The remaining subscales did not have a statistically significant difference in scores between the pre- and posttest and the *comfort* subscale and *facilitation* subscale had small effect sizes: *comfort* ($g = .24$), *facilitation* ($g = .29$). The *interaction and collaboration* had a slightly larger effect size based on Hedges $g = .47$.

Table 13

Mean Difference Between Pretest and Posttest by Groups (N = 17)

Average change in score	Small discussion board group (*n* = 7)	Large discussion board group (*n* = 10)
Overall average score difference between pretest and posttest	.41* (.32)	.37 (.54)
Comfort subscale average score	.14 (.42)	.19 (.76)
Community subscale average score	.55* (.48)	.70* (.78)
Facilitation subscale average score	.43** (.30)	.18 (.61)
Interaction and collaboration subscale average score	.63* (.60)	.50 (1.11)

*p < .05, two-tailed. **p < .01, two-tailed.

Hypothesis Testing

To test the hypothesis, a two-way mixed ANOVA test was selected to determine if there was a two-way interaction between the between- and within-subjects factors of group size and time. Several tests were used to verify the assumptions needed to conduct a two-way mixed ANOVA. There were no outliers in the data, as assessed by examination of studentized residuals for values greater than 3 and an inspection of a boxplot examining pre-test and posttest total scores on the OSCS. Due to the small sample size, a Shapiro-Wilk test was conducted on the total pretest and posttest score of the OSCS. It did not show evidence of non-normality among OSCS pretest scores in the small discussion board group (W = .942, p > .05) or large discussion board group (W = .925, p > .05). It also did not show evidence on non-normality among OSCS posttest scores in the small discussion board group (W = .934, p > .05) or the large discussion board group (W = .962, p > .05). Levene's test of equality showed there was homogeneity of variances in the pretest (F(1, 15) = .592, p = .45) and posttest scores (F(1,15) = .037, p = .85), and Box's test of equality of covariance matrices showed there was homogeneity of covariances (p = .66).

Based on these results, the two-way mixed ANOVA was conducted to test the research

question:

How does participation in small-group discussion boards (10 students) impact

feelings of social connectedness among community college students compared to

those who participate in larger-group discussion boards (25 students)?

The null and alternative hypothesis are:

*H*o: There is no difference in feelings of social connectedness between students who

participate in small-group discussion boards and those who participate in large-group

discussion boards.

H$_{a:}$ There is a statistically significant difference in feelings of social connectedness

between students who participate in small-group discussion boards and those who

participate in large-group discussion boards.

A two-way ANOVA test showed there was not a statistically significant interaction

between discussion board group size (small vs. large) and total change in score on the OSCS,

$F(1, 15) = .021, p > .05$ (Figure 3). While the effect of time did show a statistically significant

effect on the mean OSCS score, $F(1, 15) = 11.418, p = .004$, there was no statistically significant

difference in OSCS scores between the small and large discussion board groups, $F(1, 15) = 0.16$,

p = .903 (Table 15). Because of this, the null hypothesis was accepted.

Table 14

Mean Pretest and Posttest Scores by Groups (N = 17)

Score	Group size	Mean	Std. Deviation
Average scores on Online Student Connectedness Survey (OSCS) (pretest)	Small group (*n = 7)*	3.39	.47
	Large group (*n = 10)*	3.38	.56
	Total	3.38	.51
	Small group (*n = 7)*	3.79	.52

Average scores on Online Student Connectedness Survey (OSCS) (posttest)	Large group (*n* = 10*)*	3.75	.55
	Total	3.77	.52

Figure 3

Changes in Average Score Between Pretest and Posttest (N = 17)
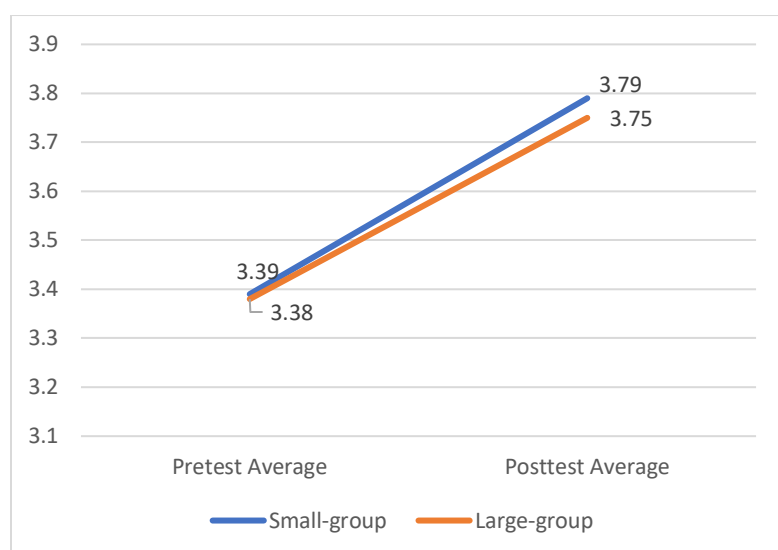
Table 15

