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Social, Cognitive, and Teaching Presence as Predictors of Online Student Engagement Among MSN Students

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Mark Littler

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Walden University
2024

Abstract

Social, Cognitive, and Teaching Presence as Predictors of Online Student Engagement

Among MSN Students

by

Mark Littler

MSN, Walden University, 2018

BSN, Houston Baptist University, 2014

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Nursing Education

Walden University

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Abstract

The dynamics of higher education have changed as a result of online learning. However, it can be challenging for teachers to effectively engage students online. Furthermore, limited research about the relationship between presence and online student engagement is a social problem that impacts the quality of online nursing education. The purpose of this nonexperimental quantitative research study was to examine the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students. The community of inquiry (CoI) framework was used to guide this study. The research question addressed the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students. A cross-sectional survey design was employed to collect survey data from participants across the Unites States. The CoI survey and the Online Student Engagement scale were used as the instruments for data collection. Participants were recruited from across the United States using social media, email invitations, and the Walden University Participant Pool. The sample size was 85. Multiple linear regression was used for data analysis. Results of the study showed that overall social, cognitive, and teaching presences explained a significant portion of variance in student engagement among MSN students. However, individually, none of the presences explained any significant portion of variance in online engagement. Social change implications include improving the quality of online learning and increasing awareness of how stakeholders can enhance online student engagement. Recommendations for future research include examining whether similar findings hold true in a blended learning environment.

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Dedication

This dissertation is dedicated to those who have supported me throughout my academic journey and to all of the nurse educators who commit their time, energy, effort, and passion to teaching nurses.

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Chapter 1: Introduction to the Study

Student engagement is an important, yet complex issue in higher education, particularly within the context of online learning. As online learning continues to gain traction in higher education, students and teachers alike are faced with challenges of separation in terms of physical, temporal, and transactional distance (Moore & Diehl, 2018; Saykili, 2018). In particular, Bolliger and Halupa (2018) found that transactional distance was a valid predictor of student engagement. Despite the growing popularity of online learning, finding ways to engage students within the confines of an online course can be difficult. Students have identified disadvantages and negative aspects of online learning, such as stress, anxiety, isolation, loneliness, lack of social contact, and low levels of motivation, focus, and attention (Curelaru et al., 2022). Online instructors who cultivate presence can help students overcome these limitations and improve student engagement in online learning. Online instructors need to make a deliberate and considerable effort to increase student engagement and maintain their attention because student participation in itself is simply not enough.

Presence is a multicomponent construct that researchers have characterized and defined in various ways. Researchers have denoted presence as a sense of being that is created through interpersonal communication (Cleveland-Innes et al., 2019). Ucok-Sayrak and Brazelton (2022) argued that instructors must intentionally foster presence in online learning because the absence of corporeal proximity can lead to diminished student experiences with human interaction, connection, and expression. Results from a study by Fisher et al. (2018) showed a positive relationship between presence and student

performance. Findings from another study by Choo et al. (2020) suggested a positive relationship between presence and student satisfaction. Presence is also a necessary antecedent for the successful occurrence of interaction (Garrison & Cleveland-Innes, 2005). By demonstrating and practicing presence, online instructors can create an immersive learning experience that supports student engagement. Likewise, online educators that are not conscious of their presence within the online learning environment may lack the ability to effectively engage their students. The three types of presence that I focused on in this study include social, cognitive, and teaching presence. These presences are necessary for creating a deep and meaningful collaborative and constructivist online learning experience in higher education (Garrison & Akyol, 2013). More details about each type of presence are presented and discussed in Chapter 2.

There are several potential positive social change implications of this study. For instance, online instructors may be able to increase their awareness of how presence can enhance online student engagement. This, in turn, could potentially increase student retention, satisfaction, and performance. In addition, instructors can apply and use the findings of this study to improve their professional practice and inform online course design and delivery. Instructors can also develop student engagement strategies that facilitate interaction and collaboration between students and instructors in the online classroom. Ultimately, promoting student engagement in the online learning environment can lead to positive social change by resulting in a higher quality online learning experience for both students and faculty.

In Chapter 1, I present pertinent background information, the research problem, and the purpose of the study. I also describe the research question and hypothesis, conceptual framework, nature of the study, and relevant definitions. Finally, I discuss the assumptions, scope and delimitations, limitations, and significance of the study.

Background

Distinct concepts and teaching practices in online learning are emerging as online learning continues to expand and evolve. According to the National Center for Education Statistics (2022a), in the fall of 2021, 59% of students from 5,831 postsecondary institutions were enrolled in distance education courses. In the United States, online courses represented 31.6% of higher education students in 2016 (Seaman et al., 2018). With advances in technology and a significant number of students enrolling in higher education, the prevalence of online learning has increased. This is especially true in light of the recent COVID-19 pandemic, which resulted in a profound disruption to higher education and a shift in andragogical approaches. The aftermath of the COVID-19 pandemic further resulted in a rise in online course delivery, which required faculty to implement strategies for fostering student engagement (Jackson et al., 2020).

For the first time since 2001, nursing student enrollment in master's programs decreased by 3.8% in 2021, which translates to 5,766 fewer students compared to 2020 (American Association of Colleges of Nursing (AACN), 2022). There are currently 659 schools of nursing in the United States with master's degree programs for nursing (AACN, 2023). Many of these programs consist of online courses to some extent. Nurses who are enrolled in these programs are prepared for a variety of roles and specializations,

including administration, education, research, informatics, and providing direct patient care. Thus, promoting online student engagement in nursing education is an important issue.

Online student engagement is important for several reasons. Online student engagement has been described as meaningful interaction and communication that involves the amount of time, effort, energy, thought, and feelings that students invest in their learning (Dixson, 2015). Student engagement is a critical factor of student success (Kahu & Nelson, 2018). Likewise, student engagement has been shown to be a key predictor of student-centered learning and teaching-related outcomes (Gonzalez & Blackford, 2022). Engagement has also been shown to have a negative correlation with student dropout intention, suggesting that students with strong involvement in their studies are less likely to intend to drop out (Truta et al., 2018). Furthermore, online student engagement is important in preventing isolation and dropout, retaining online learners, and increasing graduation rates (Bolliger & Halupa, 2018). Students who are engaged can optimize their online learning experience and improve their ability to achieve their academic goals. Moreover, Abdous (2019) recognized the need to engage online students early in the process of their coursework. He argued that allowing students to take the time to gain self-awareness and reflect on their readiness to start an online course strengthens their engagement with the course. Lastly, engaged students are able to build meaningful relationships with their learning, peers, and faculty within the learning environment (Kuchinski-Donnelly & Krouse, 2020).

Within the context of the online learning environment, instructors can potentially promote engagement by demonstrating presence through social interaction, communication, and collaboration with students. In this study, I focused on three different types of presence, namely social, cognitive, and teaching presence. These three presences are essential components of an online community of inquiry (CoI) and are necessary for a quality educational experience (Garrison et al., 2000). Without presence, students are not able to effectively achieve meaningful inquiry in an online learning community (Garrison et al., 2000). The gap in knowledge in the discipline of nursing education that I addressed is that it is not known how social, cognitive, and teaching presence affect online student engagement among MSN students.

Despite the growth of online learning and its recent innovations, there are several barriers to online student engagement with regard to course content, classmates, and instructors. For example, some barriers include low student motivation, a lack of interpersonal connections, and feelings of isolation (Hutson, 2022). Disadvantages of online education in general include a lack of teacher face-to-face support, limited social interactions, and ineffective or infrequent communication with teachers and colleagues that can lead to feelings of isolation (Cramarenco et al., 2023). Therefore, this study was needed because finding innovative ways to teach and engage online students in effective ways is essential to their success (Bolliger & Martin, 2018). When students become immersed in an online learning community, their willingness to share ideas and experiences increases. Collaborative knowledge creation and engagement may also improve as students are able to construct new understanding and deep, meaningful

learning (Garrison et al., 2010b). There is potential for online student engagement to be more learner-centered by improving students' involvement, participation, and interaction within an online course. Dhawan (2020) asserted that online courses should be dynamic, interesting, and interactive.

Problem Statement

Limited research about the relationship between presence and online student engagement is a social problem that impacts the quality of online nursing education. A lack of presence in the online learning environment may inhibit students from being engaged with their peers, course content, and the instructor. Furthermore, the mechanisms contributing to student engagement have not yet been fully explored or clearly articulated (Kahu & Nelson, 2018). Within the context of online learning, a lack of connectedness and limited collaboration and interaction between students and instructors have been identified as important issues (Castellanos-Reyes, 2020). Achieving student engagement in the online learning environment is also challenging for students and teachers due to a feeling of physical and emotional disconnection that is inherent in online classes (Perets et al., 2020; Sahni, 2023). The gap in the literature that I addressed in this study is that it is not known how social, cognitive, and teaching presence affect online student engagement in nursing education.

Purpose of the Study

The purpose of this quantitative study was to examine the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students. Social, cognitive, and teaching presence were measured using the

CoI survey (see Appendix A). Online student engagement was measured using the Online Student Engagement (OSE) scale (see Appendix B). The independent variables included social, cognitive, and teaching presence. The dependent variable was online student engagement. There were no covariate variables.

Research Question and Hypotheses

The research question for my study included the following:

RQ: What is the relationship between social presence, cognitive presence, teaching presence, and online student engagement among Master of Science in Nursing (MSN) students?

H_0: There is no relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

H_1: There is a statistically significant relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

Conceptual Framework

The CoI framework was derived from a social constructivist perspective of learning. The CoI framework is a process model that can be used to better understand how online learning communities construct knowledge through inquiry, discussion, and interaction (Garrison, 2007; Garrison et al., 2010a). Garrison et al. (2000) introduced the CoI framework, which includes three fundamental presences necessary for collaborative knowledge construction in online learning experiences. Social presence is the ability to project one's self socially and affectively into the CoI and build personal but purposeful

relationships. Cognitive presence refers to the manner in which learners construct meaning and think critically about course content through collaboration and reflection. Lastly, teaching presence encompasses pedagogical action from the instructor (Garrison, 2007; Garrison et al., 2000; Rourke et al., 1999). The three presences are interlinked, as cognitive presence supports discourse through social presence, and teaching presence facilitates both cognitive and social presence. More specifically, instructors provide cognitive presence by selecting course content, and they use teaching presence and social presence to create an engaging learning environment in the online course. Furthermore, the efficacy of learning depends on the degree of social, cognitive, and teaching presence (Garrison et al., 2010). It is the synergy between the three presences that promotes an effective online learning climate for students and instructors (Garrison & Arbaugh, 2007).

The CoI framework relates to the study approach and research question because it identifies the key variables that I investigated in this study. The CoI framework is a relevant framework to use when examining online student engagement. For example, online students need to feel that they are working with real people to create knowledge and that they are not alone in their learning, but connected to a group of learners (Dixson, 2015). The CoI framework can be used to support student engagement with course content, other students, and the instructor. Moreover, online learning has become a primary method for course delivery, so it is critical to focus on student engagement in online courses. Therefore, researchers and online instructors can use the CoI framework as a model for researching online courses and designing effective online learning

environments, especially in terms of online student engagement (Dixson, 2015). I presented a more detailed description of the CoI framework in Chapter 2.

Nature of the Study

In this quantitative study, I used a predictive, cross-sectional survey design to address the research question. Researchers can use cross-sectional designs to study the phenomenon of interest during one period of data collection so that results are timely and relevant (Houser, 2018). Cross-sectional designs are also practical, economical, and simple to carry out. On the other hand, many researchers use surveys as a systematic method for standardizing questions and collecting data. Furthermore, survey studies are generally cost-effective, can reach large populations, provide a greater sense of anonymity, and allow for a large volume of data to be collected (Houser, 2018). In this study, the independent variables were social presence, cognitive presence, and teaching presence. The dependent variable was online student engagement. There were no covariates in this study. The study was nonexperimental.

MSN students who have completed a fully online course within the last 6 months were eligible to participate in the study. Students from all types of MSN programs were included. MSN students were recruited online via social media. Invitations to participate in the study were posted online utilizing social media networks, such as Facebook and LinkedIn. These invitations contained details of the study, eligibility criteria, and a link to SurveyMonkey, where potential participants could complete the online survey. The survey link included an electronic informed consent document for eligible participants prior to starting the survey. Participants were asked to provide demographic data,

complete the CoI survey, and complete the OSE scale. I also obtained an electronic list registered nurses' email addresses from the Ohio and Florida State Boards of Nursing. Additionally, I used the Walden University Participant Pool to obtain participants. SPSS version 28 was used for statistical analysis. I performed multiple linear regression analysis (Creswell & Creswell, 2018; Laerd Statistics, 2015) to determine the relationship between social presence, cognitive presence, teaching presence, and online student engagement.

Definitions

For the purposes of this study, the following terms were defined:

Cognitive presence: Cognitive presence is the extent to which the learners in a CoI are able to construct and confirm meaning through sustained reflection and communication (Garrison et al., 2000).

Community of inquiry: A CoI is a group of learners who collaboratively engage in purposeful critical discourse and reflection in order to construct a deep and meaningful learning experience (Garrison et al., 2000).

Online student engagement: Online student engagement is the degree to which online learners invest their time, energy, effort, and feelings into their learning in terms of skills, participation, performance, and emotion (Dixson, 2015).

Social presence: Social presence is the ability of learners to project themselves personally, socially, and emotionally into the CoI, thereby presenting themselves as real (Rourke et al., 1999).

Teaching presence: Teaching presence is the design, facilitation, and direction of both cognitive and social processes with the intent of realizing learning outcomes (Anderson et al., 2001).

Assumptions

Assumptions are aspects of a study that are considered to be true without proof but are based on logic or reason (Polit & Beck, 2020). First, I assumed that respondents answered the survey questions honestly. Different types of biases, such as social desirability bias, can create distortions that undermine researchers' efforts to obtain valid and credible results (Polit & Beck, 2020). Participants may also feel afraid to answer truthfully or they may feel obligated to answer the survey questions in a particular way. Therefore, researchers should preserve anonymity and provide participants with a choice to withdraw from the study at any time can help to create a safe, secure, and trusting environment. Second, I assumed that students desire to be engaged with their online courses because they are interested in learning. In general, adult online learners in higher education are often self-directed, purpose-oriented, and internally motivated, and they highly value relevancy, practicality, and lifelong learning (Knowles et al., 2020). Some adult learners may also decide to pursue online higher education for reasons such as career advancement or professional development. I also assumed that only respondents who met the eligibility criteria completed the online survey.

