

NURSING STUDENTS' PERCEPTIONS OF PRESENCE IN ONLINE COURSES

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Nursing Students' Perceptions of Presence in Online Courses

Lack of presence in online courses can result in perceived isolation leading to student dissatisfaction with the learning experience. The purpose of this study was to measure nursing students' perceived extent of teaching, social and cognitive presence and course satisfaction in an online undergraduate nursing course, and whether relationships and associations existed between the three presences, course satisfaction, student demographic, academic, and technology variables, and selected instructional strategies.

The Community of Inquiry theory was the framework used in this descriptive correlational study of RN-BSN students ($n=76$). Variables were measured using the *Community of Inquiry Survey* and the *Perceived Student Satisfaction Scale* instruments, and a researcher developed survey.

Findings indicated students' perceived teaching and cognitive presence were present to a greater extent than social presence. Significant positive correlations ($p < .01$) were found between teaching and cognitive presence ($r = .79$), cognitive and social presence ($r = .64$), teaching and social presence ($r = .52$), satisfaction and the teaching ($r = .77$), social ($r = .63$), and cognitive ($r = .52$) presences. There were no significant findings associated with age, ethnicity, race, number of online courses taken, expected course grade or GPA and perceptions of the three presences and course satisfaction. There was a significant difference ($p \leq .05$) with gender and perceived social presence with male students reporting stronger levels. Students experiencing course technology difficulties reported significantly ($p \leq .05$) lower perceptions of teaching presence than those experiencing no difficulty. Significant differences ($p \leq .05$) were found between specific course instructional strategies and each presence and course satisfaction. The findings

provide faculty with an understanding of online course management and teaching/learning strategies that may increase students' perceptions of presence in online courses and improve student satisfaction with online learning.

Judith A. Halstead, PhD, RN, Chair

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LIST OF ABBREVIATIONS

AACN American Association of Colleges of Nursing

CoI Community of Inquiry

RN-BSN..... RN to BSN

RN Registered Nurse

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CHAPTER ONE

Introduction

Institutions of higher education, in response to an increased demand for growth in online education, are offering more online programs of study and courses making up 32% of the total enrollment in degree-granting post secondary U.S. institutions (Allen & Seaman, 2013). At the same time, nursing programs are trying to meet the demand for more qualified nurses by adding online courses and degree programs (American Association of Colleges of Nursing, 2009; American Association of Colleges of Nursing, 2011; Mancuso, 2009). With changes in societal demographics, health care needs, and health care system changes, a more educated nursing workforce is needed to meet the increasing complex care needs.

Improved patient outcomes have been shown to improve with nurses who hold baccalaureate degrees (Aiken, Clarke, Cheung, Sloan, & Siber, 2003; Aiken, Clarke, Sloan, Lake & Cheung, 2008). The Institute of Medicine, in the *Future of Nursing Report*, recommended that there be an increase in nurses with baccalaureate degrees by 2020 (Institute of Medicine, 2010). One of the ways this has been accomplished is the RN-to-BSN program. Many of the RN to BSN programs have, through online education, made obtaining a baccalaureate degree a more flexible option for those with associate degrees and diplomas.

Many higher education and nursing education studies have compared student learning outcomes in online and traditional courses, finding positive learning outcomes for students enrolled in online courses. Other areas of online education research have focused on the best pedagogical online teaching practices, student characteristics that lead

to success, retention factors for online students, and student perception of the quality of online courses and programs. The Sloan Foundation, a non-profit organization dedicated to helping educators and institutions of higher education improve the quality of online education, has identified student satisfaction as one of its measures of online course quality (Moore, 2005; The Sloan Foundation, 2010). Identifying those factors that influence students' satisfaction with their online course is important for measuring program quality.

Important educational outcomes are student retention in and graduation from institutions of higher education by completion of online courses and online degree programs. Attrition rates across disciplines have been found to be higher in online classes than traditional face to face courses (Allen & Seaman, 2010; Bos & Shami, 2006; Boston & Ice, 2011; Diaz & Carnal, 2006; Frydenberg, 2007; Liu, Gomez, Khan, & Yen, 2007; Moody, 2004, Patterson & McFadden, 2009; Rovai, 2003; Willging & Johnson, 2004). For this reason, the development and use of models to explain factors influencing online course retention have been identified as being needed for online learning (Boston & Ice, 2011).

Multiple personal and academic factors can influence student retention in online courses. Factors important for retention in online education have been identified as increased communication with the instructor, satisfaction with quality interactions with faculty and peers, social relationships and connections, social presence, and a sense of belonging to a learning community (Ivankova & Stick, 2005; Levy, 2007; Liu, Gomez, & Yen, 2009; Muller, 2008; Park & Choi, 2009).

In looking at the differences between traditional and online classrooms several elements have been identified and include such things as physical distance separation, lack of real time, altered communication methods, and interactions with technology as a mediator. Separation of students in online courses from instructors, campus, and peers can lead to feelings of isolation and dissatisfaction due to a loss of contact and connection with others, and differences in interaction and communication (Heyman, 2010; Palloff & Pratt, 1999; Trenholm, 2007). Decreasing student perceptions of separation has been a focus of online education research with one area of study being that of online presence.

Presence is a complex phenomenon of human experiences rooted in one's perceptual process and is a key to decreasing the distance perceived in online courses and central to effective online learning (Lehman & Conceicao, 2010; Slater, Steed, 2000). Presence in an online course has been described objectively as "being there" in a mediated space in the educational environment. Presence also has been described subjectively as "being there psychologically" through ones' emotions, behaviors, and cognitive experiences with others. Perceptions of presence result from the interactions between an individual's world and the shared learning environment. Picciano (2002) noted that presence is a perception which can and does vary from individual to individual and can be situational across time and influenced by the type of media used and one's participation in online learning.

Numerous studies of online education have focused on individually identified online presences. One framework, the Community of Inquiry (CoI), was developed and has been tested as a useful model for describing, explaining, and predicting learning in the online environment. The framework identifies the learning experience as the

intersection of three unique but overlapping presences: social presence, cognitive presence, and teaching presence. These three presences result in meaningful learning in the online educational experience in which students, faculty, and content play a central role.

Research using the CoI framework has identified that while social presence is important, teaching and cognitive presence are the primary and complementary drivers of learning. Research has also found that teaching presence predicts social and cognitive presence, and teaching and social presence significantly contribute to cognitive presence. Social presence has been found to play a role in advancing students through the phases of cognitive presence and is a mediator between teaching and cognitive presence (Shea & Bidjerano, 2009b; Shea, Hayes, & Vickers, 2010). Social and teaching presence have also been found to be related to student satisfaction (Gunawardena & Zittle, 1997; Richardson & Swan, 2003; Shea, Pickett, & Pelz, 2003; Shih, 2004).

Statement of the Problem

At a time when more nurses are needed in practice as well as the increasing need for nurses with advanced degrees to meet current and future health care needs of society, the shift to online education in nursing creates new challenges for nurse educators. Although nursing students may be attracted to an online course because of accessibility, flexibility, and convenience for their work and personal lives, barriers may occur during the educational experience that causes them to become dissatisfied. Nursing students have been found to be less satisfied with online courses than traditional courses (Cooper, Taft, & Thelen, 2004; Jacobsen, 2006; Kearns, Shoaf, & Summey, 2004; Salyers, 2007). This dissatisfaction can impact retention in courses, graduation rates, and nursing

students' decisions to further pursue graduate degrees (Angelino, Williams, & Natvig, 2007; Frith & Kee, 2003; Hart, 2012; Holly, 2009; Perry, Boman, Care, Edwards, & Park, 2008).

There is a need to identify what factors improve satisfaction and retention of nursing students in online nursing courses and programs. Presence in an online course may decrease students' perception of the separation or distance. Yet, there is limited knowledge in this area about online nursing programs. Further research is needed as to what extent nursing students' in online courses perceive individually identified presences such as social presence, cognitive presence and teaching presence in the online environment, if there are relationships between these presences, as well as student satisfaction with their online course. Additionally, research is limited on instructional strategies used by nursing faculty in online nursing courses that might influence these students' perceptions of presence and satisfaction.

Though several theoretical frameworks and models have been developed and used to encompass and explain activities and outcomes in online education, the use of these with nursing students continues to be an area for further study. Having a theoretical framework such as the CoI as the foundation for guiding the development of online education in nursing is needed for understanding the multiple factors influencing nursing students in online courses, assisting nurse faculty with the knowledge and use of best online teaching practices, and for measuring the quality of online courses and educational programs in nursing.