Two-way Mixed ANOVA Results (N = 17)

Variables	Df	SS	MS	F	Sig	Partial Eta Squared
Time	1	1.245	1.245	11.418	.004*	.432
Discussion board group size	1	.007	.007	.016	.903	.001
Time*Discussion board group size	1	.002	.002	.021	.885	.001
Error	15	1.636	.109			

*$p < .01$

Post Response Frequency

In addition to the quantitative data from the OSCS, the two groups were compared in terms of student post responses. The minimum set for each week by the instructor was one initial post and two responses to peers. At the conclusion of the semester, the number of post responses was calculated for each student and each week to determine if there were differences in the

number of responses. Table 16 shows the weekly average and standard deviation of each group's

average number of post responses to peers beginning with Week 5, when students first started in

their small or large discussion board group.

Table 16

Average Number of Post Responses by Group (N = 17)

Week	Small discussion board Group (n = 7)	Large discussion board group (n = 10)
Week 5	2.29 (.76)	2.2 (.42)
Week 6	2.0 (.00)	2.0 (.82)
Week 7	2.14 (.38)	1.9 (.74)
Week 8	2.0 (.00)	2.4 (1.17)
Week 9	2.0 (.00)	2.5 (.97)
Week 10	2.14 (.38)	2.1 (.32)
Week 11	2.0 (.00)	2.0 (.82)
Week 12	2.0 (.00)	1.7 (.95)
Week 13	2.0 (.00)	2.0 (.95)
Week 14	2.14 (.38)	1.8 (1.14)
Average Post Response	2.07 (.19)	2.06 (.45)

Note. Standard deviation is presented in parentheses.

The average post response per week was very close to 2.00 for both groups. The small

discussion board group ranged from 2.00 (Weeks 6, 8-9, 11-13) to 2.29 (Week 5), with an

overall average post response of 2.07 (SD = .19) for the ten weeks students participated in their

discussion board groups. The large discussion board group ranged from 1.7 (SD = .95) in Week

13 to 2.5 (SD = .97) in Week 9, with an average of 2.06 (SD = .45). An independent samples t-

test was calculated to determine if there was a difference in overall average post response for the

semester. There was no significant difference between the large and small group's average

number of post responses, $t(15)$ = .063, p = .95, 95% CI [-.38, .40], and no significant effect size

(g = .03).

Relationship between Demographics and Scores

Several tests were conducted to determine differences between the difference in average mean scores between the pretest and posttest for groups based on specific demographics. For example, a series of independent t-tests were conducted to examine group differences in demographics that had two categories (student status, enrollment status, dependent children at home, and if participant was Hispanic or Latinx). An independent samples t-test was used to examine the change in average mean score from pretest to posttest. Levene's testing for student status, enrollment status, and dependent children at home was $p > .05$ and the independent samples t-test showed there was no statistically significant difference between part-time students ($n = 9$, $M = .48$, $SD = .55$) and full-time students ($n = 8$, $M = .28$, $SD = .30$), $t(15) = .950$, $p = .357$, 95% CI [-.26, .68], although Hedges g showed a moderate effect size, $g = .44$. Groups based on Hispanic or Latinx ethnicity did not have equal variances, so a Welch's t-test was used. Results showed there was not a significant difference between change in average mean score and if a participant identified as Hispanic/Latinx, $t(1, 3.40) = .080$, $p = .94$. Table 17 shows the difference in average mean score between different groups based on demographics.