The founders of the CoI framework assumed that learning occurs through the interaction of social, cognitive, and teaching presence (Garrison et al., 2000). Another assumption of the CoI framework is that there is an iterative, reciprocal, and synergistic

relationship between reflection and communicative action. Moreover, within the CoI framework, it is assumed that critical thinking is a holistic multi-phased process that integrates deliberation and action, which reflects the dynamic relationship that exists between personal meaning and shared understanding among learners. In addition, practical inquiry, purposeful thinking, and acting are considered to be essential components of the educational process (Garrison et al., 2000).

Scope and Delimitations

Researchers use delimitations to prevent the scope of a study from being too broad or overarching. Delimitations are conscious, deliberate choices made by the researcher about what will and will not be studied (Theofanidis & Fountouki, 2019). One delimitation of this study is that I only focused on online student engagement among MSN students from different universities who have completed a fully online course within the last 6 months. I chose a period of 6 months in an effort to minimize historical threats and maturation effects, which can jeopardize the internal validity of a study (Houser, 2018). Furthermore, including students from multiple universities where online courses are offered helped to ensure a more heterogeneous sample. One benefit of heterogeneous samples is increased generalizability of the study's findings to the target population (Gray & Grove, 2021). Quantitative designs require control of internal validity for trustworthiness and external validity for generalizability (Houser, 2018).

I chose the CoI framework as the conceptual framework for this study. The CoI framework is exclusive to online pedagogy. Founders of the CoI framework used the model to explain how social, cognitive, and teaching presence are created through the

interactions between students, instructors, and aspects of the learning environment (Garrison et al., 2000; Garrison & Arbaugh, 2007; Garrison et al., 2010). Online instructors can use all three presences to influence the online learning process and cultivate student engagement through critical thinking and dynamic learning. Some researchers often assume the generalizability of the CoI framework without considering the complex contextual factors inherent across different academic disciplines (Arbaugh, 2013; Garrison et al., 2010b). Moreover, the roles of social, cognitive, and teaching presence in online learning can vary as a result of these disciplinary differences. Certainly, a more comprehensive understanding of online student engagement could be achieved if students' motivational beliefs were also considered. Self-determination theory (Deci & Ryan, 1985) was not used in this study because the theorists differentiated between different types of motivation, and its propositions emphasize how social and cultural factors facilitate or hinder students' engagement, well-being, and the quality of their performance (Ryan & Deci, 2020). I wanted to concentrate more on the complex interactions of social, cognitive, and teaching presence as they relate to online student engagement rather than focusing on motivation.

Limitations

Limitations are aspects of a study, such as sample deficiencies, design problems, and weaknesses in data collection that diminish the generalizability, integrity, or credibility of findings and conclusions (Gray & Grove, 2021; Polit & Beck, 2020). One limitation in this study may involve failing to recruit an adequate number and diversity of participants. Participant recruitment and selection effects can be minimized by choosing

samples from real-world settings and reporting descriptive data so that external validity can be evaluated in an objective manner (Houser, 2018). Although I used convenience sampling, larger samples tend to have more power, less sampling error, and are more likely to be normally distributed (Houser, 2018). I used G*Power (Faul et al., 2007; Faul et al., 2009) to address this weakness.

Lastly, this study may be susceptible to researcher bias. I am passionate about and have been interested in online student engagement as a research topic. As a result, I have developed my own personal views related to my personal experiences with online learning. However, use of statistical data and objective testing helped to prevent personal bias when examining findings of the study.

Significance

Nursing is a social and collaborative profession, and nursing education must reflect a pedagogy that supports a collaborative learning community (Smadi et al., 2021). Online instructors should have comprehensive pedagogical knowledge that allows them to effectively design, organize, and influence students' experiences so that meaningful learning can occur in online educational environments (Rapanta et al., 2020). Furthermore, online course designers and instructors could apply the potential results to further advance our understanding of online courses through the perspective of the CoI framework, enhance student outcomes, and improve the overall quality and experience of learning for nursing students engaged in online learning (Caskurlu et al., 2020). The potential findings of this study might contribute to positive social change by helping to improve nursing student engagement, the professional practice of online nurse educators,

and collaboration between instructors and students in the online classroom. Findings can also be used to inform or facilitate online course design and delivery among communities of online nursing students.

Summary

Student engagement is an intricate and multidimensional concept. Student engagement in the online learning environment is particularly important, as students may feel isolated or disconnected from other students and their instructor due to the asynchronous nature of online learning. Moreover, the issue of online student engagement, which gained even more attention during the COVID-19 pandemic, continues to be a relevant and important topic of interest among researchers and educators (Parida et al., 2023).

Given the state of online learning and the importance of online student engagement, the purpose of this quantitative study was to examine the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students. The independent variables were social presence, cognitive presence, and teaching presence. The dependent variable was online student engagement. I used the CoI framework as the conceptual framework to guide this study. I used a cross-sectional survey design. I created the survey using SurveyMonkey. I garnered participants by using social media, the Walden Participant Pool, and by obtaining an electronic list of registered nurses' email addresses through the Ohio and Florida State Boards of Nursing. I collected survey data from MSN students who have completed a fully online course within the last 6 months. I analyzed the collected data

using multiple linear regression in SPSS. Lastly, to summarize Chapter 1, I provided

definitions of key variables and concepts. I also discussed the assumptions, scope and

delimitations, limitations, and significance of the study.

       In Chapter 2, I provide a thorough review of the current literature regarding online

learning. I also detail the literature search strategy, conceptual framework, and key

variables of the study.

Chapter 2: Literature Review

Introduction

Within online learning environments, a lack of connectedness and limited collaboration have been identified as important issues (Castellanos-Reyes, 2020). The need to overcome low levels of student engagement and interaction is essential in order for nurse educators to deliver quality learning experiences. The research problem I investigated in this study is that it is not known how social, cognitive, and teaching presence influence online student engagement among MSN students. In addition, research has not extensively covered the role of presence in student engagement within online learning environments. There is still much work to be done in understanding the dynamic and impact of presence on online student engagement. Moreover, investigating presence and student engagement is critical to contemporary online learning environments.

The quality of education through the online modality is becoming increasingly important due to the rapid growth of online nursing education and the need to ensure that student learning is not being compromised (Delva et al., 2019). The quality of online education can be measured in terms of student interaction and engagement, course content, and the use of teaching and learning strategies (Esfijani, 2018). Furthermore, institutional quality is directly related to the depth and breadth of student engagement opportunities (Groccia, 2018). Although there is a lack of face-to-face interaction in online learning environments, there is still a need for online learners to engage with other students, course content, and the instructor. Online instructors can use the elements of the

CoI framework to guide the creation and evaluation of online learning (Garrison et al., 2000). Online instructors can also use these elements, namely social, cognitive, and teaching presence, to enhance or inhibit the overall quality of the educational experience and learning outcomes. Therefore, the aim of this quantitative study was to examine the relationship between social presence, cognitive presence, teaching presence, and online student engagement using the CoI survey and the OSE scale. In the next sections of this paper, I detail the literature search strategy and the conceptual framework of the study. I also provide a literature review of the current state of online learning, key variables, and important concepts.

Literature Search Strategy

I used the Walden University Library to access library databases, including ScienceDirect, CINAHL, Medline, and Information Science & Technology Abstracts. Key search terms included *online learning*, *nursing students*, *community of inquiry*, *social presence, cognitive presence*, *teaching presence*, and *engagement*. I used the electronic databases to search for peer reviewed, published articles and research reports between 2017 and 2022. I also obtained publications and foundational research papers related to the CoI framework from the official CoI website (https://coi.athabascau.ca/).

Conceptual Framework (Community of Inquiry)

A CoI is comprised of a group of academic individuals who collaboratively partake in knowledge formation that results from empirical inquiry into problematic situations (Garrison et al., 2000; Garrison & Vaughan, 2008). As cited by Garrison et al. (2000), characteristics of a CoI include asking questions, reasoning, making connections,

deliberating, challenging, and developing problem-solving skills (Lipman, 1991). Lipman

(1991) viewed a CoI as an essential context for the delivery of a quality educational

experience that facilitates critical thinking and results in deep learning. Similarly,

Garrison et al. (2000) suggested that a CoI supports critical thinking and meaningful

learning in an interactive and social learning environment. The word "community" is

often used in educational research to refer to the cognitive or emotional connections

established between instructors and students who are physically separated (Fiock, 2020).

Lawrence-Benedict et al. (2019) argued that faculty engagement is a key driver of

community. Moreover, online instructors must be able to cultivate community in a

manner that improves their ability to create and deliver quality academic content and as a

means to support students. Online instructors can also enhance students' sense of

community in online courses by using various communication channels, offering support

and encouragement, providing timely feedback, and setting clear expectations (Martin et

al., 2018). In addition, Mills et al. (2016) argued that the CoI model is useful for

engaging students in nursing studies from a distance. According to Stone and O'Shea

(2019), it is imperative for online instructors to build a sense of belonging, community,

and connection between students and teachers. A common feature of asynchronous online

courses is a discussion board or forum intended to encourage student interaction and

develop a sense of community. Overall, it is important for online instructors to support

interaction and collaboration between students and the instructor within a learning

community.

Adult learners in online learning environments are best supported when educators build upon the principles of andragogy and integrate theoretical frameworks that are specific to online higher education (Knowles et al., 2020). The current study benefits from the CoI framework because it illustrates the expected relationships between the variables. The CoI model also provides a clear framework for applying social constructivist ideas to the online learning environment (Dixson, 2015). Thus, the CoI framework (Garrison et al., 2000) was used to guide this study (see Figure 1). Refer to Appendix C for permission to use the CoI model as displayed in Figure 1. The CoI framework is centered on the creation of knowledge and meaningful learning through collaboration and discourse (Garrison & Arbaugh, 2007). The CoI framework encompasses three distinct but interdependent elements, including cognitive presence, social presence, and teaching presence, all of which contribute to successful teaching and learning in online asynchronous learning environments (Garrison, 2017). Cognitive presence is the extent to which the participants in a CoI are able to construct meaning through sustained communication. Social presence is the ability of participants to project their personal characteristics into the community. Teaching presence primarily consists of the instructor's ability to design and facilitate the educational experience (Garrison et al., 2000). Although there are three different types of presence, online instructors can use each of them to fulfil an important role within the CoI framework.

Figure 1

Community of Inquiry Framework
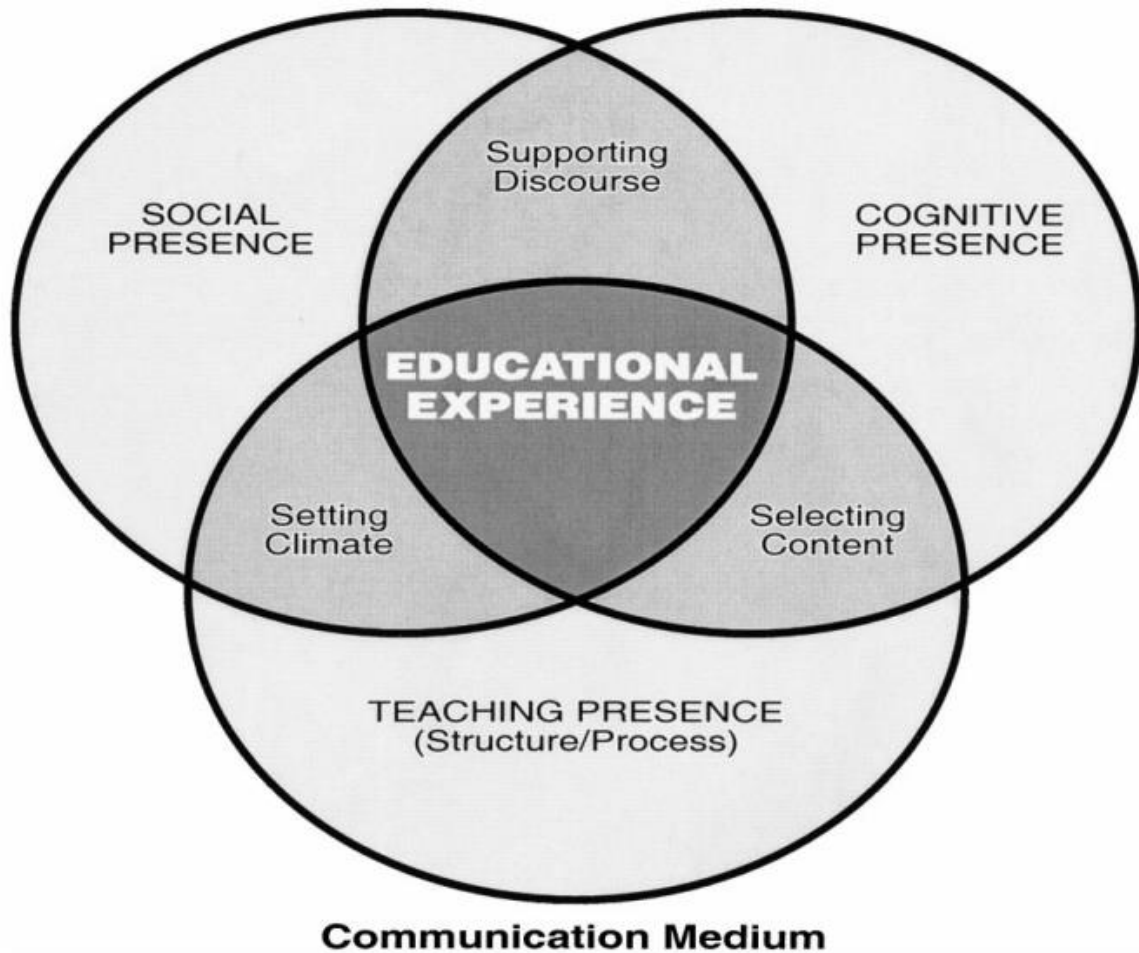
Note. Elements of an educational experience. From "Critical inquiry in a text-based environment: Computer conferencing in higher education model," by D. R. Garrison, T. Anderson, & W. Archer, 2000, *The Internet and Higher Education, 2*(2-3), p. 88 (https://doi.org/10.1016/S1096-7516(00)00016-6). Copyright 2000 by Elsevier Science Inc. Reprinted with permission.

Researchers have conceptualized "presence" in terms of social richness, realism, transportation, and immersion (Lombard & Ditton, 1997). In an online course, presence is

at the center of student engagement, and practicing presence is an example of a student-centered approach to learning (Martin et al., 2018). All three presences of the CoI framework have been identified as significant, positive predictors of learning performance (Tan, 2021) and students' perceived confidence (Chen, 2022). Furthermore, online instructors can use all three presences to enhance or inhibit the quality of an educational experience, influence learning outcomes, and create a CoI for educational purposes (Garrison et al., 2000). One assumption of the CoI model is that learning occurs within the CoI through the interaction of the three presences (Garrison et al., 2000). Researchers have used the CoI framework extensively in online learning environments to explore a variety of student outcomes (Jan et al., 2019; Richardson et al., 2017; Stenbom, 2018). In fact, the CoI framework is one of the most used and cited theoretical frameworks in studies about online teaching and learning within the last decade (Kim & Gurvitch, 2020; Valverde-Berrocoso et al., 2020). The CoI framework can also be used to examine the quality of students' online learning experiences and to inform course design in online education (Garrison, 2007). The origin of the CoI framework is also essential to understand.