Purpose of the Study

The purpose of this study was to identify the extent to which undergraduate RN-BSN nursing students perceived social presence, teaching presence, and cognitive presence with an online course, and if there were relationships between the three presences and the students' satisfaction. Additionally, the study explored whether the type of instructional strategies used in the online nursing course influenced students' perceptions of the three presences and their satisfaction. Lastly, the study looked at the influence of student demographics and technology, and academic factors, on the students' perceptions of social, cognitive, and teaching presence and their satisfaction with the online course. Knowledge from the study may assist nurse educators as they strive to maintain the quality and outcomes of online nursing courses and programs.

Theoretical Framework

With online courses being a unique method for teaching and learning, past and new educational theories have been used to explain what occurs in online classrooms. The Community of Inquiry (CoI) framework which was used as the theoretical foundation for this study has been "cited 518 times prior to February, 2009" in the online education literature (Arbaugh, Bangert & Cleveland-Innes, 2010, p. 37). Garrison, Anderson, & Archer (2000) developed the CoI framework to guide online education. Their "Practical Inquiry Model" focused initially on cognitive presence (Garrison, Anderson, & Archer, 1999; Garrison, Anderson, & Archer, 2001). Then later in their "Community of Inquiry" (CoI) model, social presence and teaching presence were added to cognitive presence in the model (Garrison et al., 2000; Garrison, Anderson, & Archer, 2003; Rourke et al., 2001b). A model of the framework is in Figure 1.

The framework is a process-oriented framework which attempts to give order and guidance to the social, pedagogic, and technical processes that lead to knowledge construction in the online classroom (Garrison et al., 2003; Rourke et al., 2001b). The CoI framework comes from a constructivist educational philosophical approach to teaching and learning, rather than outcomes-based measures within an objectivist orientation (Akyol, Garrison, & Ozden, 2009; Arbaugh 2008; Arbaugh et al., 2008; Garrison & Arbaugh, 2007). Of the many theoretical frameworks which explain the educational process of teaching and learning, constructivism holds the belief that learners build knowledge actively through interactions with environmental stimuli and that learning is a process of constructing meaning and people making sense of their experiences (Doolittle, 1999; Driscoll, 2005; Merriam & Caffarella, 1999, p. 260).

The CoI framework proposes that the quality and outcomes of online learning experiences are dependent on the independent functioning, as well as the interaction of three core concepts or elements, those being social, cognitive, and teaching presence. The model emphasizes behaviors of both students and faculty in online courses through the overlapping of and interactions between these three presences and the dialogue processes required to assist with learning and knowledge construction in a community of learners. It emphasizes social relationships and the process of learning that occurs in the online environment (Garrison et al., 1999).

Teaching presence as a construct delineates those tasks a teacher does such as organizing the course with design and facilitating discourse and direct instructions (Anderson, Rourke, Garrison & Archer, 2001). Social presence represents the online discourse that promotes interaction and cohesion; while cognitive presence in the

framework measures critical thinking (Rourke, Anderson, Garrison & Archer, 1999). The model in Figure 1 identifies the overlap of the three presences and assumes that meaningful inquiry supported by the three presences is necessary for learning in online educational environments (Rovai, 2002; Shea, Li, & Pickett, 2006).

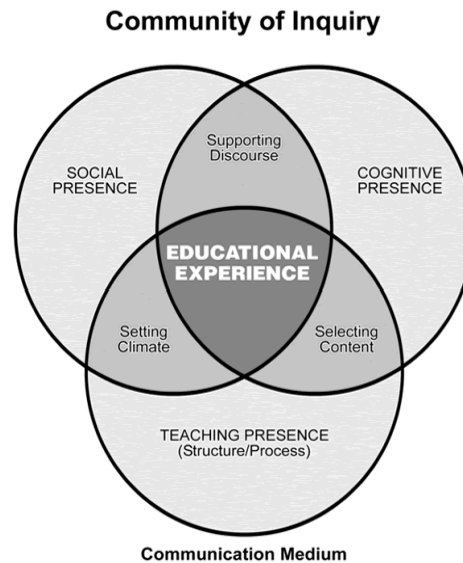


Figure 1. The Community of Inquiry Framework Model. (Garrison et al., 2000). All rights reserved. Reproduced with permission of R. Garrison.

Initial research focused on identifying each presence individually, while further use of the model has identified more specific indicators of categories of social presence, responsibilities of teaching presence, and phases of cognitive presence (Akyol & Garrison, 2008; Arbaugh, 2007; Garrison, Cleveland & Fung, 2004; Shea & Bidjerano, 2009b). Table 1 identifies these specific categories, responsibilities, and phases for each

of the three presences with the specific question numbers from Appendix A from the survey instrument measuring these.

Table 1

Community of Inquiry Framework Presences' Indicators

Teaching Presence #1-13(13 items)	Social Presence #14-22 (9 items)	Cognitive Presence #23-34 (12 items)
Responsibilities	Categories	Phases
1. Design & Organization	1. Affective Expression	1.Triggering event
2.Facilitating discourse	2. Open communication	2. Exploration
3. Direct Instruction	3. Group Cohesion	3.Integration
		4. Resolution/application

(Garrison & Arbaugh, 2007). All rights reserved. Reproduced with permission of R. Garrison.

Research continues using the framework with varied student populations, the influences the presences have on each another, teaching strategies that create and maintain the presences, and how each presence influences student satisfaction with their learning. Garrison and Arbaugh (2007) noted the need for further cross-disciplinary studies using the framework. More recent work on the model suggests that previous work may not have included instructors' efforts outside of a threaded discussion with teaching presence and may additionally include emails, private folders and assessment feedback (Shea et al., 2010). Other recent research has looked at another conceptual element of presence identified as learning presence occurring separate from cognitive presence that

may need to be added to further explain what occurs with collaborative learning in the online learning environment (Shea & Bidierano, 2010; Shea et al., 2010; Shea et al., 2012). Few studies have examined the perceptions of nursing students taking online courses of the three presences. This study, using the CoI framework with nursing students, explored eight research questions.

Research Questions

The study addressed the following research questions:

Research question # 1:

To what extent do RN to BSN nursing students perceive social presence, cognitive presence and teaching presence to be evident in an online nursing course?

Research question # 2:

What are the relationships among RN to BSN nursing students' perceptions of social presence, cognitive presence, and teaching presence in an online nursing course?

Research question # 3:

What are the relationships among social presence, teaching presence, and cognitive presence and student satisfaction with the educational experience as perceived by RN to BSN nursing students enrolled in online courses?

Research question # 4:

What are the relationships among age, gender, and race/ethnicity and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?

Research question #5:

What are the relationships among the number of prior online courses taken, difficulty with technology and RN to BSN nursing students' perception of social, cognitive, and teaching presence and their perceived satisfaction with their online course?

Research question #6:

What are the relationships among expected course grade, and cumulative GPA and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?

Research question # 7:

Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students' perception of social, cognitive and teaching presence?

Research question # 8:

Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students' perception of satisfaction with their course?

Significance of the Study

Student outcomes are often measured through successful student achievement, assignments and course grades, and student persistence and retention rates in courses and program completion. Retention, often a measure of program quality, is an area of concern for students, administrators, educators, and policy makers. With an increase in online courses and programs, retention of online students is an additional concern for higher education as well as nursing. It is important to understand those factors that influence online students. Several studies have indicated that attrition rates for online courses are

much higher than traditional on campus courses (Diaz & Cartnal, 2006; Patterson & McFadden, 2009; Rovai, 2003; Willging & Johnson, 2004).

Research of online student retention suggests there are several factors that influence students continuation in their course of study with many of the factors interrelated. Joo, Joung, & Sim (2011) noted that most studies of student retention look at a single or several factors independently and their impact on retention. Some of these are factors related to characteristics of the student themselves, their academic preparation and technology experiences, as well as the support they receive from faculty and educational institutions.

Studies looking at retention in online courses using the CoI framework have found retention to be less than in face-to face programs. When online courses have a strong community of inquiry and increased student participation, students' perceived they learned more, are more satisfied and have greater retention (Arbaugh, 2008; Boston et al., 2009; Boston, Ice & Burgess, 2012; Garrison & Arbaugh, 2007; Garrison & Cleveland-Innes, 2005; Richardson & Swan, 2003).

Further research using the CoI framework could add to nurse educators' knowledge of whether these presences are perceived by nursing students, if potential relationships exist between the presences, if the presences' influence student satisfaction in their online course, and if different online teaching strategies influence nursing students' perceptions. Knowledge and use of the CoI framework can be beneficial in guiding development and evaluation of online nursing education. Having greater satisfaction of nursing students in online nursing courses and programs can increase

retention and result in additional nursing graduates in the workforce, including those with advanced nursing degrees to meet the health care needs of society.