Table 17

Differences in Average Mean Scores by Demographic (N = 17)

Demographic	Mean Score	Difference in average mean score between groups
Student status		
Part-time ($n = 8$)	.48 (.55)	.21
Full-time ($n = 9$)	.26 (.30)	
Student enrollment status		
Online classes only ($n = 8$)	.46 (.54)	.14
Mix of classes ($n = 9$)	.32 (.38)	
Dependent children in the home		
Yes ($n = 8$)	.36 (.42)	-.12
No ($n = 9$)	.44 (.50)	

If participant is Hispanic/Latinx		
Yes (*n* = 4)	.41 (.77)	.03
No (*n* = 13)	.38 (.35)	

Note. There were no statistically significant differences between groups.

One-way ANOVA tests were conducted on demographics groups that had more than two categories (student employment, gender, and race). For student employment, the average mean difference between pretest and posttest was similar between groups: full-time (*M* = .42, *SD* = .57), part-time (*M* = .40, *SD* = .13), and not currently employed (*M* = .27, *SD* = .52). Levene's test was significant ($p < .05$), so a Welch's t-test was conducted to determine a difference between groups. There did not appear to be a significant difference between the groups based on employment status, $t(2, 4.26) = .09$, $p = .92$.

For gender, there were three "groups" that equaled 1 (male, other, and did not answer), making it difficult to conduct a Levene's test to determine if the one-way ANOVA could be interpreted. To look at the differences between groups based on race, the average mean score difference between pretest and posttest was analyzed using participant responses: White/Caucasian (*n* = 14) or Bi- or Multi-racial (*n* = 2). The remaining student who selected "prefer not to answer" (*n* = 1) was excluded from the calculation. A one-way ANOVA showed that Levene's test was significant ($p < .05$), so a Welch's t-test was conducted and found no significant difference between groups based on race, $t(1, 1.035) = .072$, $p = .83$.

Age was the only continuous demographic variable, so a correlational analysis was conducted to determine if there was a correlation between age and change in average mean score between the pretest and posttest. There was not a statistically significant correlation between the age and change in average mean score, $r(15) = -.21$, $p = .41$, $r^2 = .05$.

Summary of Findings

The data from this study provided needed information about students' perceptions of connectedness in an online course over the course of a semester. In response to the research question, a two-way mixed ANOVA showed there was no statistically significant interaction between discussion group size and the difference between the pretest and posttest OSCS scores. However, both groups had a statistically significant increase from the average pretest to the average posttest scores, and the data from the subscales provided information about student perceptions of comfort, community, facilitation and interaction and collaboration in the online classroom.

Chapter Five: Discussion

This study used a quantitative approach to explore the effect of group size on feelings of social connectedness among community college students in an introductory social work course. Students were divided into two groups, a small discussion group (10 students) and a large discussion group (25 students) for 10 weeks of the semester. They completed a pretest comprised of the 25-item OSCS and several demographic questions in Week 3 of the course, then completed the posttest in Week 15, which included the OSCS and three open-ended questions about discussion boards and the group project.

Using this data, this research study sought to answer the question: How does participation in small-group discussion boards (10 students) impact feelings of social connectedness among community college students compared to those who participate in larger-group discussion boards (25 students)? To answer this question, several tests were conducted to examine differences between groups in average scores on the Online Student Connectedness Survey (OSCS). During this process several results emerged, providing valuable information about students' feelings of connectedness in online education across the course of the semester.

Findings

Social Connectedness over Time

One of the benefits of using a standardized measurement tool at two points in the semester is that it provided valuable information about the potential effect of time on the overall experience of social connectedness in the online classroom. Although results from the two-way mixed ANOVA showed no significant interaction between group size and score on the OSCS, $F(1, 15) = .021$, $p > .05$, the results showed that time did have a significant effect, $F(1, 15) = 11.42$, $p = .004$. A series of paired samples t-tests showed comparable increases in mean scores

and a shift from scores closer to *neutral* on the Likert scale on the pretest to *agree* on the posttest for both small group participants ($M = 3.39$, $M = 3.79$) and large group participants ($M = 3.38$, $M = 3.75$), suggesting that participation in discussion board groups may be increasing feelings of social connectedness among students.

While the change in scores was only statistically significant for the small discussion board group ($p = .016$), it is important to note that the overall average score for the large discussion board group was close ($p = .058$). In addition, both groups had significant effect sizes (small group, $g = 1.17$ and large group, $g = .66$), suggesting the positive effect of time on feelings of connectedness. These findings are similar to research by Cox and Cox (2008), who found that asynchronous discussion boards contributed to increased social connectedness by the end of the semester.