The catalyst for the development of the CoI framework was the focus on gaining a better understanding of computer-mediated communication and improving the online learning experience within a community of learners. However, the CoI framework is grounded in Dewey's (1933, 1938) concept of practical inquiry, social constructivism, and his educational philosophy, which posits that individual development depends upon community and inquiry (Swan et al., 2009). Dewey (1897) believed that the educational

process involved a psychological and a social side, and that both sides are organically related. Also, neither side can be subordinated to the other or neglected. Similarly, Garrison and Archer (2000) have described the CoI framework as a collaborative constructivist perspective on the teaching and learning transaction that views an educational experience as a collaborative communication process intended to construct meaningful and worthwhile knowledge. In addition, founders of the CoI framework suggested that it can be used to elucidate how online learning communities engage in discourse and interact to create meaning (Garrison et al., 2000). Therefore, within the CoI framework, collaboration is considered critical for learning and cognitive development. The CoI framework depicts the essential components of a successful online learning experience in higher education. Researchers and online instructors can use the CoI framework to provide guidance for conducting research in online teaching and designing online learning experiences (Castellanos-Reyes, 2020; Garrison & Archer, 2000).

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Literature Review Related to Key Variables and Concepts

</div>

Defining Online Learning

Online learning refers to education that occurs over the Internet using various forms of technology. Online learning is also commonly used interchangeably with other terms such as e-learning (Rodrigues et al., 2019), distance learning (Greenberg, 1998; Palvia et al., 2018), distance education (Allen & Seaman, 2017), and web-based learning (Hadjerrouit, 2010). Allen and Seaman (2017) defined distance education as an educational experience that occurs when an instructor uses technology to teach students who are physically separated from their instructor and supports synchronous or

asynchronous interaction between students and their instructor. Similarly, Greenberg (1998) defined distance learning as a learning experience that occurs when an instructor uses technology to reach students at a distance, encourage student interaction, and facilitate learning. Zalat et al. (2021) described online e-learning as learning experiences that occur when instructors use various electronic devices with internet capability in a synchronous or asynchronous environment. Broderick (2020) defined online education as teaching and learning that occurs primarily or entirely in an online setting. Although researchers have defined online learning in multiple ways (Singh & Thurman, 2019), it is an ideal course delivery model for adult learners to develop new skills and competencies (Roddy et al., 2017). Moreover, in light of dwindling resources and funding (AACN, 2019), online learning is considered to be a vital solution for ensuring academic institutions' long-term survival (Brown et al., 2020; Seaman et al., 2018).

The Growing Trend of Online Learning

Online learning has proliferated over the last several years as the number of students enrolled in higher education courses continues to increase. Within the United States alone, more than 6 million students have registered for at least one online course annually (Allen & Seaman, 2017). Furthermore, according to the National Center for Education Statistics (2022b), 71% of all postbaccalaureate students in the United States (2.2 million students) enrolled in at least one distance education course in the fall of 2020, and 52% of total postbaccalaureate students (1.6 million students) took distance education courses exclusively. By 2030, the National Center for Education Statistics (2022b) projected that total postbaccalaureate enrollment would be 6% higher than in

2020 (3.3 million vs. 3.1 million students). With more students expected to participate in online learning, additional online programs and courses will need to be offered to meet these growing demands. Therefore, it is crucial for online educators to adequately prepare to teach in online learning environments, improve the quality of online learning, and facilitate learning in the virtual classroom.

The growing trend toward online courses and programs in higher education in the United States (Johnson et al., 2019; Seaman et al., 2018) was exacerbated by the COVID pandemic, which required many academic institutions to switch to online modalities (Johnson et al., 2020; Pokhrel & Chhetri, 2021). In alignment with Centers for Disease Control and Prevention (CDC) guidelines, the AACN encouraged the use of online learning platforms to help maintain the quality of nursing education and continuity of learning amid the COVID-19 pandemic (AACN, 2020). Moreover, online learning is viewed favorably by students and online learning outcomes are comparable to face-to-face formats (Kumar et al., 2019). Nursing students also value flexibility and work-life balance in online education programs (Morton, 2019). Now more than ever, online learning has become a global trend in higher education primarily due to the COVID-19 pandemic and its effects on academia. Educators are eager to explore innovative online teaching and learning strategies to enhance learning engagement (Chan et al., 2021).

Challenges of Online Learning

Although the trend of online learning continues to grow and there are advantages of online learning, maintaining student engagement is still a challenge. For example, Castellanos-Reyes (2020) identified a lack of connectedness and limited collaboration as

critical issues in online learning. The U.S. Department of Education (2021) has also identified that the lack of student engagement and interactivity in online and digital learning is a remarkably complex challenge among higher education institutions. In fact, according to a recent poll, 71% of faculty cited "increasing student engagement" as their top priority (Fox et al., 2020). In addition, few researchers have investigated engagement among online learners. Finally, there is a need to further explore how students and faculty engage in online learning to create meaningful learning experiences (Kucuk & Richardson, 2019; McDonald et al., 2018; Smadi et al., 2019).

Another challenge of online learning is student attrition. Despite the growing trend of online learning in higher education, researchers have identified student retention (Bawa, 2016; Muljana & Luo, 2019), dropout (Radovan, 2019; Xavier & Meneses, 2020; Yılmaz & Karataş, 2022), persistence (Shaikh & Asif, 2022), and non-completion (Delnoij et al., 2020) as major concerns in online courses and programs. Retaining nursing students is essential, as the need for nurses with graduate education exceeds the current supply. Furthermore, according to Zhang et al. (2018), there will be an estimated shortage of 510,394 registered nurses by 2030.

As the trend of online learning has continued to grow and more research has been conducted, researchers have become more interested in the socio-cognitive aspects of learning and the facilitation of collaborative interaction (Park & Shea, 2020). Thus, it is imperative for online instructors to learn more about how cognitive, social, and teaching presence can influence engagement to create positive learning experiences and provide quality education to online nursing students. Additionally, understanding the

relationships among the factors that influence online student engagement is critical because online learners are spatially and temporally isolated.

Social Presence

Short et al. (1976) introduced the concept of social presence in telecommunications research as a theoretical framework to explain the social interactions that took place in a variety of media. Social presence was initially thought of as a quality of the medium itself. Short et al. 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). Two core components of social presence include intimacy and immediacy. Intimacy refers to the feeling of connectedness that communicators feel during an interaction. Immediacy refers to the psychological distance between communicators (Short et al., 1976). Essentially, social presence involves establishing a feeling of closeness within a collective group of students and faculty. Future investigation into social presence became more appealing for researchers and educators interested in communication and interaction in online learning environments.

Since its introduction, researchers have redefined the concept of social presence in several ways (Lowenthal & Snelson, 2017). For example, some researchers have described social presence as a feeling of contact and togetherness (Biocca et al., 2003; Shin, 2002). Others have described social presence as a collection of sensory impressions involving feelings and perceptions towards others (Biocca, 1997; Rafaeli, 1988; Tu & McIsaac, 2002). Social presence has also been depicted as the extent to which someone is perceived as real (Garrison et al., 2000; Gunawardena & Zittle, 1997; Waddington &

Porter, 2021). From these definitions, it can be deduced that social presence involves establishing a sense of authenticity and emotional proximity among participants in online learning environments. In this study, I used the concept of social presence to explain how learners present themselves as real people in an online course by expressing social feelings and emotional connections with others.

Social presence is also vital in terms of collaboration, community, and belonging. For example, according to Sadaf et al. (2021), social presence can be used to encourage the collaborative experience of learning. In addition, Garrison et al. (2004) claimed that social presence involves the ability of participants to come together for a common purpose. In a systematic review, Oh et al. (2018) explored a variety of technological, contextual, and individual factors that can influence perceptions of social presence. The researchers found that immersion and context have a positive effect on social presence. Furthermore, Waddington and Porter (2021) suggested the use of a CoI model in online learning to create a sense of community among nursing students. The researchers implemented an online four-stage nursing seminar. They concluded that when nurse educators and students incorporate social presence into online learning spaces by introducing themselves, communicating with intent, and solidifying relationships, the result is an enhanced sense of realness and increased engagement. Ultimately, social presence increases the sense of belonging among members in a community of learners, which encourages them to share opinions, express emotions, and engage in continuous discussion in the absence of physical interaction (Oh et al., 2018).

Social presence has also been found to significantly predict a variety of student outcomes. For example, Huang (2017) used an online team messaging service in an animation production course and revealed that social presence significantly predicted intrinsic and extrinsic motivation, namely perceived enjoyment and perceived usefulness. Likewise, Catyanadika (2021) demonstrated that social presence has a positive, significant impact on university students' intrinsic motivation. Social presence has also been found to positively affect knowledge sharing behavior (Catyanadika, 2021; Yilmaz, 2017). In addition, social presence has been shown to significantly impact expectancy, task value, and behavioral engagement (Edwards & Taasoobshirazi, 2022). Furthermore, Mouzouri (2016) found a significant relationship between social presence and students' perceived learning styles related to information perception and processing. Utility value, which refers to the value or relevance of a task in terms of its usefulness for one's future life or career plans, was also shown to significantly predict social presence (Akcaoglu & Akcaoglu, 2022). Finally, social presence has been shown to have a positive and statistically significant correlation with online learners' satisfaction and engagement (Chen, 2022; Kucuk & Richardson, 2019).

Social presence can be improved in several ways. For example, strategies for improving social presence include: (a) providing personal and individualized feedback, providing opportunities for students to build relationships through collaboration and sharing, and being accessible (Lowenthal & Dunlap, 2018); (b) providing frequent and detailed feedback, asking questions and inviting responses, addressing students by name, enabling group work, rewarding student participation, conducting individual live

meetings with students, and using 3D virtual environments (Izmirli & Izmirli, 2019); and

(c) embedding social media platforms into online courses (Gurjar, 2019; Izmirli, 2017).

Cognitive Presence

Researchers have studied cognitive presence as it relates to effective instructional

strategies (Chen et al., 2019; Molnar & Kearney, 2017; Oh et al., 2018), various learning

environments and platforms (Galikyan & Admiraal, 2019; Seckman, 2018), student

learning outcomes (Galikyan & Admiraal, 2019), and relationships with other presences

(Rolim et al., 2019). Cognitive presence is a quality indicator of an educational

experience and it is based on collaborative knowledge construction that occurs in an

online learning environment (Garrison, 2017). Cognitive presence also involves

constructing meaning and confirming understanding (Garrison et al., 2004). I will use the

concept of cognitive presence in this study to describe the extent to which students are

able to collaboratively construct knowledge through interaction and communication in an

online course. Lastly, cognitive presence involves the process of learning and it entails

engagement in all four levels of practical inquiry, including triggering event, exploration,

integration, and resolution (see Figure 2). Refer to Appendix C for permission to use the

Practical Inquiry Model.

Figure 2

Practical Inquiry Model

CRITICAL INQUIRY IN A TEXT-BASED ENVIRONMENT
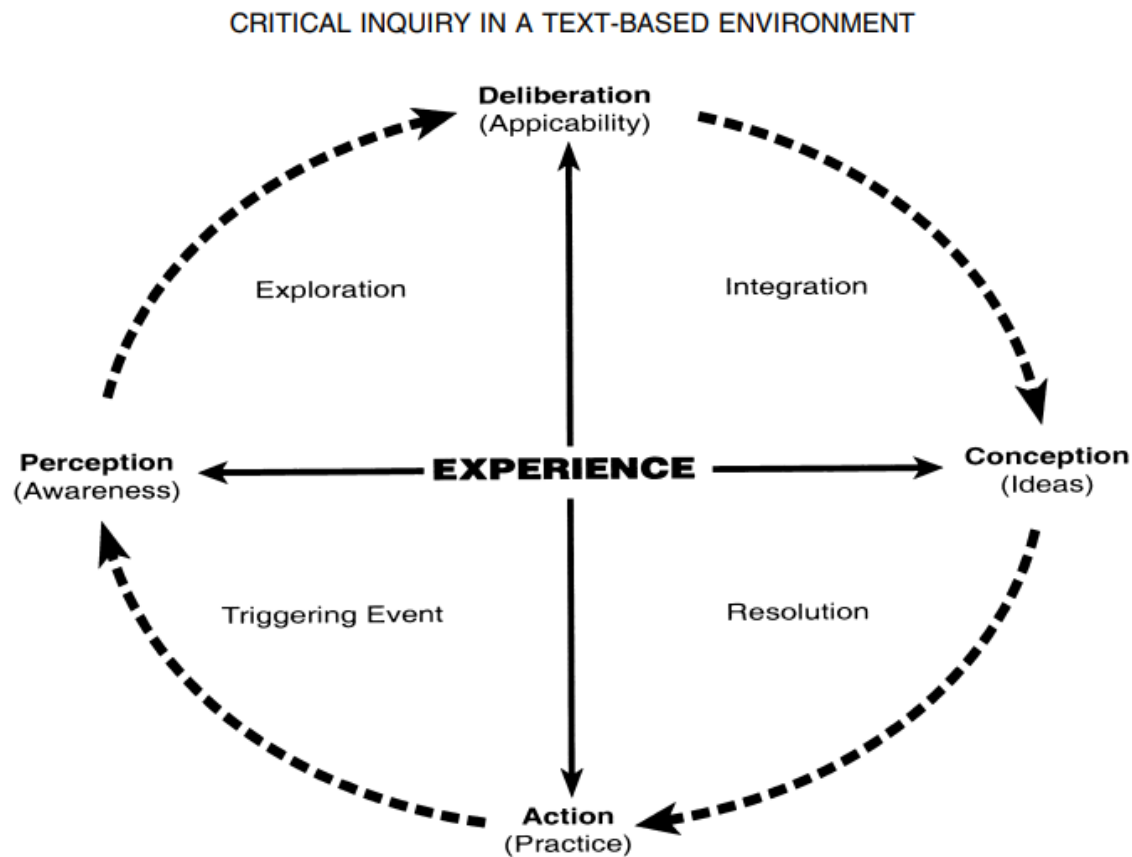
Note. A generalized model of Dewey's concept of practical inquiry is represented. From "Critical inquiry in a text-based environment: Computer conferencing in higher education model," by D. R. Garrison, T. Anderson, & W. Archer, 2000, *The Internet and Higher Education, 2*(2-3), p. 99 (https://doi.org/10.1016/S1096-7516(00)00016-6). Copyright 2000 by Elsevier Science Inc. Reprinted with permission.