Study Assumptions

Assumptions of the study are that the Community of Inquiry framework provides a useful framework from which to analyze nursing students' perception of their online learning experience. Students' identification of the three presences by the extent indicated represent behaviors in their online courses associated with each of the three presences. These included the 34 items on the *Community of Inquiry Survey* instrument representing behaviors associated with the three presences (Arbaugh et al., 2008; Boston et al., 2009; Swan et al., 2008). According to the framework, it is expected that students in online courses have perceptions of three presences that influence the quality of their learning outcomes. The framework assumes the independent functioning as well as the interaction of social, cognitive and teaching presence in supporting meaningful inquiry needed for learning in the online environment. Also assumed is that the *Perceived Student Satisfaction Survey* instrument measures students' perceptions of their satisfaction with their online course (Arbaugh, 2000a). Lastly, assumptions include that the students' self-perceived ratings of the extent of teaching, social and cognitive presence, and satisfaction provide important information to nurse educators about their online course within a nursing curriculum.

Definition of Terms

The Community of Inquiry framework is a framework that identifies variables affecting the online learning process. It identifies social presence and teaching presence as the projection of instructors and learners who direct, facilitate, and participate in the

learning process that results in meaningful outcomes for learners. The outcome of cognitive presence has as the ultimate goal deep and meaningful learning (Garrison et al., 2003; Rourke et al., 2001b). The CoI survey instrument measures each of the three presence subscales using a total of 34 items (Appendix A).

Cognitive presence. Cognitive presence has been defined as “the extent to which the learner is able to construct and confirm meaning through sustained reflection & discourse. It is the exploration, construction, resolution, and confirmation of understanding through collaboration and reflection in a community of inquiry” (Garrison et al., 1999, p. 5). Phases of cognitive presence include the triggering event of questioning, exploration, integration and resolution/application of new information and ideas. For the purposes of this study, cognitive presence was operationalized using the CoI survey instrument with scores from items 23-34 found in Appendix A.

Online course. The Sloan Consortium defines online courses according to the proportion of instruction that occurs using web-based technology with an online course as one taught with at least 80% of the course delivered over the Internet (Allen & Seaman, 2013). In this study the sample was from a 100% online course.

Satisfaction. Satisfaction is an attitude resulting from the evaluation of a student’s educational experiences which results when the actual course performance meets or exceeds the student’s expectations (Elliot & Healy, 2001). For the purposes of this study, satisfaction was measured using the *Perceived Student Satisfaction Survey* with scores from 12 items adapted with permission from Arbaugh (2000a) (Appendix B).

Social presence. Social presence has been defined as “the degree to which a person is perceived as a real person in mediated communication” (Gunawardena & Zittle,

1997, p. 8). It includes being supportive and attending to students knowing and connecting with one another (Arbaugh, 2007; Diekleman & Mendias, 2005; Rourke, Anderson, Garrison, & Archer, 2001a). Students experience social presence to the extent that they participate in three categories: open communication, having a sense of group cohesion, and exhibiting affective expression (Garrison et al., 1999). The function of social presence is to support the cognitive and affective objectives of learning (Rourke et al., 2001a, p. 52). For the purposes of this study, social presence was measured using the CoI survey instrument with scores from items 14-22 (Appendix A).

Teaching presence. Teaching presence has been defined as “what instructors do in the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes” (Anderson et al., 2001, p. 5). Teaching presence is experienced from three responsibilities carried out by the teacher: instructional design and organization, direct instruction, and facilitating discourse. For the purposes of this study, teaching presence was measured using the *CoI* instrument with scores from items 1-13 (Appendix A).

RN to BSN nursing student. was defined as one who has not yet completed a bachelor’s degree in nursing but is licensed as a Registered Nurse.

Organization of the Study

The presentation of this study is organized into five chapters.

Chapter 1 includes an introduction and then presents a statement of the problem, purpose and significance of the study, theoretical framework, research questions, and study assumptions.

Chapter II contains a comprehensive literature review that begins with the concepts of each presence from the CoI framework and how overlapping of the presences

facilitate learning. In relationship to the three presences, the literature review also addresses the significance of satisfaction of students with their online course and teaching and learning strategies used in the online classroom.

Chapter III is a presentation of methodology including information on the study design, sample, study procedure, protection of human subjects, variables, and instrumentation, and analysis planned. Chapter III also presents the research questions, and associated data analysis.

Chapter IV includes a presentation of the descriptive statistics including the sample population and followed by the reporting of the data analysis and findings of the study.

Chapter V includes a summary overview of the problem and purpose of the study, research questions, literature review, methodology and findings of the study. Conclusions drawn from the findings and results of the data analysis are then presented. Finally limitations of the study, and recommendations for future studies, and use in online nursing education are given.

CHAPTER TWO

Review of the literature

The following is a review of the literature supporting the study. This review of literature is organized into four sections. Discussion begins with research findings related to retention and satisfaction of students taking online courses. It then addresses research specific to the Community of Inquiry (CoI) framework and the concepts of social presence, cognitive presence, and teaching presence, and includes significant research findings from the online educational learning environment and from online nursing education. The literature review ends with a summarization of findings related to online teaching strategies that influence student perceptions.

Retention of Students in Online Courses

Though difficult to study, attrition from online courses by non-nursing students has been found to have higher rates than students taking courses on campus (Bos & Shami, 2006; Boston et al., 2012; Diaz & Cartnal, 2006; Patterson & McFadden, 2009; Rovai, 2003; Willgin & Johnson, 2004). Patterson and McFadden (2009) found dropout rates to be six to seven times higher in online education programs. A survey of chief academic officers from universities found that 32% of academic officers from universities with experience delivering online education felt it was harder to retain students in online courses than traditional students (Allen & Seaman, 2010). Though students may be attracted to online courses because of their convenience related to work, family, time, and distance, other variables influencing retention include those related to student characteristics, technology, and academic factors, as well as course specific

variables. Non-nursing studies found students' perceptions of the learning experience in distance education to be highly correlated with attrition rates (Moody, 2004).

Studies using the CoI framework to look at retention of online students, their satisfaction with the course, and concepts in the framework have found the three presences influence whether students continue in their online courses. Boston et al. (2009) found while looking at student persistence using the CoI framework that social presence accounted for a significant amount of variance with re-enrollment in online courses. The teaching presence responsibility of course design and organization, and the cognitive presence's triggering of the learning phase were found to be significant predictors of student satisfaction. They also found with those students who did not continue in a course and were less satisfied, that the most influential factor in their satisfaction was the teaching presence responsibility of facilitation (Ice, Gibson, Boston, & Becher, 2011). Two studies of retention at a large online university found factors such as transfer credit and consistency of activity within an online course also influenced retention (Boston et al., 2012). Smith (2013) found that faculty caring behaviors correlated with students' persistence in the programs among RN-BSN and Masters students enrolled in online programs.

Studies regarding nursing student attrition found graduate nursing and health studies education students left online programs for personal reasons and program reasons such as lack of computer knowledge, level of support in how to learn in online classes, and learning style (Perry et al., 2008). Hart (2014) developed a persistence scale for online nursing education and found those students who persist enjoy discussion and feel confident in passing the course, whereas a non-persistent student did not enjoy discussion

and did not believe completing the course would help them achieve their goals. Social connectedness was one of the constructs of the persistence scale that was tested with RN-BSN and accelerated option BSN students. Patterson (2007) found graduate nursing students in online courses more likely to drop out than traditional students. Nursing student attrition in one study, found that higher numbers of more older graduate students dropped out. Reasons given for withdrawal were technical problems and inadequate time (Frith & Kee, 2003). Retention of students in online courses can assist with the preparation of more baccalaureate nurses to meet the demands of the health care system now and in the future. Thus, it is important to understand those factors that influence the retention of nursing student in online courses, one being course satisfaction.

Satisfaction

Students who report satisfaction with their educational experiences and who have positive perceptions of their learning in the online environment are more likely to continue enrolling in online courses and to complete their degree programs. The Sloan Consortium, created with funding from the Sloan Foundation, defines student satisfaction as “students are successful in learning online and are pleased with their experience” (Moore, 2005, p. 100). Bradford & Wyatt (2010) defined student satisfaction as students’ successful educational experience with regard to course experience, relationships with instructors, course design and delivery, and their perception of the learning experience. A meta-analysis of student satisfaction with their online learning from 2002-2012 found that students tended to be satisfied with their online learning, although satisfaction was multilayered with contributing factors being technology, engagement and interaction, course and program elements, demographics and support services (Tschetter, 2014). The

review found interaction essential to online student satisfaction whether through communication or interacting collaboratively. Studies have shown nursing students to be less satisfied with online courses than traditional courses (Cooper et al., 2004; Jacobsen, 2006; Kearns et al., 2004; Salyers, 2007). This dissatisfaction can impact retention in courses, graduation rates, and nursing students' decisions to further pursue graduate degrees (Angelino et al., 2007; Frith & Kee, 2003; Hart, 2012; Holly, 2009; Perry et al., 2008).