Research using the OSCS has typically been used as a cross-sectional survey (Ford & Inan, 2013; Jamison & Bolliger, 2020); however, using the tool as a pretest and posttest could provide further information about the effect of time on feelings of connectedness across the course of a semester. The results showed the survey was able to detect changes across time for both groups and speaks to the need for future studies to test its sensitivity as a pretest-posttest measurement tool.

Perceptions of Community

Another finding that emerged was related to the *community* subscale. The *community* subscale was notable because it had the lowest mean score for both discussion board groups on the pretest and posttest and statements such as "I feel emotionally attached to other students in my online classes" (Q9) and "My peers have gotten to know me quite well in my online courses" (Q11) reflect the emotional element of social connectedness and sense of belonging with peers.

On the pretest, small discussion board group participants (M = 2.00, SD = .66) and large group participants (M = 1.97, SD = .53) averaged closest to *disagree* on the overall *community* subscale score and scored even lower on specific subscale questions such as "I spend a lot of time with my online course peers," (Q10), "I feel that students in my online courses depend on me" (Q12), and "My peers have gotten to know me quite well in my online courses" (Q11). It suggests that while students may be interacting with peers in the online classroom, they may not feel a deeper sense of intimacy, sharing, and belonging, factors identified as part of social connectedness (Ijsselsteijn et al., 2003).

These findings are also consistent with other research studies reporting the lowest average scores were on the *community* subscale of the OSCS (Amato-Henderson & Sticklen, 2022; Ford & Inan, 2013; Jamison & Bolliger, 2020). While this could be affected by the wording of the questions, it does speak to the continuing challenges of building connection and community between online students and need to move beyond more "superficial" interactions to something that encourages a deeper connection between students.

It is worth noting that the *community* subscale was the only subscale that demonstrated a statistically significant increase over the course of the semester for large- and small-group participants, despite both groups having the lowest average score on the pretest and posttest. Between the pretest and posttest, the average score on the *community* subscale increased .55 points for small group participants (M = 2.00, M = 2.55, p = .02), and .70 points for the large group participants (M = 1.97, M = 2.67, p = .02). This increase among both groups on the *community* subscale could have been affected by the collaborative activities within this course: the discussion board groups and the group project. If social connectedness is defined in part by feelings of belonging and connection to peers, this increase on the *community* subscale for both

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groups speaks to the need for further research examining the specific elements of a course that affect student perceptions of community.

Comfort in the Online Classroom

Due to the sensitive nature of social work and discussion board prompts that asked students to reflect and share about personal issues, comfort in the online social work classroom is critical. Jamison and Bolliger (2020) noted that a lack of security or comfort in online learning can lead to student isolation and decreased engagement with others, resulting in dropping out of the course. The data from this current study shows that although students were asked to share personal information in their discussion board posts, they reported a high level of comfort at the beginning and end of the semester.

On the pretest, *comfort* was the second highest subscale for both groups: small-group ($n = 7$, $M = 4.00$, $SD = .47$) and large-group ($n = 10$, $M = 3.98$, $SD = .69$). Students responded positively to statements like "I feel comfortable introducing myself in online courses" (Q3) and "I feel comfortable in the online learning environment provided by my program" (Q8). Other research using the OSCS found similar results, with scores on the *comfort* subscale being the highest of the four subscales in studies by Amato-Henderson and Sticklen (2022), Ford and Inan (2013), and Jamison and Bolliger (2020).

When examining the *comfort* subscale across time, both groups saw a slight increase in average score with a small to moderate effect size, although neither were statistically significant. The small discussion board group saw a .14 increase between the pretest and posttest ($p = .41$, $g = .32$), while the large discussion board group saw a .19 increase ($p = .46$, $g = .24$). Interestingly, although the change in mean scores over time on the *comfort* subscale were not statistically significant, the higher scores at the beginning of the semester along with the slight increase

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among both groups suggests that students continued to maintain a high level of comfort throughout the course, despite sharing personal information with peers in the discussion boards.