An understanding of the process of practical inquiry is necessary for comprehending how individuals approach learning and construct knowledge in collaboration with others (Garrison et al., 2000; Garrison, 2017). There are two axes that

structure the model: action-deliberation (reflection on practice) and perception-conception (assimilation of information and construction of meaning). Together, the two axes constitute a learner's shared and personal worlds within the context of an educational experience. The quadrants in the model reflect the logical sequence of practical inquiry or critical thinking and correspond to the categories of cognitive presence indicators. The process of practical inquiry begins with a triggering event, such as a state of dissonance or feeling of unease. This triggering event is followed by perception, deliberation, conception, and warranted action. The second category is exploration, which involves a search for clarification or information that may help to make sense of the issue, situation, or problem. The third category involves integrating the information into a coherent idea or concept to gain understanding. The fourth and final category is the resolution of the issue, which involves application of an idea or hypothesis. The success of the application and whether the idea is confirmed or supported will determine whether or not the process of practical inquiry continues (Garrison et al., 2000).

In the current literature, cognitive presence has been associated with a variety of outcomes. For example, Mouzouri (2016) found positive significant relationships between cognitive presence and three learning style domains concerned with information reception, perception, and processing. Chen (2022) found a positive and statistically significant correlation between cognitive presence and perceived learning. Kucuk and Richardson (2019) found that cognitive presence is a predictor of online learners' satisfaction and a determinant of emotional, cognitive, and behavioral engagement.

Cognitive presence has also been positively associated with students' academic

performance, namely course final grades (Galikyan & Admiraal, 2019).

There are multiple instructional strategies that online instructors can implement to

improve cognitive presence. For instance, some strategies include (a) using polls

embedded in web-conferencing programs to pique curiosity, encouraging students to turn

cameras and microphones on, and including asynchronous components to synchronous

lesson plans (McCarroll & Hartwick, 2022); and (b) using reflection on practice, case-

based learning, inquiry-based learning, and peer facilitation (Sadaf et al., 2021).

Teaching Presence

To create a purposeful CoI, online instructors can use teaching presence to

effectively manage and monitor the social and cognitive dynamic of learning. This

requires instructors to capitalize on the unique features of online learning and facilitate

the role identity adjustment of the students (Garrison et al., 2004). Online instructors who

demonstrate teaching presence focus on the facilitation of the inquiry in a CoI (Sadaf et

al., 2021). To address students' feelings of isolation from their peers and their instructor,

Tan (2021) implicated that teaching presence was especially important and impactful

during the recovery period following the COVID-19 pandemic. I used the concept of

teaching presence in this study to explain how online instructors design, organize, and

facilitate the cognitive and social processes that support learning.

Teaching presence has been linked to a variety of outcomes. For example,

Caskurlu et al. (2020) found moderately strong positive relationships between teaching

presence and student satisfaction, as well as between teaching presence and perceived

learning. The results indicated that teaching presence should be considered when designing and teaching online courses. Further results from Caskurlu et al. showed that each subdimension of teaching presence, including instructional design and organization, facilitating discourse, and direct instruction, positively predicted perceived learning and student satisfaction in fully online courses. This is especially important because facilitating discourse involves facilitating student learning to maintain their interest, motivation, and engagement in active learning (Anderson et al., 2001). Teaching presence was also found to facilitate students' collaborative knowledge construction (Wang & Liu, 2019) and positively predict students' sense of learning community (Shea et al., 2019). Furthermore, Chen (2022) found a positive and statistically significant correlation between teaching presence and both students' learning engagement and perceived learning. Teaching presence has also been shown to have a significant and positive effect on students' self-efficacy. This suggests that students in online courses can be motivated by a well-organized course design, a supportive instructor, and intentional efforts to cultivate a sense of community (Lee & Lim, 2022). Lastly, Kucuk and Richardson (2019) found that teaching presence positively impacted online learners' satisfaction, emotional engagement, and agentic engagement.

There are a number of recommendations for enhancing teaching presence. For example, Delaney and Betts (2022) proposed that online instructors should (a) plan ahead, (b) seek understanding of student proficiency with online learning, (c) integrate and utilize technological knowledge through collaboration, (d) understand the need for support and outreach, (e) demonstrate consistency with response time and substantive

feedback, (f) adopt a humanizing approach, and (g) implement policies that prioritize professional development and support for online instruction. The use of summary videos has also been shown to improve teaching presence (Luo & Kalman, 2018).

Engagement

Researchers have defined engagement in several different ways. For example, Schaufeli et al. (2002) defined engagement from an affective-cognitive perspective as a positive, persistent, and fulfilling state of mind that is characterized by vigor, dedication, and absorption. Within the context of higher education, student engagement has been described as the amount of energy and effort that students devote to their learning community in terms of behavioral, affective, or cognitive indicators across a continuum. This continuum is influenced by a variety of structural and internal factors, such as the complex interplay of relationships with others, teaching methods and learning activities, and the learning environment itself (Bond et al., 2020). Engagement has also been defined as a student's motivation to actively participate in a course (Zilka et al., 2018). More specifically, online student engagement was defined by Dixson (2015) as meaningful interaction with course content, the instructor, and other students that encompasses students' attitudes, thoughts, behaviors, and feelings about their learning. From a social-constructivist perspective, engagement is an important aspect of student-centered pedagogy that emphasizes student motivation, peer-based learning, and utilizing previous knowledge and experiences (McMahon & Zyngier, 2009). Lastly, sub-themes related to online student engagement include presence, interaction, community, participation, collaboration, involvement, and communication (Martin et al., 2020).

In consideration of its many definitions, engagement has been regarded as a multifaceted construct consisting of behavioral, emotional, and cognitive components (Fredricks et al., 2004). According to Lee et al. (2019), student engagement in online courses is composed of six factors that are consistent with behavioral, emotional, and cognitive engagement. These include psychological motivation, student collaboration, problem solving, instructor interaction, community support, and learning management. Similarly, Redmond et al. (2018) offered a framework that identifies five key elements of student engagement in online education, including social, cognitive, behavioral, collaborative, and emotional engagement. Social engagement is depicted by actions that build community and relationships through trust, belonging, and open communication. Cognitive engagement refers to the active process of learning and involves critical thinking, metacognition, and deep understanding. Behavioral engagement is related to the development of academic and multidisciplinary skills, adhering to rules and norms, and supporting and encouraging peers. Collaborative engagement involves learning, relating, and connecting with peers, faculty, and the institution. Lastly, emotional engagement encompasses students' feelings and attitudes towards learning (Redmond et al., 2018). Engagement is a multidimensional construct that can be cultivated in multiple ways as well.

Engagement can result from social or academic factors, such as providing opportunities for student participation, forming interpersonal relationships, and pursuing intellectual endeavors (Fredricks et al., 2004). Moore (1993b) described three different types of interactions that foster student engagement in effective online courses: learner–

learner, learner–instructor, and learner–content. These closely resemble the concepts of social, teaching, and cognitive presence, respectively. Furthermore, engagement in course content is dependent on several factors, such as the role of the instructor, discussions among students, and course design (Choy & Quek, 2016). Kahu and Nelson (2018) proposed that student engagement occurs dynamically within an educational interface when a student's characteristics and background intersect with the institution's practices. Findings from a study by Elshami et al. (2022) suggested that techno-pedagogical skills, self-directed learning, collaborative learning, and peer-assisted learning are essential in supporting online student engagement.

Educators play a crucial role in encouraging online students during the learning process and maintaining active engagement with students. In their seminal work, Chickering and Gamson (1987) outlined seven principles to improve teaching and learning in higher education: (1) increase opportunities for student-faculty contact; (2) encourage reciprocity and cooperation between students; (3) use active learning strategies; (4) provide prompt feedback on student performance; (5) emphasize effective time management; (6) set high expectations and standards for student performance; and (7) respect diverse talents and learning styles. Although these guidelines were initially proposed to guide faculty, students, and administrators in the face-to-face classroom, these principles are widely applicable to the online learning environment and relevant to student engagement. In fact, based off the literature, the authors' online teaching experience, and methods recommended by Angelo and Cross (1993) for examining teaching practice, Sorensen and Baylen (2009) adapted Chickering and Gamson's (1987)

principles and applied them to the online learning environment. These practices also inform the basis of the National Survey of Student Engagement (NSSE), which identifies 10 engagement indicators that are organized into four themes (Center for Postsecondary Research, 2021). The first theme is academic challenge, which includes higher-order learning, reflective and integrative learning, learning strategies, and quantitative reasoning. The second theme is learning with peers, which includes collaborative learning and discussions with diverse others. The third theme is experiences with faculty, which includes student-faculty interaction and effective teaching practices. The fourth theme is campus environment, which includes the quality of interactions and a supportive environment. The first three themes are reflective of cognitive, social, and teaching presence, respectively. As Garrison (2017) explains, one of the main challenges with e-learning is trying to understand how to create and sustain a CoI that facilitates the development of deep and meaningful approaches to learning. In online learning environments, instructors should capitalize on opportunities for student interaction and participation to enhance engagement. Otherwise, the potential of online learning may not be fully realized if students and instructors do not experience meaningful encounters and make connections, or if students lack interest in the course content and teaching methodologies of the instructor (Mouchantaf, 2020).

Engagement has also been linked to several different outcomes that are important in online learning. For example, Chan et al. (2021) explored the relationship between the degree of learning engagement and students' learning satisfaction in an online clinical nursing course. Results of the study demonstrated that greater learning satisfaction was

associated with an increased likelihood of higher learning engagement, suggesting that learning satisfaction predicts learning engagement among nursing students. Furthermore, results from a study by Aboobaker and Muneer (2022) indicated that online students' learning motivation and computer self-efficacy were positively associated with engagement. Engagement has also been found to have a positive effect on persistence in online courses (Lakhal et al., 2021). In addition, Quigley et al. (2022) employed a correlational cross-sectional design to examine whether students' personality traits and stress perception predicted their online engagement. Results of the study indicated that personality traits positively predicted student engagement while stress perception negatively predicted student engagement. Moreover, Lei et al. (2018) found a positive correlation between student engagement and academic achievement in terms of student grades. Yoon et al. (2020) found that engagement significantly and positively predicted students' perceived achievement. Lastly, Bond et al. (2020) argued that students who demonstrate high levels of engagement within their learning community are more likely to channel that energy back into their learning, which can contribute to a variety of short- and long-term outcomes and promote further engagement. Thus, efforts to sustain an optimal level of online student engagement are essential.

Summary and Conclusions

Online higher education has been on the rise and is garnering more attention as a result of technological advancements, a growing number of adult learners, and the COVID-19 pandemic (Tarbutton & Doyle, 2023). Moreover, the dramatic shift to emergency remote teaching in 2020 (Fuchs, 2022; Hodges et al., 2020) highlighted the

critical need to continually assess how student engagement can be improved within the online learning environment, where learners may feel isolated and unmotivated. As students and educators are faced with an increasing demand for online learning, there is also a need to deliberately focus on what it means to be present *with* and *to* another individual at different times, in different spaces, and in the absence of physical bodies within an online learning environment (Ucok-Sayrak & Brazelton, 2022). Accordingly, the CoI framework is used to emphasize the importance of community, collaboration, and interaction among students, their peers, and the instructor. Researchers and online instructors can also use the CoI framework to explain how these interactions contribute meaningfully to an online educational experience in higher education (Moore & Miller, 2022).

Against this background, and in consideration of the continued expansion of online learning within the United States, it is not known how presence, as defined by social, cognitive, and teaching presence, affects online student engagement among MSN students. Fisher et al. (2018) identified engagement as an essential factor related to perceptions of student performance and overall satisfaction. The purpose of this quantitative study was to examine the relationship between presence (which consists of social, cognitive, and teaching presence) and online student engagement among MSN students. I implemented a cross-sectional survey design to gain a better understanding of the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students. I present more detailed information about the study's methodology in Chapter 3.

Chapter 3: Research Method

Introduction

Maintaining online student engagement in higher education is an important responsibility of online instructors because student learning hinges upon the ability of students to feel connected with other students, their teacher, and the course material. However, engagement is a complex concept that is difficult to measure (Raes et al., 2020). Researchers have not completely answered the question of what makes an online course a more or less engaging learning experience for students (Blakey & Major, 2019). Although previous studies have suggested that classroom instructors use information about students' engagement to design and adapt their face-to-face teaching strategies, online instructors may feel constrained by the limitations of an online learning environment, as online student engagement is not perceived as intuitively as it is inside a physical classroom (Martin et al., 2020; Zhang et al., 2020). Therefore, teachers may find it more challenging to engage students online compared to a face-to-face classroom.

The three elements of the CoI framework (social, cognitive, and teaching presence) may also influence online student engagement. The CoI framework is a strong model for researching online courses and designing effective and engaging online learning environments (Dixson, 2015). Researchers have viewed the CoI framework as a way to conceptualize the broader contextual factors that contribute to online student engagement (Li et al., 2021). Studies further suggests that the relationship between context and engagement is reciprocal (Li et al., 2021; Wang & Hofkens, 2020). As such, the purpose of this study was to examine the relationships between social presence,

cognitive presence, teaching presence, and online student engagement among MSN students. In the remaining sections of this chapter, I discuss the research design and methodology, data analysis, threats to validity, and ethical procedures.

Research Design and Rationale

I employed a nonexperimental quantitative research design in this study. Quantitative methods allow researchers to gather empirical evidence about variables in the form of numerical data, which is formally measured and analyzed statistically (Polit & Beck, 2020). The three independent variables investigated in this study were social, cognitive, and teaching presence. The dependent variable was online student engagement. I used a predictive cross-sectional survey design.

A cross-sectional survey design will support the advancement of knowledge on the topic of online student engagement in higher education by potentially revealing the extent to which social, cognitive, and teaching presence affect online student engagement. In particular, researchers can use survey designs to help answer questions about the relationships between variables. Cross-sectional surveys are used to collect data at one point in time (Creswell & Creswell, 2018). Survey designs have been noted to have some advantages for researchers, such as more flexibility, broader scope and applicability, and increased economic feasibility (Polit & Beck, 2020). Additional strengths of online surveys include speed and timeliness, convenience, and ease of data entry and analysis (Evans & Mathur, 2018). This research design is also consistent with other studies investigating online student engagement (Hensley et al., 2021).