Areas of nursing students' dissatisfaction with their online courses were related to technology, communication, and social relationships. In their online courses, nursing students experienced loneliness, lack of human contact and connectedness, social isolation, and distance from the teacher. They also desired more face-to-face communication and hybrid coursework, immediacy, and feedback in their online courses (Abdulla, 2012; Ali, Hodson-Carlton, & Ryan, 2004; Andrusyszyn, Iwasiw, & Goldenberg, 1999; Atask & Rankin, 2002; Billings, Connors, & Skiba, 2001; Buckley, 2003; Choi, 2003; Diekelmann & Schulte, 2000; Reilly, Gallagher-Lepak, & Killion, 2012; Sit, Chung, Chow, & Wong, 2005; Wilkinson, Forbes, Bloomfield, & Fincham Gee, 2004). One study looked at strategies by which faculty and student relationships were developed and maintained in a new online Masters of Nursing program and found students felt that faculty were unavailable, while faculty felt disconnected from students in the online environment and felt challenged in how to "know" students (Lindsay, Jeffrey, & Singh, 2009, p. 183). Meyers (2010) found dissatisfaction of nursing students in online courses in the areas of communication and interaction.

Nursing education studies have found faculty interactions, communication, and caring interpersonal relationships in online courses important in fostering student learning. Gabbert & Sims (2007) found students aged 25 years or less perceived less caring and supportive behaviors by their online faculty than older students. Mancuso-Murphy (2007) found that nursing students enrolled in distance education courses may feel abandoned or lost without a feeling of connectedness with the instructor. Gaudine and Moralejo (2011) found nursing students valued frequent feedback and interaction with the instructor; organized, structured, and up to date content; and flexible deadlines and participation. In an integrative review of the perceptions of nursing faculty who taught in distance programs, Mancuso (2009) found multiple themes related to faculty and nursing students. The themes identified as a concern by nursing faculty for online courses were student barriers of motivation, less face to face interaction and personal contact, socialization not being as effective, and communication and relationship differences.

With an increase in online course offerings, nursing faculty have had to rethink their online instructional role and alter course design and instructional strategies. Mancusco (2009) found nursing faculty identified what was needed for them to teach online included education, skills, and support, with areas of change experienced by faculty being their roles, new pedagogies, and new instructional strategies. Using a rubric to identify best teaching strategies nursing faculty felt were needed for online learning, it was found that most needed were organization and design, course content, instruction, interaction, and evaluation and assessment (Blood-Siegfried et al., 2008).

The lack of physical presence was noted as one feature of online education that changes the traditional nursing student-teacher relationship (Diekelmann, Schuster, & Nosek, 1998). Because the instructor and students are not physically present in the online classroom, nursing faculty must adapt their instructional methods to create the most effective online learning environment. Sitzman (2010) found that one of the top ten caring behaviors perceived by nursing students in online courses was empathetic presence shown by offering support, compassion, and insight into the students' experience. Cobb (2011) found a strong relationship between student satisfaction, social presence and the perception of the instructor's performance. Further understanding of presence in the online classroom is discussed next from the perspective of the CoI framework.

The Community of Inquiry Framework

The CoI framework was developed for explaining the online teaching and learning process. To be able to understand the creation and realization of presence for educational purposes, Garrison et al. (2001) stated that “ it is crucial to recognize and understand the inner worlds of individuals and the ways in which these worlds interface and transition through perception, experience and conception to the shared physical world of discourse and action of others” (p. 9). Because students, teachers, and media vary in an online classroom, having an understanding of the types of presence and the factors which influence the perception of presence can help explain how learning occurs best in the online classroom. Presence, a complex concept, is a property of individuals, whose nature is to perceive the world around them physically, psychologically, and cognitively (Picciano, 2002). Presence can vary from individual to individual and be situational.

Three intersecting presences in the CoI framework are identified as being evident in an online course and assist with the learning process (Garrison et al., 1999; Garrison et al., 2001; Rourke et al., 1999). As seen in Figure 1 on page eight of this dissertation, the CoI framework model includes social presence, cognitive presence, and teaching presence. These three presences overlap during the educational experience and are supported by the communication medium of technology (Garrison et al., 2000). The three presences and interaction between them are considered crucial prerequisites for a successful higher education experience. Research on each individual presence in the framework as well as the overlapping of the three presences and their relationships to student satisfaction has been carried out.

When using the CoI framework to examine non-nursing students' perceptions of their online course, Ice et al. (2011) found that negative satisfaction with their course was related to the facilitation of discourse of teaching presence and cognitive integration in the model. Rubin, Fernandes & Avgerinou (2013) using the CoI framework identified that course satisfaction and perceptions of the three presences were influenced by distinct features of two different learning management systems (LMS) used. The most significant predictor of all three presences was the extent to which the LMS supported communication and the extent to which the LMS made necessary resources easy to find.

Though limited, some initial research using the CoI framework with studies of nursing students enrolled in online courses has been conducted. Most prior studies of nursing students explored individually one of the presence subscales (Alexander, Polyakova-Norwood, Johnston, Christensen & Loquist, 2003; Brownrigg, 2005; Cobb, 2008; Cobb, 2009; Mayne & Wu, 2011; Oldenburg, 2008; Oldenburg & Hung, 2010).

Carlson et al. (2012) used the *Community of Inquiry Survey* to examine students in online courses from three health care disciplines, including nursing, and found significant differences with higher nursing student perceptions of social and cognitive presence but not teaching presence. This may have been a result of the other discipline's courses being "hard science and math" which included anatomy and physiology and statistics (p. 219). They found no effect in any of the three disciplines by program level, age, or gender on students' perception of the three presences but did find "a significant difference in presence by the number of courses completed" (p. 219). They found with those taking the course as their second compared to their fifth online course taken there was higher social presence. Hollis (2014) used the CoI instrument to examine the use of social media (Facebook) for an undergraduate nursing course and found when comparing those students using Facebook to students who used the traditional learning management system, that those who used Facebook reported higher social presence but did not have higher grades or satisfaction. Lindley (2014) used the CoI framework with RN-BSN students to compare audio-video and text-based feedback by faculty. She found students who received audio-video feedback reported higher teaching, social and cognitive presence on post testing after the audio-video was given and noted that those with higher cognitive presence were more likely to re-enroll in further online nursing courses.

Four studies used the CoI framework for online nursing program development. Effken (2008) noted the CoI model was useful in development of a successful online doctoral nursing program. Hodges & McGuinness (2014) used the CoI teaching presence as a framework in improving communication in their online teaching strategies with advanced practice nursing students. Smith & Caplin (2012) noted the use of the CoI

framework for changing a face-to-face RN-BSN program to an online format. Pecka, Kotcherlakota, & Berger (2014) suggested Bloom's taxonomy to be a useful addition to the CoI model for measuring nurse anesthesia students' higher order thinking in distance education courses.

Three nursing studies used the CoI framework as the foundation for their study but did not use the *Community of Inquiry Survey* instrument. Mayne & Wu (2011) looked at social presence teaching strategies and found social presence a significant factor in building a sense of community. A second study identified the three presences as essential for successful learning experiences and identified four phases of cognitive presence through which students moved back and forth in their cognitive development (Oldenburg, 2008). Taft, Perkowski & Martin (2011) identified differences in determining optimal online nursing class size with three educational frameworks to guide decision making, one of which was the CoI model.

Further nursing studies are needed using the CoI framework as well as the survey instrument to examine nursing students' perception of social, cognitive and teaching presence simultaneously in online courses. Studies are also needed with nursing students in online courses as to whether the three presences are related to each other and to students' perceived satisfaction with their learning experiences. Next to be discussed is social presence from the CoI framework.

Social Presence

The following section describes the definitions, categories, and indicators of social presence. It will also address relevant research from online education and nursing literature related to social presence and student satisfaction as a measure of online education quality.

Of the three presence subscales, there have been more studies conducted on social presence in online education than with teaching and cognitive presence. (Arbaugh, 2007; Richardson & Swan, 2003; Rourke et al., 2001a). In a review of literature on the concepts of the CoI framework, ten studies were found on cognitive presence, 120 on social presence, and six on teaching presence (Wanstreet, 2007, p. 20). Findings from many of these studies on the three individual presences have led to their use in the initial development and further testing of the CoI framework and the identification of three categories of social presence in the framework.

Social presence in the 1970s was originally thought of as a psychological dimension of mediated communication and defined as “the degree of salience of the other person in the (mediated) interaction and the consequent salience of the interpersonal relationship” (Short, Williams, & Christie, 1976, p. 65). Later social presence as a concept was used in explaining features specific to the online classroom such as the communication channels mediated by technology and focused on individual’s perceptions. The concept of social presence has been further developed in the literature with the explanation that as students negotiate social relationships in the online classroom, they develop social perceptions of themselves and others (Gunawardena, 1995; Kreijns, Kirschner, Jochems, & van Buuren, 2004).