Nontraditional Community College Students

Comparing the demographic data of this sample to national community college students provides an interesting perspective about the challenges community college face when pursuing education. For example, the average age of students in this sample ($M = 29.94$) was similar to the national average age of community college students ($M = 27$), although the sample's median age was 29 years old, significantly higher than that national median age of 23 ("Fast facts 2022," 2022). Community college students are more likely to be employed full-time than traditional students, and the students in this sample had even higher rates of employment compared to other community college students. Nationally, 69% of community college students work: 33% full-time and 36% part-time ("Community college statistics," 2021). In this sample, an even higher percentage (82.3%) of students were employed: 52.9% ($n = 9$) full-time and 29.4% part-time ($n = 5$). In addition, almost half of this sample had dependent children at least part of the time ($n = 8$; 47.1%), which is significantly higher than the national average, where only 25% of community college students have dependent children at home ("Community college statistics," 2021).

When looking at race, ethnicity and gender of community college students, there were some similarities and differences between this sample and national rates. For example, a quarter of this sample (23.5%, $n = 4$) identified as Hispanic or Latinx, similar to the national average of 28% ("DataPoints: Enrollment by race/ethnicity," 2022). However, the students in this sample were more likely to identify as White/Caucasian (82.4% compared to 44% nationally) or bi- or multi-racial (11.8% compared to 4% nationally). The sample was also primarily female (82.4%

compared to 60% nationally) and only one student identified as male (5.9% compared to 40%) ("Fast facts 2022," 2022).

This sample may not be fully representative of the "average" community college student, which limits its generalizability. However, it does reveal that the community college students in this sample had many responsibilities outside of the classroom; they were more likely to work full- or part-time than other community college students, had dependent children at home, and were older than the average college student. It is perhaps even more meaningful that these students were able to engage with their peers and increase connectedness over time, despite their busy schedules.

Strengths

Insight into connectedness

Although there are a growing number of studies examining the relationship between group size and social connectedness (Akcaoglu & Lee, 2016; Bristol & Kyarsgaard, 2012; Hamann et al., 2012; Qiu & McDougall, 2015), the results are still mixed and limited to four-year or graduate-level students. While the hypothesis testing did not show a significant interaction between group size and feelings of connectedness, the quantitative data from this study did provide insight about current student perceptions of discussion boards, comfort, and community. It also demonstrated the effect of time and how both groups saw an increase in social connectedness across the semester. If one concern is that online education may not be as conducive to building connectedness, the results from this study show that online students, regardless of group size, can still increase feelings of connectedness over the course of a semester in a measurable, quantifiable way. This sets the stage for other researchers to replicate the study with a larger sample in the future.

The value of comfort

Another important theme that emerged was the importance of comfort and feeling "safe" in the online classroom. In social work education, students are often asked to reflect, share, and self-disclose personal things, meaning safety in the classroom is imperative (Garran & Rasmussen, 2014). The idea of safety in the in-person social work classroom is not a new one but does need to be explored in the online environment as institutions expand their online social work course offerings. If a safe classroom influences how students learn and self-reflect, then social work educators need to understand the techniques that create a sense of safety and comfort in online classrooms. In this study, students scored very high on the *comfort* subscale at the beginning and end of the semester. This reinforces the idea that students value safe online environments where they can engage with peers without judgement or negative feedback and speaks to the need for further research about the specific elements that create this sense of comfort and safety.

Limitations

While this study provided helpful information about social connectedness in online learning, it also had several limitations, primarily selection bias and attrition bias.

Selection bias

When studying vulnerable populations, random selection can be challenging. For this study, students were given the option to participate, meaning the sample was not randomly selected. Selection bias is a potential risk in this type of study in that those students who volunteered to participate may have different characteristics than those who elected not to participate. For this study, ten students declined to participate or did not respond, and four

students only completed the pretest. Because they were not included in the sample, their potential lack of engagement or feelings of connectedness could have affected the results.

To reduce this effect, students were offered extra credit points, and the study design used random assignment, a common technique to reduce selection bias (May, 2017). However, this itself may have affected the sample. Perhaps one of the reasons there was no discernible difference in score changes between the two groups might have had more to do with the type of the student who elected to participate in the study. If students who felt disconnected or too busy with other responsibilities declined to participate, the participants who were randomly assigned may have been more homogenous in that they were more motivated, able to connect with their peers or had fewer obligations outside of the classroom.