One instrument that I used in this study was the CoI survey (Arbaugh et al., 2008). Researchers have used the CoI survey to gain additional insight and provide a better understanding of potential disciplinary differences in CoI presences (Lim & Richardson, 2022; Smadi et al., 2021). Researchers who prompted the development of the CoI framework utilized qualitative analyses such as transcript coding of discourse within computer-mediated communication environments in higher education (Abbitt & Boone, 2021; Garrison et al., 2000). In later research, Arbaugh et al. (2008) developed a quantitative CoI survey that provided a valid and reliable instrument (Stenbom, 2018) for measuring the three constructs of the CoI framework, which include social, cognitive, and teaching presence. More specifically, in the study by Arbaugh et al. (2008), the Keyser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.96, suggesting that factor analysis should yield distinct and reliable factors. Respective KMO values for the individual survey items were good, ranging from 0.921 to 0.983. Factor loadings using a three-factor model for the 34 items supported the validity of social, cognitive, and teaching presence. Finally, Cronbach's alpha yielded internal consistencies as follows: 0.91 for social presence, 0.95 for cognitive presence, and 0.94 for teaching presence. Cronbach's alpha is an estimate of the extent to which items on an instrument are reliably measuring the attribute. Higher values suggest better internal consistency, but values of 0.80 or higher are especially desirable (Polit & Beck, 2020).

In addition to the CoI survey, I also used the OSE scale (Dixson, 2010, 2015) in this study. The OSE scale was developed to serve three primary purposes: (1) to facilitate research investigating online course design, (2) to provide feedback to instructors from

students regarding their level of engagement as it relates to course design and delivery, and (3) to provide evidence of teaching effectiveness (Dixson, 2015). Moreover, the OSE scale has been used in recent studies (Bolliger & Halupa, 2018; Quigley et al., 2022) and it provides researchers with a valid and reliable tool for effectively measuring perceived student engagement in online learning environments (Dixson, 2015). Dixson (2015) further asserted that in general, student engagement is the extent to which students actively participate in a course by thinking and interacting with the course content (cognitive presence), other students in the course (social presence), and the instructor (teaching presence). Therefore, the OSE scale was an appropriate instrument to use in conjunction with the CoI survey.

I used the CoI survey and the OSE scale to answer the following research question:

RQ: What is the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students?

H_0: There is no relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

H_1: There is a statistically significant relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

Despite the advantages of online survey designs, there are some potential time and resource constraints, such as survey length and the time needed to recruit an adequate number of participants. I used a total of two survey instruments in this study.

Respondents were asked to complete 53 survey items, plus the requested demographical data. Polit and Beck (2020) suggested that in an effort to minimize participant burden, researchers should strive to balance the need for extensive information against the risk of placing undue demands on participants. For this study, participant burden was minimized by limiting the number of questions asked of the respondents as much as possible, ensuring there are no duplicate survey questions, and using an online survey instead of a paper survey. However, online surveys typically have a lower response rate compared to conventional survey methods (Polit & Beck, 2020). The response rate of a survey is an indicator of response bias, representativeness, and generalizability of a study's results (Pederson and Nielson, 2016). Thus, it was necessary to reach a large number of participants and provide a sufficient amount of time for them to respond to the online survey.

Methodology

Research methods encompass the steps, procedures, and strategies for collecting, organizing, and analyzing data in a study (Creswell & Creswell, 2018). In quantitative research, the methodology often entails the specific research design, the sampling plan, methods of data collection, instruments used, ethical safeguards, and analytic procedures (Polit & Beck, 2020). In this section, I describe the target population of the study, sampling procedures, recruitment of participants, instrumentation, methods of data collection and analysis, threats to validity, and ethical procedures.

Target Population

The target population of this study was nursing students in online higher education who were enrolled in an MSN degree program. In particular, the students must have completed a fully online course within the last 6 months. As of 2022, there were 131,524 nursing students enrolled in master's programs in the U.S. (AACN, 2023).

Sampling and Sampling Procedures

Sampling procedures involve identifying the type of sampling strategy, specifying the sampling frame, and conducting a power analysis to estimate an adequate sample size. I used convenience sampling as the sampling strategy in this study. A convenience sample is a nonprobability sample in which respondents are selected based on their convenience and availability to participate in the study (Creswell & Creswell, 2018; Polit & Beck, 2020). Convenience sampling, also called accidental sampling, is dependent on participants who are readily accessible to the researcher, and convenience samples have advantages over probability samples in terms of logistics and cost (Houser, 2018). Furthermore, Gundlach et al. (2018) suggested that effects found to be significant in a convenience sample are likely to be significant in a random sample as well.

Researchers use the sampling frame to outline inclusion and exclusion criteria. Inclusion criteria are guidelines for choosing participants who meet a predetermined set of characteristics (Houser, 2018). For this study, inclusion criteria included the following: (1) students who have completed at least one fully online MSN course within the last 6 months; (2) students from public or private universities; and (3) students who were enrolled in any type of MSN program. In contrast, exclusion criteria are guidelines for

eliminating potential participants from a study to help control extraneous effects (Houser, 2018). For this study, exclusion criteria included students who were under 18 years of age and students who did not give informed consent. Furthermore, courses involving a clinical rotation or practicum in which students experienced face-to-face contact with an instructor or faculty member were not eligible for this study.

To determine the minimum sample size, I used the power analysis software program G*Power version 3.1.9.7 following the procedures described by Faul et al. (2007) and Faul et al. (2009). I performed an a priori power analysis. The effect size was .15, the alpha level was .05, power was .80, and the number of predictors was 3. I selected these levels because conventional standards suggest that .15 is a medium effect size, the alpha level should be set as .05, and power should be equal to .80, which indicates that there is a 5% risk of committing a Type I error and a 20% risk of committing a Type II error (Polit & Beck, 2020). The selected statistical test was multiple linear regression. Using these values and settings, the power analysis calculator yielded a minimum sample size of 77 participants.

Procedures For Recruitment, Participation, and Data Collection

I recruited student participants in several ways from universities that offer fully online MSN courses. First, I obtained my sample by utilizing social media platforms, such as Facebook and LinkedIn, to post a recruitment invitation (see Appendix D) containing a link to the online survey. The invitation was posted on various social media pages associated with online universities that offer nationwide enrollment of fully online MSN courses. Second, I obtained a list of registered nurses' email addresses from the

Ohio and Florida State Boards of Nursing. The recruitment invitation was sent to these participants as well. Third, I recruited participants from the Walden University Participant Pool and the Florida Nurses Association. These efforts combined help to improve the overall number of participants and increased the likelihood of obtaining a more representative sample.

I also followed certain procedures for participation. All participants should have completed at least one fully online MSN course within the last 6 months. Courses involving a clinical rotation or practicum in which students may have face-to-face contact or interaction with an instructor or faculty member were not eligible for this study. Participants were asked to complete an online survey, which I created using SurveyMonkey by Momentive Inc. (https://www.surveymonkey.com/). At the beginning of the survey, I used a screening page to verify that the participant who clicked on the link was eligible to participate in the study. If they were eligible, then participants were provided with a brief introduction to the study, and they continued on to the next survey page to provide informed consent. An important procedure for protecting study participants is to obtain their informed consent, which means that they have been adequately informed about the study and can decline participation voluntarily at any time without penalty (Polit & Beck, 2020). If participants indicated they were not eligible to participate in the study, they were disqualified and the survey was closed.

After informed consent was obtained, data collection began. Eligible participants proceeded with the survey by answering a series of demographical questions, including gender, ethnicity, race, age, and program of study, among others (see Appendix E).

Previous researchers suggested some influence of several individual demographic characteristics on online learning (Boyte-Eckis et al., 2018; Rizvi et al., 2019). The selected demographic information for my study was relevant for several reasons. For example, Baby Boomers, Generation X, and Generation Z students have been shown to have a higher level of engagement compared to Generation Y students (Hensley et al., 2021). Furthermore, results from a study by Wu and Teets (2021) revealed a significant decrease in online student engagement among underrepresented university students of color. Online course duration can also impact student engagement (Tiedt et al., 2021). Other important demographic differences may be identified in this study. Finally, the survey included all items on the CoI survey (see Appendix A) and the OSE scale (see Appendix B). Participants exited the study upon completion of the survey. No incentive or compensation was offered to participants and no follow up procedures were used.

Instrumentation and Operationalization of Constructs

I used two separate instruments in this study. The first instrument was the 34-item CoI survey (see Appendix A), which was initially developed and validated by Arbaugh et al. (2008). The CoI survey has also been translated and validated in several other languages, including Spanish (Velázquez et al., 2019), Brazilian Portuguese (Parulla et al., 2022), and German (Norz et al., 2023). The CoI survey is a free, open resource under the Creative Commons license. For each survey item, respondents selected a Likert scale response. The level of measurement for the CoI survey is ordinal level that was treated as interval/ratio level. The 5-point Likert scale included the following responses: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. The total score

per participant can range from 34 to 170. According to Garrison (2017), utilization of the CoI survey has led to the enhancement and proliferation of research using the CoI framework by providing more efficient data analysis and allowing researchers to conduct larger-scale studies across different institutions, disciplines, demographic groups, and technologies. The CoI survey is comprised of three subscales that measure the elements of the CoI framework, including teaching presence, social presence, and cognitive presence. Each subscale, or presence, was measured as a distinct variable.

Social, cognitive, and teaching presence have been rigorously defined and operationalized (Garrison, 2009). Social presence is the ability of learners to identify with the community, communicate purposefully, and develop interpersonal relationships with others by projecting their individual personalities into the course of study. Cognitive presence is the practical inquiry process in which learners construct meaning and confirm understanding through discourse and reflection. Lastly, teaching presence is the design, facilitation, and instruction directed toward developing and sustaining an effective CoI.

The three subscales are further divided into several dimensions that serve to define the individual aspects related to each type of presence (Garrison et al., 2010). The three dimensions of teaching presence include design and organization (Items 1-4), facilitation (Items 5-10), and direct instruction (Items 11-13). The three dimensions of social presence include affective expression (Items 14-16), open communication (Items 17-19), and group cohesion (Items 20-22). The four dimensions of cognitive presence include triggering event (Items 23-25), exploration (Items 26-28), integration (Items 29-31), and resolution (Items 32-34).

The CoI survey has been thoroughly tested for validity and reliability. Originally in 2007, the CoI survey was administered at four academic institutions in the United States and Canada (Arbaugh et al., 2008). The sample consisted of 287 students who were enrolled in graduate-level Education or Business courses. Arbaugh et al. (2008) used the principal components analysis (PCA) approach in SPSS to verify the three subscales of the CoI survey. The researchers chose PCA to provide a more conservative exploratory approach to analysis and allow for a more comprehensive analysis of variance. The researchers also used oblique rotation with the default value $\delta = 0$ to limit the level of correlation among social, cognitive, and teaching presence, which were considered to be interdependent. Cronbach's alpha for each subscale of the CoI survey indicated high internal consistency levels for teaching presence ($\alpha = .94$), social presence ($\alpha = .91$), and cognitive presence ($\alpha = .95$). The CoI survey has been shown to consistently yield reliable and valid results (Redstone et al., 2018; Stenbom, 2018).

The second instrument that I used in this study was the OSE scale (Dixson, 2010, 2015). The OSE scale (see Appendix B) is a 19-item self-report scale that measures students' engagement in online courses. There are four subscales, which include skills, emotion, participation, and performance. Skills refers to cognitive engagement and learning strategies related to studying, reading, taking and reviewing notes, and organization. Emotion refers to students' affective engagement and emotional participation in their learning, and it includes making course materials relevant, applicable, and interesting. Participation refers to behavioral engagement and the extent to which students actively engage in learning activities and interact with fellow peers and

the instructor. Lastly, performance includes assessment outcomes, namely students'

grades. Respondents completed the OSE scale using a 5-point Likert scale, which

included the following responses: 1 = Not at all characteristic of me, 2 = Not really

characteristic of me, 3 = Moderately characteristic of me, 4 = Characteristic of me, 5 =

Very characteristic of me. The level of measurement for the OSE scale was ordinal level

that was treated as interval/ratio level. The total score per participant can range from 19

to 95. The OSE scale is displayed in Appendix B, and permission to use the OSE scale is

presented in Appendix F.

The OSE scale has been shown to be a valid and reliable instrument (Dixson,

2010, 2015). Initially, the OSE scale was created following a four-step process: (1)

examining existing measures of student engagement; (2) convening a focus group to

discuss how those measures would need to be adapted for the online learning

environment; (3) conducting a pilot study using the initial instrument; and (4) testing the

instrument in a larger and more diverse sample. When the instrument was first tested, the

sample included 186 students across 38 online courses from six campuses that were part

of a university in the Midwest. Dixson (2010) conducted an exploratory factor analysis to

validate the scale measurement of the four types of engagement (skills, emotional,

participation, and performance). Only items that had a loading of 0.60 or higher and no

secondary loading of 0.40 or higher were considered. The results of the KMO and

Bartlett's Test were appropriate to continue the factor analysis. Nineteen of the 30 items

loaded onto the four factors. Concerning internal reliability, the remaining 19 items on

the OSE scale yielded a high Cronbach alpha of 0.91 and showed a significant correlation with the global course engagement item ($r = 0.67$; $p < 0.001$).

Data Analysis

I used SPSS version 28 for data analysis. SPSS is a comprehensive statistical software program that is widely used by quantitative researchers. Quantitative data analysis involves the use of statistical procedures and hypothesis testing to facilitate the interpretation of statistical results (Creswell & Creswell, 2018). Because data sets may contain errors, inconsistencies, or missing values, it is important for researchers to conduct a thorough preliminary data screening so that potential problems can be identified and addressed prior to performing data analysis (Warner, 2020). Furthermore, self-reported surveys raise potential concerns about validity and accuracy, as online surveys do not allow researchers to directly observe participants (Polit & Beck, 2020). Social desirability response bias can also occur on a self-reported survey (Polit & Beck, 2020; Warner, 2020). Warner (2020) suggested that SPSS data files should be proofread and compared to the original data source to verify results and correct potential errors in data entry. Therefore, data cleaning and screening procedures were indicated because this study involved gathering self-reported survey data. I screened and proofread the collected survey data against the original data source. Warner offered further recommendations for addressing errors or missing values. However, all survey questions required an answer in SurveyMonkey, so there were no missing values for all of the fully completed surveys.

Regarding data analysis, I conducted a multiple linear regression analysis in SPSS to predict online student engagement based on social, cognitive, and teaching presence. I

also calculated the correlation coefficients to show the strength of relationships between variables. A multiple regression analysis includes one outcome variable and two or more predictor variables (Warner, 2020). Essentially, multiple regression allows researchers to examine the impact of two or more independent variables on a dependent variable (Frankfort-Nachmias et al., 2020). Including several independent variables allows researchers to improve predictions of the dependent variable (Polit & Beck, 2020). I tested for the assumptions of multiple linear regression after data was collected. No covariates or confounding variables were controlled for or included in this study. Results of the study were interpreted using the conventional threshold of $p < .05$ and a 95% confidence interval.