Building on the original more static definition of social presence by Short et al. (1976), other definitions in the context of the online learner have evolved. Gunawardena (1995) defined online social presence as “the degree to which a person is perceived as a real person in mediated communication” (p. 151). This definition has been thought to be one of the more useful definitions for online education and foundational for the CoI framework’s definition of social presence (K. Swan, personal communication, February, 11, 2009). Garrison et al. (1999) in their work leading to the CoI framework defined social presence as “the potential of participants to project themselves socially and emotionally within the online communication medium” (p. 94). Others then expanded the definition by defining social presence as the ability of learners to project themselves socially and emotionally as well as their ability to perceive other learners as “real people” (Akyol & Garrison, 2011; Arbaugh et al., 2008; Gunawardena & Zittle, 1997; Swan & Shih, 2005); and have included being supportive and attending to students’ knowing and connecting with one another (Arbaugh, 2007; Diekelmann & Mendias, 2005; Rourke et al., 2001a). Social presence thus results from both the medium used and student perception of social presence through course interactions.

More recent studies completed using the CoI framework have been to identify specific indicators of each of the presences. Social presence categories or dimensions have been identified as affective or emotional expression, open communication, and group cohesion (Garrison & Anderson, 2003; Garrison et al., 2000; Garrison & Arbaugh, 2007; Richardson & Swan, 2003; Rourke et al., 1999; Swan & Shih, 2005). These categories or dimensions of social presence have further been defined by Garrison & Anderson (2003) as:

1) Affective expression as the ability of online learners to project themselves through text-based verbal behaviors with the use of para-language such as tone or pitch, self-disclosure, humor, and other expressions of emotion and values; 2) Open communication as indicated by the provision of a risk-free learning climate in which participants trust one another enough to reveal themselves; 3) Group cohesion as indicated by the development of group identity and the ability of participants in the learning community to collaborate meaningfully (p. 52-53).

Swan (2002) found that perceptions of social presence dimensions changed over time over the length of the course. She found that open communication categories increased as the course progressed over time while cohesion indicators decreased over the length of the course.

The purpose of developing social presence in an online educational context is to create the conditions for inquiry and quality interactions in order to collaboratively achieve educational goals. Findings include that social presence facilitates achieving learning outcomes and has a direct and/or mediating effect on learning (Picciano, 2002, Shea & Bidjerano, 2009a). Akyol et al. (2009) identified social presence as the basis of collaborative learning and the foundation for meaningful, constructivist online learning.

Having social presence in the online classroom may also decrease the distance and isolation students perceive in the online learning environment and improve their satisfaction. Study findings have indicated social presence in online courses both with undergraduates and graduate students were strongly correlated with satisfaction with online distance learning (Richardson & Swan 2000; Shea & Bidjerano, 2009b; Swan & Shih, 2005).

Several authors suggest that social presence is required in course design and found perceived social presence predicted 60% of the variance in students' learning

satisfaction, affecting students' satisfaction with a course (Gunawardena, 1995, p. 151). In addition, it was noted that social presence is both a factor of the media itself and of the communicators and their "presence" in their interactions. Findings have demonstrated a link between perceived social presence, perceived learning, and satisfaction in online courses with the group cohesion category found to be significantly associated with social presence and perceived learning outcomes (Richardson & Swan, 2003; Shih, 2004; Swan & Shih, 2005). Richardson and Swan (2003) found that social presence, perceived learning, and satisfaction with course instructors were all highly correlated and that 42% of the variability in perceived learning was predicted by perceived social presence.

Satisfaction of students in online courses may also be influenced not only by their satisfaction with a course but more specifically by their satisfaction with their instructors. Studies of education and business majors found that social presence in online students was linked with online course satisfaction (Picciano, 2002; Richardson & Swan, 2003). Richardson & Swan (2003) found students with high overall social presence scores indicated they were highly satisfied with their instructor and perceived they learned more from the course than those with lower social presence scores.

As with other disciplines, nursing research on online education has been more focused on social presence than on teaching and cognitive presence. Skiba, Holloway & Springer (2000), found the lack of nursing student participation in their online courses to be the most frequent barrier to social presence. Alexander et al. (2003), in a qualitative case study of RN-BSN students from three campuses, found that while some students in a completely online course perceived less social presence or connectedness in a course, others felt there was social presence and they felt connected. Faculty felt this was due to

the students being new to online learning and that an initial on-campus meeting would have been helpful in establishing social presence. They identified five issues related to student and faculty adaptation to online education, three of which were: their interactions, course design, and the creation of social presence.

With RN-BSN students, it was found that with a higher degree of perceived social presence there was greater student satisfaction, and that social presence was highly correlated to perceived learning and instructor performance (Cobb, 2008; Cobb, 2011). Cobb (2008) also found higher correlations between comfort and community identified as part of social presence. Comfort within the online course was identified as a key element in the relationship between social presence and satisfaction.

Brownrigg (2005) compared social presence categories to Billings' (2000) framework for evaluating the use of technology in nursing education and found social presence was related to connectedness as an outcome. The study found that social presence significantly added to Billings' Framework in the prediction of student satisfaction. Recommendations were that social presence might be a construct missing in Billing's framework.

Burruss, Billings, Brownrigg, Skiba, & Connors (2009) looked at the variable of class size in fully online courses and the outcome of social presence. They found of the five class sizes ranging from very small to very large, there was no significant differences across class size and nursing students' perception of social presence. When analyzed for graduate and undergraduate students, they found differences for undergraduates who perceived greater social presence in medium-sized classes than in smaller classes; while

graduate students identified less social presence in medium and very large class size than in small class size (Burruss et al., 2009).

Hollis (2014) used the CoI instrument with undergraduate nursing students to look at the use of social media (Facebook) in a nursing course. She compared a group of students who used the traditional learning management system with those who used Facebook and found those using Facebook had higher social presence but did not have higher grades or satisfaction.

Mayne & Wu (2011) in a small pilot study of graduate nursing students, measured social presence and community. They found social presence a significant factor in building a sense of community in online classes when faculty used specific social presence teaching strategies as compared to a group with usual online strategies. Social presence teaching strategies included:

Early personal email to students, pictures and personal information about the instructor given, announcements and instructions on course flow, inclusive and complete syllabus with timelines, due dates, course expectations, roles of learners and instructor, library links, assignment rubrics, extensive resource section, small groups based on clinical interests and work experience, an instructor designed seating chart, use of an ungraded pre-lesson with feedback for group facilitation, and a coffee shop that was off limits to the instructor (p. 113).

They found that when using these specific social presence teaching strategies, students had more positive perceptions of social presence and group interaction as well as had improved satisfaction with their online learning expectations.

Another study found with the use of animated pedagogical agents (APA) that ask verbal questions about case studies, social presence with nursing students was provided and critical thinking was encouraged (Morey, 2012). Non-nursing studies focused on

specific teaching strategies influencing social presence found that collaborative learning activities increase social presence (Richardson & Swan, 2003; Rovai, 2002).

In summary, social presence has been found correlated with nursing student satisfaction and perceived learning in online courses. Initial studies have identified specific teaching strategies that increase nursing students' perception of social presence. Nurses work in practice settings where they interact and communicate with patients, families, peers and other professionals. Working in groups within the profession, as well as through interdisciplinary collaboration to solve clinical practice problems, requires interactions among individuals and groups. The social nature of these group situations often require the use of technology and increase the need for studies which use the CoI framework to examine social presence in online nursing courses and how it influences learning. While there are initial nursing studies of online social presence, further studies are needed to examine relationships between perceptions of social presence, cognitive and teaching presence, if specific teaching strategies create and maintain social presence, and whether an increase in social presence positively influences satisfaction of online nursing students.

Teaching Presence

The following section discusses the definition of teaching presence, its three responsibilities, and related research findings on teaching presence. Also included in the discussion are research findings regarding online teaching strategies that influence students' perception of teaching presence and the influence these have on student satisfaction.

Separate from the social aspects and elements of social presence in the educational experience is teaching presence. Teaching presence has been noted to have a regulatory and mediating role and brings together cognitive and social presence in the in the online educational experience (Anderson et al., 2001, p. 5; Garrison, 2011; Garrison & Anderson, 2003). There is more limited research on teaching presence than on cognitive and social presence (Arbaugh, 2007; Garrison, 2007; Whipp & Lorentz, 2009).