Attrition bias

Another limitation of this study was related to attrition bias, a common limitation in educational research (Weidmann & Miratrix, 2021). In this study, there were a number of students who withdrew from the class. Between the pretest and posttest, the sample decreased from 25 participants (who completed the pretest) to 17 participants. Four students declined to complete the posttest, two students dropped the course mid-semester due to personal issues, and two students stopped participating in class discussions, assignments, and projects. If social connectedness is potentially related to attrition, those students who dropped the course or stopped participating may have had different scores than the sample who completed both the pretest and posttest.

Unfortunately, without a clear alternative data source, it is difficult to gauge how their results could have affected the results of the study. To reduce the effect of attrition bias, the pretest was not administered until Weeks 3 and 4, when the class was more "stable" in

attendance, and the instructor followed the institution's policy of creating CARE reports so staff could contact and support students who stopped participating or withdrew from the class. Despite these interventions, there was still some student attrition which could have affected the results.

Implications for Future Research

An additional limitation of this study is related to the small sample size ($n = 17$). Too small a sample size is more likely to result in a type II error (Columb & Atkinson, 2016), which in this case would be accepting the null hypothesis in error when perhaps group size did effect feelings of social connection. For future replication, a larger sample size would be helpful to better detect differences between groups and compensate for attrition, since the resulting sample size in this study has some statistical limitations.

In addition, future research could help identify the specific elements of discussion boards and group projects that positively affected the increase in community scores. Was it due to the structure of the course, previous positive experiences in other courses, or through the direction of the instructor? Was it messaging at the institutional level, or the result of activities planned by the instructor at the beginning of the semester? Perhaps it was more related to the type of students that take social work courses and their willingness to share positive feedback and deeply personal stories in discussion boards, which could contribute to feelings of safety and comfort. Research that further explores the factors that result in feelings of safety, comfort, and community within the online classroom will help educators better understand the specific mechanisms that increase student connectedness and design more effective online courses for busy community college students.

Implications for Social Work Education

The benefits of this study are twofold. First, the research provides information to the larger higher education community about strategies needed to increase student feelings of social connectedness in community college online education. Social connectedness in the classroom is correlated with student retention and can have long-term effects on earning potential and economic mobility (Croxton, 2014; Diep et al., 2019; Drouin, 2008; Koh & Hill, 2009; Slagter van Tryon & Bishop, 2012; Swan & Shih, 2005; Travers, 2016). Research that examines the effects of online educational interventions such as discussion boards in a community college setting creates a clearer picture of what provides the best opportunities for success with this unique population.

Second, this research provides insight about the strategies needed to create connectedness among students in an introductory social work course, many of whom may continue to a bachelor's or master's degree in social work. Over the past two decades, the use of hybrid, blended, or online courses in social work education has increased (Davis et al., 2019; Lee et al., 2019). Although initially met with some skepticism, social work education has now embraced the use of distance learning, with more than 100 accredited programs offering online educational opportunities (Lee et al., 2019). Just as online education benefits community college students with busy lives and competing responsibilities, online social work education provides opportunities for social work students who work full-time, live in rural areas, or have family responsibilities (Lee et al., 2019). To meet this need, the *2020 Annual Statistics on Social Work Education in the United States* report published by the Council on Social Work Education (CSWE) shows a growing number of social work programs report that over 90% of their

coursework is online[5] including 10.1% of Bachelor of Social Work (BSW) programs, 28.7% of Master of Social Work (MSW) programs, and 66.7% of Doctorate in Social Work (DSW) programs (Council on Social Work Education, 2021).

Although the Council on Social Work Education (CSWE) does not yet accredit community college social work programs, there are a growing number of Associates in Social Work (ASW) programs at the community college level (Rempel, 2020). Research that informs best practices for students in introductory social work classes ensures these students have the foundational tools and technology skills needed to successfully transfer to accredited Bachelor of Social Work (BSW) programs at four-year universities. This study provides valuable information to help social work educators better serve students at all levels of their educational journey, whether it is connectedness in introductory social work classes or the value of comfort and safety in the online classroom for social work students disclosing deeply personal and reflective information in discussion boards. As the use of online social work programs continues to grow, more research is needed for effective delivery of social work education at all levels, from introductory courses to doctoral courses.