There are several assumptions that should be satisfied for multiple linear regression analysis (Laerd Statistics, 2015; Warner, 2020). For example, the dependent variable should be measured on a continuous scale as an interval or ratio variable. The dependent variable in this study was online student engagement, which was measured using an ordinal scale that was treated as an interval/ratio variable. There should also be at least two independent variables, which can be continuous or categorical. In this study, the three independent variables were social, cognitive, and teaching presence, all of which were measured using ordinal scales that were treated as interval/ratio variables. The assumption for independence of residuals was assessed using the Durbin-Watson statistic. Scatterplots and partial regression plots were used to check for linearity. I also tested for homoscedasticity, multicollinearity, significant outliers, and normal distribution of residuals using SPSS.

The research question and hypotheses for this study included the following:

RQ: What is the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students?

H_0: There is no relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

H_1: There is a statistically significant relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

Threats to Validity

Validity refers to the truthfulness of a research study, and various threats to validity can arise from a study's design and methodology (Gray & Grove, 2021). In the following sections, I describe relevant threats to internal, external, construct, and statistical conclusion validity.

Internal Validity

Internal validity is the validity of inferences in an empirical relationship. Internal validity refers to the degree to which it can be inferred that the independent variable, rather than another factor, is responsible for the observed effects on the outcome (Polit & Beck, 2020). Maturation is one type of threat to internal validity, and it refers to changes that occur in participants as a function of time rather than as a result of the independent variable (Houser, 2018). For example, participants may experience changes over time in their level of engagement due to a variety of reasons, such as burnout or the acquisition of knowledge and skills outside of the study variables. Although I did not control for any

extraneous variables, I only included participants who indicated they had recently

completed a fully online course within the last 6 months in an effort to minimize an

extended period of time from elapsing. Another threat to internal validity is

instrumentation, which can influence the outcome of a study as the result of the

measurement tool itself (Houser, 2018). To address the threat of instrumentation, I used

valid and reliable instruments in this study.

External Validity

External validity is the extent to which the findings of a study can be generalized

to other settings, samples, or populations (Gray & Grove, 2021; Polit & Beck, 2020).

Relationships between variables may also be affected differently by variations in people,

time, and conditions. External validity can be determined by the representativeness and

size of the sample, the number of sites, and the findings of previous studies (Gray &

Grove, 2021). Threats to external validity occur when researchers draw incorrect

inferences from the sample to other individuals, different settings, and past or future

situations (Creswell & Creswell, 2018). Selection effects are an example of a potential

threat to external validity, so a strong sampling strategy may be needed. I used a

convenience sample, which can introduce bias and is considered to be a nonprobability

method of sample selection. However, the validity and representativeness of a

convenience sample can be enhanced by conducting a power calculation to determine an

adequate sample size and by developing strict inclusion and exclusion criteria and

applying them consistently to reduce the risk of selection bias (Houser, 2018). Therefore,

I conducted a power analysis and I developed inclusion and exclusion criteria for my

study. Gathering demographic data can also provide important information about the sample, which can be compared to the larger population. A thorough description of the sample using demographic variables can guide researchers in making generalizations, conclusions, and recommendations (Gray & Grove, 2021).

Construct Validity

Construct validity refers to the degree to which a measure captures the hypothetical basis and all other aspects of the focal construct or variable as intended by the researcher (Gray & Grove, 2021; Houser, 2018; Polit & Beck, 2020). Construct validity is impacted by how well researchers conceptually define and operationalize the variables in a study (Gray & Grove, 2021). Researchers can use factor analysis to combat threats to construct validity (Houser, 2018). Dixson (2010) conducted a factor analysis to validate the OSE scale, and Arbaugh et al. (2008) conducted a factor analysis to validate the CoI survey.

Statistical Conclusion Validity

Statistical conclusion validity is the extent to which researchers use statistical analyses correctly to make inferences and conclusions about relationships that are accurate (Polit & Beck, 2020). For nonexperimental research, two important considerations for upholding statistical conclusion validity include having an adequate sample size and using appropriate statistical tests (Gray & Grove, 2021). I addressed statistical conclusion validity in my study by testing the assumptions of multiple linear regression.

Ethical Procedures

It is the responsibility of researchers to abide by ethical principles and practices when conducting research with human subjects. Ethical issues must be addressed throughout the entire research process, and Institutional Review Board (IRB) approval is needed to ensure that federal regulations are followed and that study participants are protected as much as possible from undue risk or harm (Creswell & Creswell, 2018). Other examples of important ethical issues to anticipate may include respecting the anonymity of participants, obtaining informed consent, and maintaining the integrity, authenticity, and credibility of the study (Creswell & Creswell, 2018). I received Walden University's IRB approval for my study (approval # 10-18-23-0659506). Informed consent was obtained from participants prior to starting the survey. On the social media and email invitations I distributed, I clearly stated the purpose of the study and explained how the data will be used. Furthermore, my study was non-interventional, data were collected anonymously, and incentives were not offered to participants. To help protect and secure data, SurveyMonkey (Momentive Inc., 2021) adheres to a variety of security practices and policies.

<div align="center">

Summary

</div>

In Chapter 3, I described the research design and methodology of my study. In the study, I employed a cross-sectional survey design. I used a convenience sample to recruit participants. The target population was MSN students, and eligible participants should have completed a fully online course within the last 6 months. I recruited respondents by utilizing social media platforms and distributing email invitations containing a link to

complete the survey. I discussed the CoI survey and the OSE scale in detail. I used SPSS version 28 for statistical data analysis, and I conducted conduct multiple linear regression analysis to identify the extent to which social, cognitive, and teaching presence influence online student engagement. I identified threats to validity and presented strategies to address these threats. Finally, I outlined ethical procedures. I obtained IRB approval prior to collecting data. In Chapter 4, I describe data collection procedures and the results of the study.

Chapter 4: Results

Introduction

The purpose of this study was to examine the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students. The research question and hypotheses are listed below:

RQ1: What is the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students?

H_0: There is no relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

H_1: There is a statistically significant relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

In Chapter 4, I discuss some data collection details, including the time frame for data collection, recruitment and response rates, discrepancies in data collection, descriptive and demographic data, and representativeness of the sample. I also present the results of the study.

Data Collection

Data collection began after IRB approval was obtained from Walden University. Survey responses were collected using SurveyMonkey over a period of 2 months. There was a total of 270 survey responses with a completion rate of 31%. A total of 85 participants completed the entire survey. The power analysis yielded a minimum sample size of 77 participants, so the minimum sample size goal was exceeded. There were no

discrepancies in data collection from the plan presented earlier in Chapter 3. Participants were recruited in multiple ways, including via email, social media, and the Walden University Participant Pool. The Florida Nurses Association also approved my request to send out email invitations to their members and post a link to the survey on their social media platform. Regarding email invitations in particular, a list of nurses' email addresses was obtained from the Ohio and Florida State Boards of Nursing. The email address lists were available for free to the public upon request. Approximately 468,500 email invitations were sent out using these email lists. Collectively, these participant recruitment strategies were used to obtain a representative sample of the target population of online MSN students enrolled at various universities from across the United States.

According to the AACN (2023), there were 131,524 students in the United States who were enrolled in 659 available master's programs for nursing in 2022. Of these students, 40.5% of them were underrepresented students and 88.3% were female. Although these data were collected in 2022, the available demographic characteristics were relatively similar to those observed in my study.

Results

Descriptive Statistics

The study consisted of a convenience sample of 85 online MSN students. The majority of respondents were between the ages of 35-54 (67%), White (52.9%), female (81.2%), and enrolled as full-time students (61.2%). More detailed demographic characteristics of participants are presented in Table 1.

Table 1

Demographic Characteristics of Participants

Baseline characteristic	*f*	Percent of sample (*N* = 85)
Age		
18-24	1	1.2
25-34	11	12.9
35-44	29	34.1
45-54	28	32.9
55-64	14	16.5
65+	2	2.4
Race/ethnicity		
American Indian or Alaska Native	0	0
Asian	2	2.4
Black or African American	17	20
Hispanic or Latino	11	12.9
Multiracial	6	7.1
Native Hawaiian or Other Pacific Islander	0	0
Some other race	0	0
White	45	52.9
Prefer not to answer	4	4.7
Gender		
Female	69	81.2
Male	12	14.1
Non-binary	0	0
Transgender	0	0
Prefer not to answer	4	4.7
Student status		
Full-time	52	61.2
Part-time	33	38.8

Furthermore, most participants reported passing their online course (95.3%)

within a course duration of 6-10 weeks (44.7%). The program of study with the most

respondents was MSN: Nurse Practitioner (48.2%). Further details regarding online

course and nursing program characteristics are presented in Table 2.

Table 2

Online Course and Nursing Program Characteristics

Baseline characteristic	*f*	Percent of sample (*N* = 85)
Course outcome		
Fail	3	3.5
Pass	81	95.3
Prefer not to answer	1	1.2
Course duration		
0-5 weeks	5	5.9
6-10 weeks	38	44.7
11-15 weeks	19	22.4
16 weeks or longer	23	27.1
Program of study		
MSN: Care Coordination	0	0
MSN: Clinical Nurse Specialist	1	1.2
MSN: Nurse Practitioner	41	48.2
MSN: Nursing Education	16	18.8
MSN: Nursing Informatics	5	5.9
MSN: Nursing Leadership or Administration	11	12.9
MSN: Public Health Nursing	2	2.4
Other	9	10.6

Statistical Assumptions

According to Laerd Statistics (2015), there are 8 assumptions of a multiple regression analysis that need to be considered. In this study, the first assumption was met because the dependent variable (online student engagement) was measured as a continuous variable. The second assumption was met because the 3 independent variables (social presence, cognitive presence, and teaching presence) were also measured as continuous variables. Although both the CoI survey and the OSE scale contained Likert items, all variables were treated as continuous. For the third assumption, there was independence of residuals, as assessed by a Durbin-Watson statistic of 1.991. A value of approximately 2 indicates that there is no correlation between residuals. The fourth assumption of linearity was met by plotting a scatterplot of the studentized residuals against the unstandardized predicted values (see Figure 3). Residuals statistics can be found in Table 3. Partial regression plots are displayed in Figure 4.

Figure 3

Scatter Plot of Studentized Residual by Unstandardized Predicted Value

Scatter Plot of Studentized Residual by Unstandardized Predicted Value
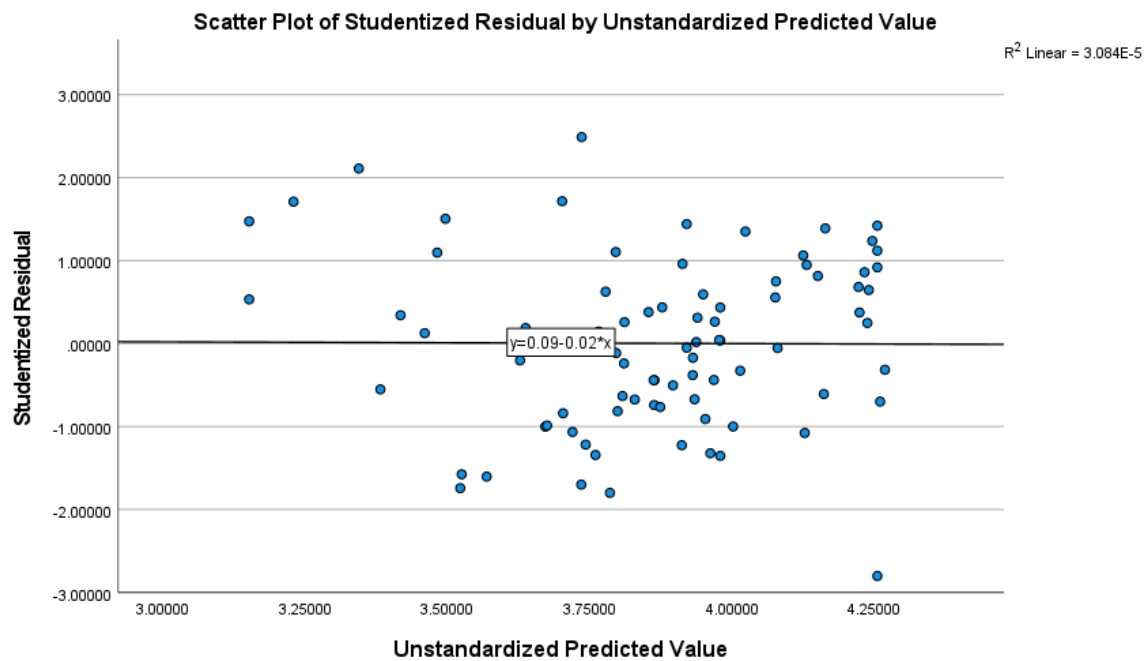
Table 3

Residuals Statistics

	Minimum	Maximum	Mean	SD	*N*
Predicted value	3.152	4.269	3.868	.265	85
Std. predicted value	-2.704	1.514	.000	1.000	85
Standard error of predicted value	.060	.258	.108	.042	85
Adjusted predicted value	3.062	4.314	3.865	.274	85
Residual	-1.466	1.264	.000	.524	85
Std. residual	-2.747	2.368	.000	.982	85
Stud. residual	-2.801	2.490	.003	1.012	85
Deleted residual	-1.524	1.397	.004	.557	85
Stud. Deleted residual	-2.929	2.575	.003	1.024	85

Figure 4

Partial Regression Plots

Partial Regression Plot
Dependent Variable: Online Student Engagement
R^2 Linear = 0.001
$y=-9.05E-16-0.03*x$
Teaching Presence

Partial Regression Plot
Dependent Variable: Online Student Engagement
R^2 Linear = 0.045
$y=-8.42E-16+0.2*x$
Social Presence