Teaching presence has been defined as “the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile outcomes” (Garrison et al., 1999, p. 90). The CoI framework is multi-dimensional, and teaching presence is thought to consist of three areas of responsibility. These include facilitation of productive discourse, instructional design and organization, and direct instruction (Anderson et al., 2001; Garrison et al., 2001). These occur prior to and continue during an online course primarily by the teacher. As identified by students, these responsibilities being carried out are a measure of whether the teacher is present in the online classroom.

Shea et al. (2003) began initial development of teaching presence scales and identified the three responsibilities through content validity and psychometric testing of an initial teaching presence instrument. Later, researchers established validity for the components of teaching presence from the *Community of Inquiry Survey* instrument (Arbaugh and Hwang, 2006; Shea, Fredericksen, Pickett, & Pelz, 2003; Shea et al., 2006).

The first responsibility, facilitating discourse, includes identifying areas of agreement and disagreement, helping students articulate consensus and shared understanding, and assessing the efficacy of the process (Anderson et al., 2001). The teacher supports and encourages participation by modeling appropriate behaviors and commenting on and encouraging student responses. This facilitation is “focused, sustained, deliberate, and critical to maintaining the interest, motivation, and engagement of students in active learning” (Anderson et al., 2001, p.7). Facilitation consists of those activities the instructor carries out to create interaction between students, faculty, and peers as they build on the course information. Balance is needed between individual and group course activities within a set time frame for optimal learning to occur. Facilitation of activities were noted to include questioning, giving responses, keeping the discussion moving efficiently, and noting important observations (Shea, Swan, Li, & Pickett, 2005). A teacher’s presence in focused discussion messages indicates the teacher is helping to create a positive learning environment and moves the discussion along with efficient content and within a set time frame. Students were found to engage primarily in "serial monologues" without instructors’ teaching presence (Pawan, Paulus, Yalcin, & Chang, 2003). Facilitating discourse is more than the facilitation of activities but is usually integrated with course design and organization, and direct instruction.

The second responsibility involves design and organization and an administrative characteristic of teaching presence that includes preparation and planning for the course structure design, course processes, and for course evaluation. Activities for this responsibility may include developing technology and curriculum guidelines, lecture

notes and videos, and setting and modeling norms for appropriate course behaviors and communication (Garrison et al., 2001; Garrison & Arbaugh, 2007; Shea et al., 2006).

The last responsibility of teaching presence, that of direct instruction, is carried out by experts who provide intellectual and scholarly leadership in the class using their knowledge, pedagogical expertise, subject matter and resources, all to clarify and bring understanding for high levels of knowledge creation (Anderson et al., 2001; Shea et al., 2006; Swan, et al., 2008). These experts also may give technical instruction, as well as model the qualities of a scholar. Quality of instruction has been found to significantly determine student satisfaction, perceived learning, and a sense of community (Bangert & Easterby, 2008; Garrison & Cleveland-Innes, 2005; Shea, Pickett, & Pelz, 2004; Shea, et al., 2006). Shea et al. (2005) found that instructor assistance with student discussion and quality design are important for developing teaching presence in the online environment.

Teaching presence can be an indicator of quality instruction as studies have found strong positive relationships between teaching presence measures, student satisfaction, and perceived learning in online courses (Bangert & Easterby, 2008; Garrison & Arbaugh, 2007; Jiang & Ting 2000; Picciano, 2002; Shea et al., 2003). Others have found that teaching presence plays a role in students' success (Bliss & Lawrence, 2009; Garrison & Cleveland-Innes, 2005; Garrison, Cleveland-Innes & Fung, 2010; Shea et al., 2003; Swan & Shih, 2005; Wu & Hiltz, 2004). Arbaugh (2008) found teaching presence and cognitive presence highly correlated with perceived learning, while social presence was a stronger predictor of satisfaction with the delivery medium. The stronger social presence was thought to be due to the transition from one learning management system

(LMS) to another during the study which might have increased group cohesiveness as they adapted to a new LMS.

Several studies of nursing students have focused on faculty and student perceptions of nurse faculty roles and responsibilities. These studies have not always identified teaching presence as a concept but have looked at similar responsibilities of the teacher in the online classroom. Reilly et al. (2012) noted the lack of instructional presence frustrates students. Another nursing study specifically mentioned teaching presence with recommendations that teaching presence include careful course design without instructor dominated discussion (Oldenburg & Hung, 2010). Though not specifically the concept of teaching presence, numerous studies of similar concepts were found identified by nurse faculty regarding changes needed in those faculty who teach online in their philosophy and roles, course development and workload issues (Ali, Bantz & Siktberg, 2005; Christianson, Tiene, & Luft, 2002; Debourgh, 2003; Diekelmann et al., 1998; Johnson, 2008; Johnson, Posey, & Simmens, 2005; Passmore, 2009; Ryan, Hodson-Carlton, & Ali, 2005). Several noted the challenges of online nursing faculty in the role of facilitator (Johnson, 2008; Johnson et al., 2005; Ryan, Carlton & Ali, 2004; Ryan et al., 2005).

While these findings are from the faculty perspective regarding their role in online teaching, no nursing studies from the student perspective of teaching presence were found. Nursing students have reported specific instructional strategies by nursing faculty that positively influence their satisfaction (Edwards, 2005; Fearing & Riley, 2005; Gormley, Colella, & Shell, 2012; Salyers, 2005). Specific online teaching strategies identified interaction between students and the teacher as the second highest factor

related to course satisfaction after convenience and flexibility (Seiler & Billings, 2004). When faculty used planned, mixed communication strategies by participating more in class interactions, discussions, and group work, online student satisfaction was more positive than for students who had primarily received didactic information (Frith & Kee, 2003, p. 352). Blood-Siegfried et al. (2008) developed a rubric for measuring quality in online graduate nursing courses and found five major categories: course organization and design; course content; instruction, interaction, and evaluation; and assessment.

A study by Rieck and Crouch (2007) found with the use of discussion forums that nursing students' perceptions of connectivity to other students was more positive and that satisfaction improved when combined with other activities such as face-to-face sessions, group work, introductions, and student chat rooms. Students' connectivity with faculty improved with the use of emails, timely feedback, phone calls, or meeting in person. Two studies combined online synchronous activities with asynchronous teaching strategies then compared those strategies with the traditional face-to-face nursing classroom environment (Jacobsen, 2006; Little, Passmore & Scullo, 2006). They found student satisfaction increased with more interactions but suggested nursing faculty who teach online should have structured lesson plans and include interactive activities such as polling, group activities, and case studies. Thurmond & Popkess-Vawter (2003) measured the outcome variable of satisfaction to identify if environmental variables predicted nursing students' satisfaction with online courses and found students who believed that they received timely feedback from their instructors reported higher levels of satisfaction. A meta-analysis of online nursing education from 1995-2007 on adult self-directed learning found that environmental characteristics which created an increase

in satisfaction were course-related factors of timely feedback, interactivity of course materials, and the use of technology in developing the learning package (Peterson, 2008). Though these nursing studies did not look specifically at teaching presence, some of these findings are closely related to the three CoI teaching presence responsibilities of course design and organization, direct instruction, and facilitation of the course.

In summary, in the CoI context, teaching presence is perceived by students in online courses to be an important measure of satisfaction with course activities. Online instructors demonstrate teaching presence through the three responsibilities. Future research on nursing students' perceptions of teaching presence may assist nurse educators in identification of these responsibilities as they plan, design, carry out, and evaluate learning activities to enhance communication and interaction.

Cognitive Presence

In this section, the third presence in the CoI framework, cognitive presence, is defined and the phases identified. Then research findings are presented related to student perception of cognitive presence, quality measures of satisfaction, and specific teaching strategies that influence students' perception of cognitive presence.

When social presence exists and teaching presence occurs in an online course, the resulting outcome is thought to be the facilitation of cognitive presence. Cognitive presence, grounded in the critical thinking literature, reflects the focus of the learning experience as it moves through stages. Cognitive presence in the CoI framework is defined as the "extent to that learners are able to construct and confirm meaning through reflection and discourse" for sharing meaning and confirming understanding during a four phase process of practical inquiry (Garrison et al., 2001, p. 11). This critical thinking

perspective in cognitive presence is comprehensive and includes creativity, problem solving, intuition, and insight (Anderson et al., 2001; Garrison & Archer, 2000).

Cognitive presence includes both the “process of attaining higher-order thinking as well as the outcomes or product” (Garrison & Arbaugh, 2007, p. 89).

In the CoI framework there are four levels or phases of cognitive presence that may overlap and progress systematically over time in the online learning environment. These phases are identified as the triggering event; exploration through reflection and discourse; integration; and ends in resolution, where learners apply new knowledge (Garrison et al., 2001; Garrison & Anderson, 2003; Garrison & Arbaugh, 2007; Vaughan & Garrison, 2005). Vaughan, as cited in Cleveland-Innes & Garrison (2010), outlines each phase and how faculty and students participate in them:

The initial phase of a triggering event is where the teacher begins inquiry by clarifying course expectations and assignments, assigning readings or viewing videos, and posing questions for discussion. In the next phase students move into exploration of the information and their own and others perspectives. Following this is the integration phase where students connect ideas through reflection. Then in the final phase of resolution or application students apply new ideas or solutions to their knowledge (pp. 181-182).