Conclusion

While there has been a large body of research examining discussion boards, student connectedness and safety in the online classroom, it has been primarily limited to four-year institutions and graduate colleges. This study shows that despite facing many barriers to their education, students in online community college courses can build connectedness with their peers during a semester. It also suggests a need for further research to better understand the relationship between discussion boards, group size, and connection and comfort in the online

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[5] According to the CSWE report (2021), this percentage excludes field placements.

classroom. As social workers, we are called to advocate for equitable, quality education that engages and supports students from vulnerable and marginalized groups (Arum et al., 2021; Brindley et al., 2009; NASW, 2021). This study provides one small step towards better understanding and building connectedness in online education for community college students.

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Appendix A

Informed consent form

Title of Project:	**Social Connectedness and Discussion Boards**	IRB Approval Number:	1000532821

Research Description

You are invited to participate in a research study conducted by Hilary Cobb and Dr. Laura Brierton-Granruth. The overall purpose of this research is to gather information about feelings of social connectedness and discussion board groups.

Procedures

You must be 18 years of age or older to participate in this study. If you decide to participate in this study, you will answer a series of questions using a secure online website. If you consent to participate, you will complete a survey at this end of this form and asked to complete a second one at the end of the semester. Questions will ask about your feelings and attitudes about yourself. The first survey takes approximately 15-20 minutes to complete and the second survey takes approximately 15-20 minutes at the end of the semester.

You will be compensated for your time, even if you do not complete the study. If you choose to participate in the study, you will receive a total of 25 points for completing the survey at the beginning of the semester and 25 points for completing the survey at the end of the semester. You will receive 25 points for each survey you complete, even if you do not complete both surveys.

If you are under 18 or decline to participate, you may still earn 25 points for answering a short essay question if you choose.

Voluntary Participation

Your participation is entirely voluntary and you may choose not to participate in this study or withdraw your consent at any time. You will not be penalized in any way should you choose not to participate or withdraw. You may skip any question that makes you uncomfortable or any question you do not wish to answer. You may also decline to participate in any portion of the study. Your decision as to whether or not to participate in this study will have no influence on your present or future status as a student at your institution. Completion of the survey serves as your consent.

Risks and Benefits

There is minimal anticipated risk associated with your participation in this study. Many of the questions refer to your thoughts and feelings. You may decline to answer any question at any time for any reason. If you do feel discomfort or anxiety due to any of the questions and wish

to receive support with any of these issues, please refer to the list of resources at the end of the survey. If you feel any discomfort while completing this survey, please contact your local health care provider or college health services.

Benefits of completing this research may include increased personal understanding of your feelings and attitudes about yourself, towards your peers, and social support, as well as contributions to society through the psychosocial study of thoughts and feelings.

Privacy and Confidentiality

We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation. This may result in the disclosure of your data as well as any other information collected by the researcher. If this were to occur, such information would only be used to determine whether the researcher conducted this study properly and adequately protected your rights as a human participant. Importantly, any and all audits would maintain the confidentiality of any information reviewed by their office(s).

What Happens to Your Data

When the study is finished, your survey results may be saved but all information that could be used to identify you will be removed. Other researchers might use your data and they won't need to contact you for informed consent. Though we do not anticipate that your sample will be used for commercial profit-making enterprises, if it is, you will not share in those profits.

Contact Information

If you have any questions or concerns regarding this study or feel that you have been harmed in any way by your participation in this research, please contact Hilary Cobb at (208) 614-0550 and/or Dr. Laura Brierton-Granruth at 717-871-5956.

If you wish to talk with someone else or if you have questions about your rights as a research participant, please call Dr. David Douglass, Human Protection Administrator, at 208-459-5334.