Partial Regression Plot
Dependent Variable: Online Student Engagement
R^2 Linear = 0.008
$y=-1.11E-15+0.1*x$
Cognitive Presence
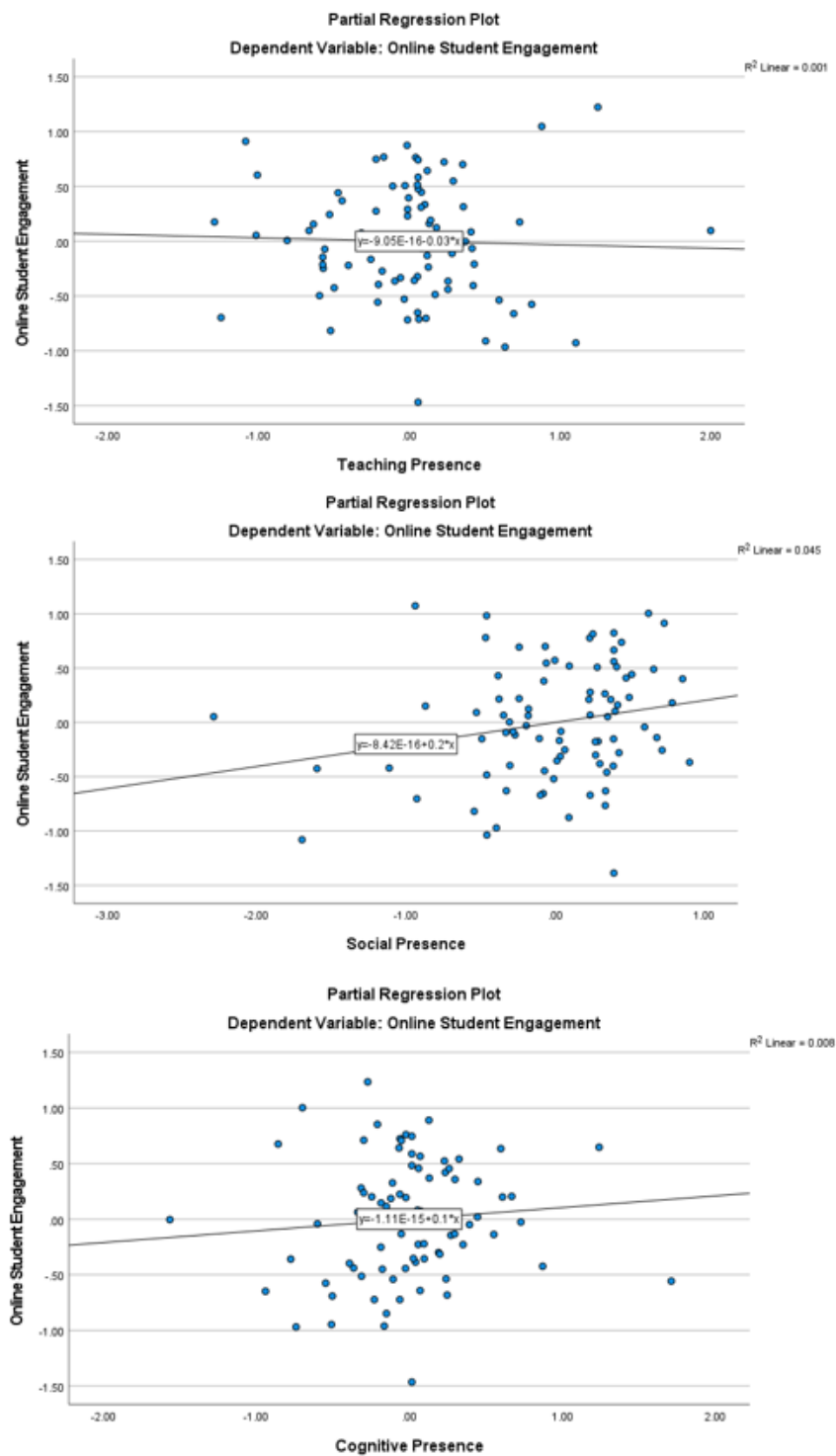
For the fifth assumption, there was homoscedasticity, as assessed by visual

inspection of a plot of studentized residuals versus unstandardized predicted values (see

Figure 3). For the sixth assumption, the data should not show multicollinearity. SPSS

Statistics was used to detect for multicollinearity through an inspection of correlation

coefficients and tolerance/variance inflation factor (VIF) values. Among the three

variables of the CoI framework, teaching presence was positively correlated with social

presence ($r = .76$) and cognitive presence ($r = .85$). Social presence was positively

correlated with cognitive presence ($r = .82$). Table 4 displays the correlations among

variables.

Table 4

Correlations

		OSE	TP	SP	CP
Pearson	OSE	1.000	.353	.443	.407
	TP	.353	1.000	.759	.852
	SP	.443	.759	1.000	.816
	CP	.407	.852	.816	1.000
Sig. (1-tailed)	OSE		< .001	< .001	< .001
	TP	.000		.000	.000
	SP	.000	.000		.000
	CP	.000	.000	.000	
N	OSE	85	85	85	85
	TP	85	85	85	85
	SP	85	85	85	85
	CP	85	85	85	85

Note. OSE = online student engagement; TP = teaching presence; SP = social presence;

CP = cognitive presence

More importantly, tolerance values for teaching presence, social presence, and

cognitive presence were 0.262, 0.320, and 0.207, respectively. Tolerance values less than

0.1 or VIF values greater than 10 may suggest a collinearity problem (Hair et al., 2014).

VIF is simply the reciprocal of tolerance. Collinearity statistics are displayed in Table 5.

Table 5

Collinearity Statistics

	Tolerance	VIF
Teaching presence	.262	3.822
Social presence	.320	3.128
Cognitive presence	.207	4.842

For the seventh assumption, there should be no significant outliers, high leverage points, or highly influential points. There were no studentized deleted residuals greater than ±3 standard deviations and no values for Cook's distance above 1. However, there were 3 leverage values identified that were greater than 0.2. These cases were not removed from the final analysis because the results of the study were not significantly impacted when repeating the multiple regression analysis with the cases removed. The eighth and final assumption of normality was met, as assessed by a Q-Q Plot (see Figure 5). A histogram showing a normal distribution is also presented in Figure 6. Overall, the assumptions required for multiple regression analysis were reasonably well met.

Figure 5

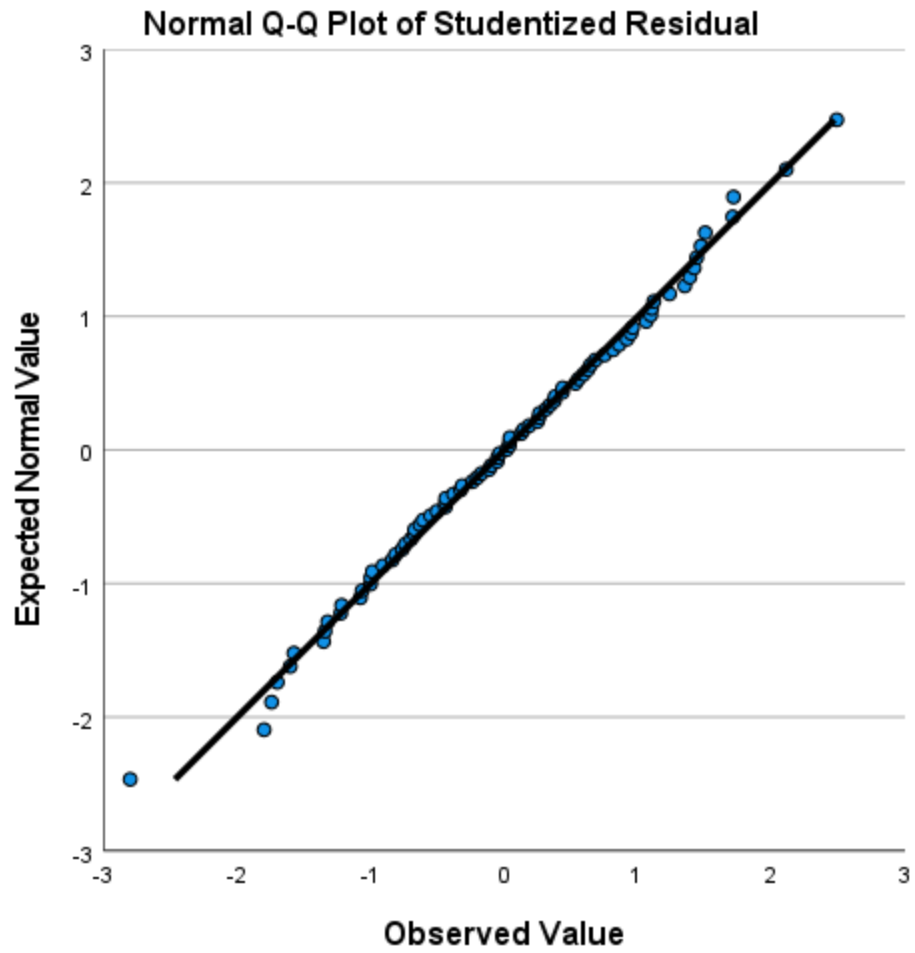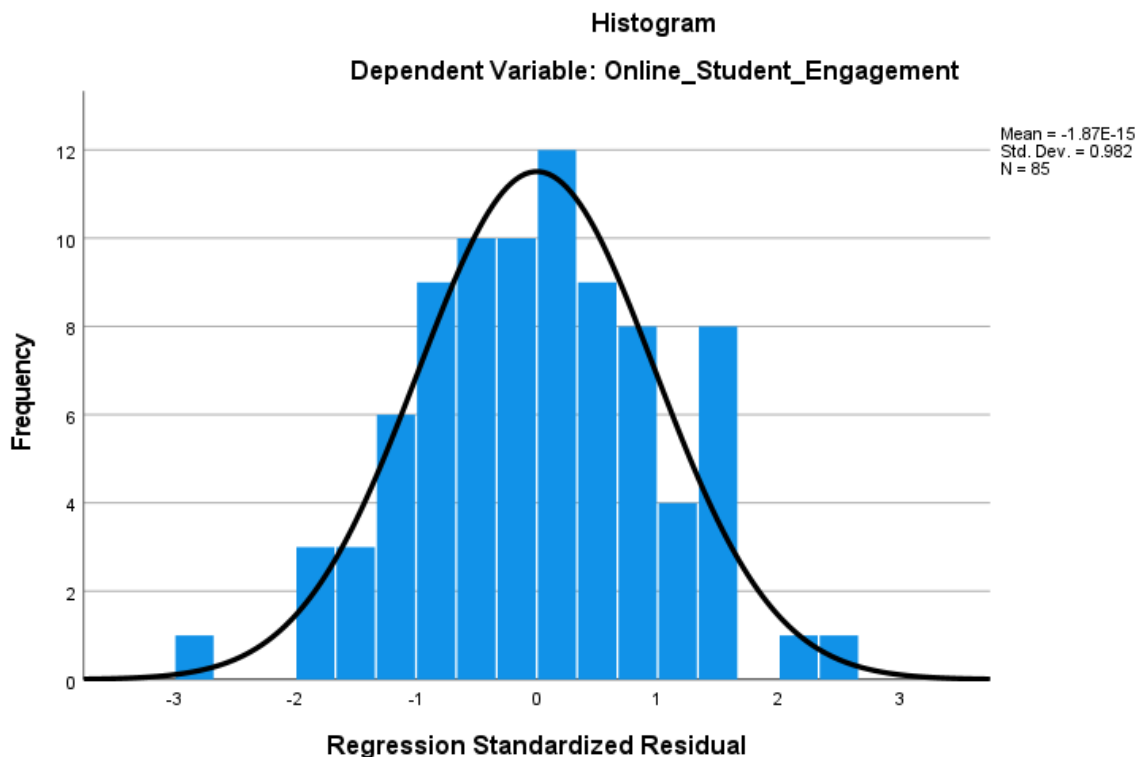*Normal Q-Q Plot of Studentized Residual*

Figure 6

Histogram

Histogram
Dependent Variable: Online_Student_Engagement

Mean = -1.87E-15
Std. Dev. = 0.982
N = 85

Statistical Analysis

The mean score was 3.72 (SD 1.04) for teaching presence, 3.54 (SD 0.99) for social presence, 3.73 (SD 0.99) for cognitive presence, and 3.86 (SD 0.59) for online student engagement. In this study, Cronbach's alpha yielded internal consistencies as follows: 0.94 for social presence, 0.97 for cognitive presence, 0.97 for teaching presence, and 0.89 for online student engagement, indicating a high level of internal consistency. A standard multiple regression analysis was run using IBM SPSS Statistics Version 28 to predict online student engagement from social presence, cognitive presence, and teaching presence. All predictor variables were entered in one step. The total N for this sample

analysis was 85. The overall regression, including all three predictors, was statistically

significant, $R = .45$, $R^2 = .20$, adjusted $R^2 = .17$, $F(3, 81) = 6.887$, $p < .001$. Table 6 shows

the analysis of variance.

Table 6

Analysis of Variance

	Sum of squares	*df*	Mean square	*F*	Sig
Regression	5.886	3	1.962	6.887	< .001
Residual	23.076	81	.285		
Total	28.962	84			

Note. Dependent variable = online student engagement; Predictors = social, cognitive,

and teaching presence.

Online student engagement could be predicted from this set of variables, with

approximately 17.4% of the variance in online student engagement accounted for by the

regression model. For the overall model, R^2 was 20.3% with an adjusted R^2 of 17.4%,

indicating a medium size effect according to Cohen (1988). To assess the contributions of

individual predictors, the *t* ratios for the individual regression slopes were examined.

None of the three predictor variables were significantly related to online student

engagement when the other predictors were statistically controlled. Their partial slopes

were not significant (social presence: $\beta = .342$, $p = .055$; cognitive presence: $\beta = .176$, $p = $

.421; teaching presence: $\beta = -.056$, $p = .772$). Results from the multiple regression

analysis, including regression coefficients, confidence intervals, and standard errors can

be found in Table 7.

Table 7

Multiple Regression Results for Online Student Engagement (OSE)

OSE	B	95% CI for B		$SE\ B$	β	R^2	ΔR^2
		LL	UL				
Model						.20	.17*
Constant	2.88*	2.41	3.35	.235			
Teaching presence	-.032	-.25	.19	.110	-.06		
Social presence	.203	-.00	.41	.104	.34		
Cognitive presence	.015	-.15	.36	.130	.18		

*$p < .001$

Summary

In alignment with the research question and purpose of the study, standard multiple regression was performed to predict online student engagement from social presence, teaching presence, and cognitive presence. The multiple regression model statistically significantly predicted online student engagement, $F(3, 81) = 6.887, p < .001$, adj. $R^2 = .17$. Online student engagement could be predicted from social, cognitive, and teaching presence, with approximately 17.4% of the variance in online student engagement accounted for by the model. In Chapter 5, I present an interpretation of the findings, limitations of the study, recommendations for further research, and implications of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Online student engagement is an important consideration for teaching and learning in higher education. Many universities are increasingly implementing online course delivery, often with a limited understanding of the impact of online pedagogy on student engagement. Limited research about the relationship between presence and online student engagement is a social problem that affects the quality of online nursing education. More specifically, it is not known how social, cognitive, and teaching presence impact online student engagement in higher education for MSN students. Furthermore, the factors that contribute to student engagement have not yet been fully explored (Kahu & Nelson, 2018). Therefore, the purpose of this study was to examine the relationship between social presence, cognitive presence, teaching presence, and online student engagement among MSN students.