Arbaugh (2007) stated that cognitive presence is the most challenging of the three presences as students attempt to move through each phase and reach the higher level phases. It is thought that the faculty role may influence student progression through each of the phases of cognitive presence.

Few studies specific to cognitive presence were found in non-nursing literature; none were found related to nursing. Vaughan and Garrison (2005) found that in comparing traditional and online students, a slightly higher percentage of initial

triggering events occurred in the face-to-face classroom as compared to an online course. Exploration was the dominant phase in both learning environments with online discussions having a greater percentage of the integration phase. Neither traditional face-to-face nor online learning environments were found to have resolution/application discussions. Others found a more focused sense of exploration within online discussions of undergraduates (Garrison & Anderson, 2003; Vaughan & Garrison, 2005). Akyol and Garrison (2011) found with graduate students cognitive presence to be associated with perceived learning. Bangert (2008) found with graduate student education majors, the use of reflective questioning by the instructor was effective for moving discourse to the highest level, the resolution phase of inquiry.

Yet other findings suggest that students in online discussions tend not to reach higher stages of cognitive presence and that most of the time inquiry does not move beyond information exchange and the exploration phase (Garrison, 2007; Garrison et al., 2000; Garrison et al., 2001; Rourke & Kanuka, 2009; Swan, Garrison & Richardson, 2009; Vaughan & Garrison, 2005). Reasons identified for not moving to the higher phases may be related to teaching presence factors and social presence's group cohesion (Garrison & Arbaugh, 2007; Shea & Bidjerano, 2009a).

Online instructional strategies that influence students' perception of cognitive presence have been identified. Garrison and Cleveland-Innes (2005) found that carrying out the responsibilities of teaching presence significantly impacted learners' engagement in course content. Well-structured webquest and debate activities were found to lead to higher phases of perceived cognitive presence (Kanuka, Liam, & Laflamme, 2007). Student-led online discussions have been highly suggested as a learning strategy for

regulation of higher level cognition. Richardson and Ice (2010) used three instructional strategies with discussion boards and measured the four phases of cognitive presence finding no differences with the overall critical thinking with each strategy used. On the other hand, they found overall higher critical thinking with the case-based instructional strategy having the highest level (resolution) and open-ended discussion forum questions strategy having the lowest level.

Though no nursing studies were found specific to student perceived cognitive presence with online courses as a variable of study, several nursing studies examined measures by faculty of student learning which is closely related to cognitive presence. The most measured learning outcome variables with online nursing studies have been test(s) scores, final course grades, and critical thinking when comparing nursing students in face-to-face classroom with students in online courses. Online journaling in a discussion forum was found to increase critical thinking in both undergraduate and graduate nursing students (Daroszewski, Kinser, & Lloyd, 2004; Moran, 2005). Gagnon, Gagnon, Desmartis & Njoya (2013) found in a blended learning nursing research course that student motivation and teaching method had an interactive effect on knowledge acquisition. Though important as outcome measures, these variables do not measure students' perception of the phases of learning occurring during their online experience. Future studies are needed to examine if nursing students perceive the four phases of cognitive presence occurring during the process of learning in their online course experience such as those identified in the CoI framework. It is important to know if nursing students move to the higher level phase during their learning and are able to apply their knowledge to their nursing practice. Studies are also needed on whether

students' perception of teaching presence influences their satisfaction with their online course and whether specific teaching strategies by nurse educators change students' perception of teaching presence.

Overlap of Presences

The three presence subscales of the CoI framework are distinct yet related concepts. Emerging research suggests that complementary and overlapping relationships exist between cognitive presence, teaching presence, and social presence.

Garrison et al. (1999) were the first to differentiate social presence from teaching presence as part of the CoI framework. Rourke et al (1999) found that many of the behaviors identified in social presence overlap with those of teaching presence responsibilities in designing, carrying out instructional activities, and facilitating learning as the teacher is an active member of the community of inquiry. However, the teacher's role is more demanding than other participants with teachers having greater responsibility for establishing and maintaining the discourse that creates and sustains social presence.

Differences were found in the effects of the social presence of instructors and peers on learning and interactions online. It was found that graduate students reported they had difficulty in distinguishing social presence of instructors and their peers and suggested that instructor presence may be more significant than peers' presence (Swan & Shih, 2005). They also found that instructor presence was the sole predictor of satisfaction with their instructor.

Shea et al. (2010) found a significantly positive relationship between teaching presence and social presence. It has been suggested that social presence is foundational

for higher level discourse while teaching presence is necessary for creating learning environments so that cognitive presence can develop and thrive (Arbaugh, 2007; Shea & Bidjerano, 2009b).

Initial research on the role of social presence in cognitive development suggests that there are relationships between social presence and the other two presences. Using the four stages of cognitive presence, it was found that cognitive presence can be created and supported with teaching and social presence (Garrison & Archer, 2000). Social presence has been noted to be the foundation of and the facilitator of cognitive presence, and plays an important role in the advancement of cognitive presence and achieving learning outcomes (Akyol & Garrison, 2011; Arbaugh 2005a; Arbaugh & Benbunan-Fich, 2006; Garrison & Anderson 2003; Garrison & Arbaugh 2007; Garrison and Cleveland-Innes, 2005; Garrison & Vaughan, 2008; Rovai, 2002; Shea & Bidjerano, 2009b, Shea et al., 2006).

Findings have shown that social presence plays an important role in increasing cognitive presence. Garrison and Cleveland-Innes (2005) with a mix of undergraduates and graduate students, found those who reported higher on the social presence indicator “getting to know other course participants gave me a sense of belonging in the course” were also significantly more likely to report higher cognitive presence scores. Those reporting lower cognitive presence were also responded lower in the social presence category of comfort with communication and weak instructor skills ratings. Akyol and Garrison (2008) found social presence facilitated cognitive presence and that social presence is a pre-requisite to collaborative and critical discourse. Aragon (2003) found social presence to be one of the most significant factors in improving instructional

effectiveness and building a sense of community. Others have demonstrated the importance of the teaching presence construct on student success, through the establishment of both social and cognitive presence (Akyol & Garrison, 2008; Shea & Bidjerano, 2009a).

The effect of teaching presence on social and cognitive presence has also been studied. Research using the *Community of Inquiry Survey* (Arbaugh et al., 2008; Boston et al., 2009; Swan et al., 2008), found that teaching presence is a predictor of learners' ratings of social and cognitive presence, and that social presence may be a mediator in cognitive presence perceptions (Garrison, Anderson & Archer, 2010; Shea & Bidjerano, 2009a). Garrison et al. (2010) proposed that teaching presence mediates between social and cognitive presence. Other studies found that 70% of the variance in online students' levels of cognitive presence could be predicted by teaching presence of the instructor and students establishing a sense of social presence (Shea & Bidjerano, 2009b, p. 548).

Within a multi-discipline sample of students, including undergraduate nursing students, who used online learning resources and discussion forums, teaching and social presence were found to explain 69% of the variance in cognitive presence (Archibald, 2010). Both teaching and social presence made significant contributions to cognitive presence.

In summary, while there are initial studies of nursing students' perceptions of social presence in online education, further study is needed on nursing students' perceptions of social, cognitive, and teaching presence in their online courses, and whether there are overlapping relationships between the three presence subscale perceptions by nursing students. Future studies on whether increases in students'

perception of any of the individual presences influence nursing students' satisfaction with their online learning experiences are needed to retain nursing students in their online courses and programs. Lastly, further research as to the type of online teaching strategies that increase students' perception of the three presence subscales would be useful in assisting nurse educators in designing, organizing, implementing and evaluating their online courses.

Student Characteristics, Technology and Academic Factors Influencing Presence

Sample populations of students from online education research include those from multiple disciplines and program levels; those enrolled in online courses with different class size and length; and differ by age, gender, language, and number of online courses taken. All of these variables can influence students' perceptions of online education.

In looking at age, the term multigenerational is often used to describe the nursing workforce and the makeup of those in the online classroom (Walker, 2007; Widger, Pye, Cranley, Wilson-Keates, Squires, & Tourangeau, 2007). Recent research on generational cohorts of nurses describe varying ages of nursing students using generational cohorts (Walker, 2007; Walker, Martin, White, Elliott, Norwood, Magum et al. 2006).