Appendix B

Examples of discussion board prompts

Week	Module Title	Discussion board prompt
2	What is social work?	How does social work differ from the work of other professions? What makes social work unique?
3	The history of social work	There has always been a debate in the field of social work. Do we address the individual first or their environment? Do we focus our money on prevention (before the fact) or intervention (after the fact)? Using the information you learned through the reading and videos, pick one of these two statements (individual vs. environment or prevention vs. intervention) and craft a persuasive argument for one side. For example, if you believe that we should address issues at a micro/individual level, write 6-10 sentences explaining why. If you believe we should focus more on environmental issues (such as poverty, lack of education, access to food, etc.), write 6-10 sentences explaining why. Or perhaps you feel like we need to focus on prevention more instead of intervention. Write 6-10 sentences explaining why.
4	Poverty and economic disparity	Many Americans have been hit hard by the current pandemic. A big part of social work is being aware of the resources and agencies in your community that can help individuals affected by poverty. Take some time and research which agencies or organizations in your area are currently providing resources to families who are struggling. Write about two of the organizations you found and describe what help or resources they are providing. Please make sure you are including citations from the websites you use and write up a description of each (not just cutting and pasting directly from the site).
7	Generalist social work practice	This prompt has two sections that need to done to receive full credit: 1. After reading through your textbook and watching the videos, which interventions interested you the most? Why? What do you think the benefits of those interventions would be in helping individuals or families? Share your response to these questions. 2. In addition to your response, find an article or video from a credible source. You will then share one or two things you learned and share the citation or link. For example, if you are interested in group therapy, share your response to the above questions, then read or watch an article or video, share the link, and write 1-2 things that you learned.

		Note: To receive full credit, you need to share thoughtful, well-crafted answers that include information from the book and videos you watched in this module.
8	Child welfare: Working with children and their families	In this module, you learned about the child welfare system and examined fact sheets about the number of children in foster care nationally and here in Idaho (or your state). Based on the information you reviewed, please craft a thoughtful analysis of what you learned. (Make sure you provide correct citations based on the information you share). Some questions to think about might be: what was interesting to you? Did the numbers surprise you? What thoughts do you have about the reunification rates, repeat maltreatment and removal rates? How do Idaho's rates compare to the national rates? How do our numbers compare to other states? Do you think the pandemic could affect these? Why or why not? Do these numbers challenge any perceived notions you may have had about the foster care system? (Hint: You don't have to answer all of these questions; they are actually suggestions to get you thinking!).
12	School social work	The current pandemic has forced us as a country to really look at education and the role of the school. Many students receive far more than education; many access food, support, sometimes even showers and washing machines. School social workers are voicing concerns about how to best support students and families in these uncertain times. The National Association of Social Workers (NASW) has a ton of great resources and recently created a resource for school social workers. Select the link to review the **COVID-19 Resources for School Social Workers** document. Choose one or two of the activities that you think would be beneficial to students and explain how you might use or implement those interventions if you were a school social worker (in 6-10 sentences).
14	Criminal justice and social work	In your book, there are a number of theories of criminal behavior listed under two categories: individualistic and sociological theories. Which ones do you agree with or believe might have value? Why? Which ones do you disagree with? Why do you think it is important for social workers to understand these different theories? Note: Please be kind and respectful in your responses. Many of us have loved ones that may be involved in the system or had past experiences ourselves. We must also acknowledge that many individuals have experienced violence at the hands of another, so please be very careful about your wording and phrasing!

Appendix C

Online Student Connectedness Survey Items (Bolliger & Inan, 2012)

Scales/Items

Comfort

Q1. If I need to, I will ask for help from my classmates.

Q2. I feel comfortable expressing my opinions and feelings in online courses.

Q3. I feel comfortable introducing myself in online courses.

Q4. I can effectively communicate in online courses.

Q5. I feel comfortable asking other students in online courses for help.

Q6. I have no difficulties with expressing my thoughts in my online courses.

Q7. I feel my instructors have created a safe online environment in which I can freely express myself.

Q8. I feel comfortable in the online learning environment provided by my program.

Community

Q9. I feel emotionally attached to other students in my online courses.

Q10. I spend a lot of time with my online course peers.

Q11. My peers have gotten to know me quite well in my online courses.

Q12. I feel that students in my online courses depend on me.

Q13. I can easily make acquaintances in my online courses.

Q14. I have gotten to know some of the faculty members and classmates well.

Facilitation

Q15. Instructors integrate collaboration tools (e.g., chat, rooms, wikis, and group areas) into online course activities.

Q16. In my online courses, instructors promote interaction between learners.

Q17. Instructors promote collaboration between students in online courses.

Q18. My online instructors are responsive to my questions.

Q19. I receive frequent feedback from my online instructors.

Q20. My instructors participate in online discussions.

Interaction and Collaboration

Q21. I relate my work to others' work in my online courses.

Q22. I discuss my ideas with other students in my online courses.

Q23. I collaborate with other students in my online courses.

Q24. I work with others in my online courses.

Q25. I share information with other students in my online courses.