The nature of the study was nonexperimental quantitative predictive research with a cross-sectional survey design. Participants were asked to complete an anonymous online survey to measure social, cognitive, and teaching presence, as well as online student engagement. The three presences were measured using the CoI survey (see Appendix A) and online student engagement was measured using the OSE scale (see Appendix B). Eligibility criteria included being at least 18 years of age and completing at least one fully online MSN course within the last 6 months. Participants were primarily recruited via email, social media, and the Walden University Participant Pool. Multiple linear regression analysis was used to determine the relationship between social presence,

cognitive presence, teaching presence, and online student engagement. A key finding of the study was that social presence, cognitive presence, and teaching presence significantly predicted online student engagement among online MSN students.

Interpretation of the Findings

In this study, social presence, cognitive presence, and teaching presence were found to be positively correlated with one another. Likewise, relationships between the elements of the CoI framework have been tested in prior studies using correlational analysis (Stenbom, 2018). For example, Akyol and Garrison (2008) found a positively significant relationship between teaching presence and cognitive presence. Mutezo and Maré (2022) found that teaching presence related significantly and positively to cognitive presence and social presence. Cognitive presence also related significantly and positively to social presence. In addition, strong positive correlations have been found when pairwise testing social presence, cognitive presence, and teaching presence (Kozan & Richardson, 2014).

Also in this study, a more prominent finding was that social presence, cognitive presence, and teaching presence were found to significantly predict online student engagement among MSN students. Similarly, other researchers have investigated the relationships between the three CoI presences and engagement among online graduate students. For example, Kucuk and Richardson (2019) found that cognitive presence and teaching presence were significant predictors of engagement. However, although Kucuk and Richardson found significant correlations between social presence and engagement, social presence was not identified as a significant predictor of engagement. This finding

may have been attributed to the fact that the online classes in the study had a limited number of students. In addition, Duha et al. (2022) found a significant increase in social presence and engagement as students took more online courses, although the effect was small. This finding may have been a result of students gradually becoming more familiar with the online learning environment and more comfortable interacting with others online.

The CoI framework was initially developed as an interactional model for online teaching and it was comprised of three main elements: social presence, cognitive presence, and teaching presence. According to the CoI framework, deep and meaningful learning occurs when all three presences are present. These elements are interdependent and essential for creating a critical CoI for educational purposes in terms of facilitating discourse, developing course content, and creating an interactive and engaging learning experience for students and faculty (Garrison et al., 2000). Collectively, these elements can enhance or inhibit the quality of the online educational experience and associated learning outcomes for students (Garrison et al., 2000). Previous research has shown that all three presences need to be cultivated in online courses in order to develop communities of inquiry that facilitate higher-order thinking (Garrison, 2017). Therefore, online instructors should focus on practicing social, cognitive, and teaching presence together in the online classroom in an effort to engage students as much as possible.

The CoI framework is integral in understanding the factors that influence online student engagement. When online courses are intentionally designed by maximizing the three presences of the CoI framework, effective learning occurs through student

interaction, engagement, and the collaborative construction of meaningful knowledge (Garrison & Arbaugh, 2007; Garrison & Cleveland-Innes, 2005). Thus, the CoI framework is well suited for applying social constructivist ideas to online learning because it offers a strong model for investigating online student engagement and designing effective online learning environments (Dixson, 2015).

Limitations of the Study

There were several limitations of this study. First, the sample of MSN students limits its generalizability to other educational contexts or disciplines in online higher education. In addition, the generalizability of these findings is limited to fully online learning environments. Second, the data were collected through self-report instruments. Self-reported instruments may have issues concerning validity, accuracy, and social desirability response bias (Polit & Beck, 2020). However, valid and reliable instruments were used to measure the variables in this study. Third, convenience sampling was used as the sampling strategy to recruit participants. Convenience sampling is subject to sampling bias, as those volunteers who are available to complete the survey may be atypical of the population (Polit & Beck, 2020). Lastly, although there were approximately 468,500 email invitations sent out to potential participants, many of these email invitations were either bounced, opted out of, or unopened, thus limiting the total number of responses.

Recommendations for Future Research

There are several recommendations for future research that arose as a result of conducting this study. First, to gain a deeper understanding of online student engagement

in future studies, it could be beneficial to examine whether similar findings hold true in a blended learning or hybrid learning environment. This is particularly relevant considering that many universities have increasingly adopted diverse teaching modalities, especially in response to the COVID-19 pandemic. Second, the subcategories of each type of presence could be added as individual predictors in the model to obtain more detailed implications in terms of theory and practice. Third, studying the moderating effects of the different presences with regard to online student engagement could reveal new relationships between these variables through a different perspective. Fourth, demographics, such as age, gender, and race, could be used as covariates or control variables in future studies to examine their effects on online student engagement among MSN students. Finally, to strengthen teaching practices and improve student engagement in online learning environments, researchers could examine the role that technology plays in affecting student engagement (Bond et al., 2020).

Implications

The potential impact for positive social change at the societal level includes improving the overall quality of the online learning experience by creating online learning environments that engage students. Increasing stakeholder awareness of how to improve online student engagement can also contribute to positive social change. Moreover, understanding how social, cognitive, and teaching presence contribute to online student engagement can aid the development of more efficient ways of teaching online classes.

The current study offers multiple practical implications for online instructors, curriculum designers, and educational leaders seeking to enhance online student engagement. For example, findings from this study can be used to inform and improve online teaching and learning. The results of this study provide a timely reminder of the importance of practicing presence during online course delivery as it relates to successfully engaging online learners. Furthermore, understanding the interrelationships among social presence, cognitive presence, teaching presence, and online student engagement may enrich theoretical insights and teaching practices for online learning environments. As online learning continues to expand, it is important to implement strategies that promote collaborative and engaging learning opportunities for all students so that they have meaningful interactions with their peers and instructors. A focus on implementing student engagement strategies to maximize learning should be a primary consideration when designing online learning experiences. Another practical implication is universities that offer online programs should consider providing adequate professional training regarding the application of social, cognitive, and teaching presence in online learning environments to promote student engagement.

Conclusion

Understanding the predictors of online student engagement based on the CoI framework can provide significant insights into online learning theory and practice. With a growing trend in online learning, online student engagement is crucial to student learning in online courses. Online learners may also face unique challenges and have fewer opportunities to interact and be actively engaged with course content, the

instructor, and their peers. Therefore, it is essential to promote student engagement in the online learning environment. Practicing social, cognitive, and teaching presence within a CoI can result in an optimal and engaging learning experience for online students.

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Appendix A: CoI Survey

Community of Inquiry Survey Instrument (draft v14)

Teaching Presence

Design & Organization

1. The instructor clearly communicated important course topics.

2. The instructor clearly communicated important course goals.

3. The instructor provided clear instructions on how to participate in course learning activities.

4. The instructor clearly communicated important due dates/time frames for learning activities.

Facilitation

5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.

6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.

7. The instructor helped to keep course participants engaged and participating in productive dialogue.

8. The instructor helped keep the course participants on task in a way that helped me to learn.

9. The instructor encouraged course participants to explore new concepts in this course.

10. Instructor actions reinforced the development of a sense of community among course participants.

Direct Instruction

11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.

12. The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.

13. The instructor provided feedback in a timely fashion.

Social Presence

Affective expression

14. Getting to know other course participants gave me a sense of belonging in the course.

15. I was able to form distinct impressions of some course participants.

16. Online or web-based communication is an excellent medium for social interaction.

Open communication

17. I felt comfortable conversing through the online medium.

18. I felt comfortable participating in the course discussions.

19. I felt comfortable interacting with other course participants.

Group cohesion

20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.

21. I felt that my point of view was acknowledged by other course participants.

22. Online discussions help me to develop a sense of collaboration.

Cognitive Presence

Triggering event

23. Problems posed increased my interest in course issues.

24. Course activities piqued my curiosity.

25. I felt motivated to explore content related questions.

Exploration

26. I utilized a variety of information sources to explore problems posed in this course.

27. Brainstorming and finding relevant information helped me resolve content related questions.

28. Online discussions were valuable in helping me appreciate different perspectives.

Integration

29. Combining new information helped me answer questions raised in course activities.

30. Learning activities helped me construct explanations/solutions.

31. Reflection on course content and discussions helped me understand fundamental concepts in this class.

Resolution

32. I can describe ways to test and apply the knowledge created in this course.

33. I have developed solutions to course problems that can be applied in practice.

34. I can apply the knowledge created in this course to my work or other non-class related activities.

<u>5 point Likert-type scale</u>
1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Appendix B: OSE Scale

Within that course, how well do the following behaviors, thoughts, and feelings describe you? Please answer using the following scale:

1. *not at all characteristic of me*
2. *not really characteristic of me*
3. *moderately characteristic of me*
4. *characteristic of me*
5. *very characteristic of me*

1. Making sure to study on a regular basis
2. Putting forth effort
3. Staying up on the readings
4. Looking over class notes between getting online to make sure I understand the material
5. Being organized
6. Taking good notes over readings, PowerPoints, or video lectures
7. Listening/reading carefully
8. Finding ways to make the course material relevant to my life
9. Applying course material to my life
10. Finding ways to make the course interesting to me
11. Really desiring to learn the material
12. Having fun in online chats, discussions or via email with the instructor or other students
13. Participating actively in small-group discussion forums
14. Helping fellow students
15. Getting a good grade
16. Doing well on the tests/quizzes
17. Engaging in conversations online (chat, discussions, email)
18. Posting in the discussion forum regularly
19. Getting to know other students in the class

Appendix C: Permission to Use CoI Model and Practical Inquiry Model

May 13, 2023 at 1:37 pm

Hello Dr. Garrison,

I am a PhD student enrolled in Walden University's Nursing Education program and I am currently working on my dissertation. My research topic is concerned with examining the relationship among social presence, cognitive presence, teaching presence, and online student engagement among nursing students.

I am writing to you asking for permission to please use your Community of Inquiry model depicting the elements of an educational experience, as shown below:
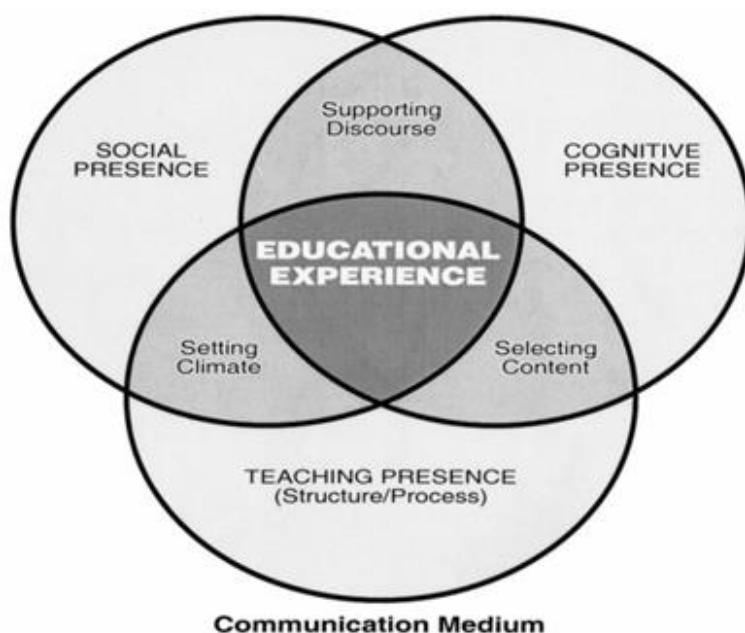
Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education model. *The Internet and Higher Education*, 2(2-3), 87-105.

Thank you for your time and consideration, and I would greatly appreciate it!

Regards,

PhD Student
Walden University

D. Randy Garrison ████████████
To: ████████

████████

You have my permission to use the CoI figure.
Best wishes,
DRG

Sent from my iPad

> On May 13, 2023, at 1:37 PM, ████████

Thank you so much! I appreciate the quick response.

And may I also refer to and use the Practical Inquiry model (Figure 2)? My apologies, as I should have asked to use both in the first place.

Thank you,

████████

D. Randy Garrison ████████████
To: ████████

You have my permission to use both.
DRG

Sent from my iPad

> On May 14, 2023, at 12:12 PM, ████████

Appendix D: Recruitment Invitation

Recruitment Invitation

Subject line:
Attention MSN Students! 15-Minute Anonymous Survey About Online Student Engagement

Email message:
Hello,

There is a new study about online student engagement that could help online instructors better understand and help their nursing students. For this study, you are invited to complete an anonymous online survey.

About the study:
- One 15-minute anonymous online survey
- To protect your privacy, the published study will not share any names or details that identify you

Volunteers must meet these requirements:

- 18 years old or older
- Completed at least one fully online Master of Science in Nursing (MSN) course within the last 6 months

This survey is part of the doctoral study for ▮▮▮▮▮▮▮ a Ph.D. student at Walden University.

Please feel free to contact the researcher if you have any questions:

▮▮▮▮▮

If you would like to participate in the study, please click on the following link:
https://www.surveymonkey.com▮▮▮▮▮▮

You are welcome to forward it to others who may qualify or might be interested.

Thank you! Your support and participation in this important research are greatly appreciated!

Appendix E: Demographic Questions

1. What is your age in years?
     a. 18 – 24
     b. 25 – 34
     c. 35 – 44
     d. 45 – 54
     e. 55 – 64
     f. 65 +

2. What is your race/ethnicity?
     a. American Indian or Alaska Native
     b. Asian
     c. Black or African American
     d. Hispanic or Latino
     e. Multiracial
     f. Native Hawaiian or Other Pacific Islander
     g. Some Other Race
     h. White
     i. Prefer not to answer

3. What is your gender?
     a. Female
     b. Male
     c. Non-binary
     d. Transgender
     e. Prefer not to answer

4. What is your student status?
     a. Full time
     b. Part time

5. What was your course outcome?
     a. Pass
     b. Fail
     c. Prefer not to answer

6. What was the course duration?
     a. 0 – 5 weeks
     b. 6 – 10 weeks

      c.   11 – 15 weeks
      d.   16 weeks or longer

7.   What is your program of study?
      a.   MSN: Care Coordination
      b.   Clinical Nurse Specialist
      c.   MSN: Nurse Practitioner
      d.   MSN: Nursing Education
      e.   MSN: Nursing Informatics
      f.   MSN: Nursing Leadership/Administration
      g.   MSN: Public Health Nursing
      h.   Other

Appendix F: Permission to use OSE Scale

You are welcome to use the OSE - good luck with your research!

Marcia D. Dixson, PhD
Associate Vice-Chancellor for Teaching and Learning
Professor of Communication
PFW

On Jun 27, 2022, at 7:21 PM,

To: Mon 6/27/2022 6:21 PM

Hello Dr. Dixson,

My name is ████████ and I am a nursing student in a PhD program at Walden University. My dissertation topic is about examining social, cognitive, and teaching presence and their relationship with online student engagement among nursing students. I am writing to you to ask for permission to use the Online Student Engagement (OSE) scale for my study. I would certainly appreciate it!

Thank you for your time and consideration,