Researchers have identified primarily four generations in the nursing workforce which include Veterans, Baby Boomers, Generation X and Millennials or the Y Generation (Coates, 2007; Duschcher & Cowin, 2004; Keepnews, Brewer, Kovner, & Shin, 2010; Sherman, 2006). These cohorts have commonalities including birth years, history, life and cultural influences and collective personality based on significant shared experiences (Bednarz, Schim, & Doorenbos, 2010; Lipscomb, 2010; Zemke, Raines, & Filipczak, 2000; Duschner & Cowin, 2004).

Registered nurses who return to complete their baccalaureate degrees through online courses are often from differing generational cohorts. In a qualitative study of RN-BSN students' perceptions of how generational differences influenced their learning in the online classroom, Jones (2014) found that the participants' generational differences contributed to increased knowledge of nursing, enhanced communication skills, and improved technology skills. They also expanded their perspectives of nurses from other generational backgrounds, cultures, views and nursing practice with more tolerance developed of other nurses individual practice. Johnson and Romanello (2005) noted that generational diversity "presents important teaching and learning considerations" (p. 212) and faculty must look at their own generational learning styles and use multiple teaching and learning strategies.

Though studies examining the CoI framework and age were found, none were found examining generational differences. Nursing studies have examined the use of technology and generational differences. The Veteran Generation, often referred to as Matures or Traditionalists, and born between 1925 and 1945 (ages 69-89), have entered retirement though some may still serve on advisory groups or in leadership roles (Coates, 2007; Stanley, 2010; Sherman, 2006). They are not as comfortable with using technology as other generations (Coates, 2007).

Those nurses born between 1946 and 1964 (ages 50-68), are identified as the Baby Boomers and make up the largest generational group in nursing (Buerhaus, Staiger, & Auerback, 2000; Coates, 2007). Baby Boomers are characterized by valuing lifelong learning and the willingness to learn, preferring a caring learning environment, and face to face communication (Billings & Kowalski, 2004; Coates, 2007; Gibson, 2009; Johnson

& Romanello, 2005). Weston (2001) found Baby Boomers adaptations to technology largely due to their motivation to be more productive but Hu , Herrick & Hodgins (2004) found that Baby Boomers expressed significantly more difficulties using computers. Though many in this cohort are preparing for retirement some may still return to complete a higher degree for personal growth and from their value of education (Gibson, 2009; Stanley, 2010).

Generation X nurses, born between 1965 and 1980 (ages 34 to 49) often have pursued a career in nursing as a second choice (Sherman, 2006). Some Gen X nurses have reported a strong interest in financial security and job satisfaction and assume responsibility for constantly updating their skills and employability (Weston, 2006). They are career-oriented, value technology, self-directed activities, online courses and seek flexibility in educational opportunities (Collins & Tilson, 2006; Irvine, 2010; Weingarten, 2009). Generation X students like distance learning, are technologically literate, and expect to use technology in the college classrooms with more instant response and satisfaction (Johnson & Romanello, 2005; Weston, 2001).

Those individuals born since 1980 have been referred to as both the Y, the Internet, and the Millennial Generation (McCurry & Martins, 2010; Raines, 2002). Many undergraduate baccalaureate nursing students are considered part of this generation (McCurry & Martins, 2010). They are three times larger than the Baby Boomers and have been influenced by the explosion of technology and devices and are more accepting of technology and instant communication as a way of life. (Coates, 2007; Manion, 2009; Pardue & Morgan, 2008; Sherman, 2006; Skiba, 2005). They are typically skilled at multitasking and enjoy group activities that involve technology (Johnson & Romanella,

2005; Pardue & Morgan, 2008). They are very comfortable with online learning, expect to learn using technology and innovative learning strategies and prefer finding information and knowledge from the Internet instead of using a textbook (Billings & Kowalski, 2004; Johnson & Romanello, 2005; Skiba & Barton, 2006). The integration of technology in the classroom is an expectation for Generation Y. Clausing, Kurtz, Prendeville, and Walt (2003) urged nurse educators to consider how computers have influenced Generation Y's way of thinking and consider altering their traditional teaching methods based on this. According to Arhin and Johnson-Mallard (2003), to meet the needs of Generation Y's learning style, educators need to "explore different and innovative teaching strategies" (p. 121).

When comparing Generation X and Y nursing students, Walker et al. (2006), found no difference in them while Delahoyde (2009) found they had a low preference for totally web-based courses. Johnson & Romanello (2005), found Generation X had a higher preference than Generation Y nursing students for distance learning. These inconsistencies from the literature regarding combination web-based and classroom teaching methods indicate a need for future studies. Though the variable of age has been examined in association with online education, no studies of different generational cohorts were found with non-nursing or nursing majors.

Studies have looked at student characteristics of age, academic level, and gender and their influence on students' perception of the three presences and satisfaction. Richardson and Swan (2003) found neither age nor number of college credits accounted for variability in students' overall perception of social presence. No significant effects were found related to demographic differences, and teaching presence and learning

community (Shea et al., 2006). Akyol, Vaughan, and Garrison (2011) found differences in the length of time a course was taught and the development of each of the three presences and students' perceptions. Many studies have used discipline specific samples and assume homogeneity between disciplines of student perceptions (Smith, Passmore, & Faught, 2009). Use of the CoI framework has primarily been with education and business majors, though one study used a multidisciplinary sample including undergraduate nursing students (Archibald, 2010). A more recent study of online students from three health care disciplines including nursing students found validity of the *Community of Inquiry Survey* instrument (Carlson et al., 2012)

A study comparing online to face-to-face classroom nursing students found no relationship between age, hours worked, and grades, and student satisfaction (Salamonson & Lantz, 2005). In examining nurse practitioner and physician assistant students taking an online science course, no differences were found in learning outcomes and satisfaction when comparing gender, English as a second language, and prior computer ability of both groups of students (Barakai & Fraser, 2005). Gabbert and Sims (2007) compared the relationship between age, professionalism, and faculty and student online course interactions, and found significant differences in four age categories perceptions. Those 46-60 years of age had the highest perceptions of supportive, caring online faculty-to-student interaction in their online nursing courses while the youngest group, ages 18 to 25, had the lowest ratings.

Nursing studies, which have looked at social presence and demographic factors, include Cobb (2008) who found that the communication factor in online nursing courses were more important to female students. Burruss et al. (2009) found significant

differences in class size in a students' perception of connectedness when looking at social presence in online nursing classes.

Further research is needed as to whether student demographic characteristics, technology, and academic factors influence nursing students' perception of the three presence subscales. Multiple factors can influence perceptions of online teaching and perceived learning. Further study examining these variables and their influence on nursing students' perceptions of the presence subscales and their satisfaction would be useful in the design and implementation of nursing courses offered online.

Online Teaching and Learning Strategies

The type of teaching and learning strategies used in an online course vary with the instructor, program, educational institution, technical resources available, and new technologies used in the online educational setting. These may influence students' perception of their satisfaction with the course as well as their perceptions as to what extent social, cognitive and teaching presence exist in the course. With increasing numbers of online courses and programs, there is the need for quality measures such as best practices, benchmarks and standards for online course development. Many general guidelines, principles and frameworks for creating high quality online courses and programs have been created. Early online education research has resulted in several national education organizations and associations identification of broad, general guidelines, benchmarks, standards, and best practices for online education.

Hong (2008) compared national online course benchmarks by educational organizations and associations. These included the American Distance Education Consortium, the Quality Matters project, the American Federation of Teachers, and the

National Education Association. The Quality Matters initiative identified 24 benchmarks composing seven categories, with three of these categories being course development benchmarks, teaching and learning process benchmarks, and course structure benchmarks. The National Education Association identified seven categories for quality with 24 benchmarks for quality Internet based distance education (Hong, 2008). Those that are related to course instruction include the following benchmarks: “course development, interaction and feedback in teaching and learning, course structure, student support, and evaluation and assessment” (p. 3).

Mariasingam and Hanna (2006) reviewed benchmark criteria from the online learning literature on quality. Reviewed were the guidelines for distance education from the Higher Learning Commission of the North Central Association Commission on Institutions of Higher Education (2000); the American Distance Education Consortium’s guiding principles for distance learning (2002); the American Council on Education guidelines (1996); and the guidelines for distance education from the Sloan-Consortium Framework (Moore, 2002). They found these varied in their focus and emphasis, and stated there was a need for developing more comprehensive quality assurance benchmarks.

Chickering and Gamson (1987) identified seven principles of good practice in undergraduate education based on research findings. These principles have been applied to the use of technology in online educational research. The Teaching, Learning and Technology Group have used these seven principles in identifying specific teaching strategies using technology for online education and give examples under each of the seven principles on their website (The Teaching, Learning and Technology Group, n.d.).

More specific measures of online program evaluation have been identified as needed. As nursing courses taught online increase, it is important that a systematic method be used in evaluating online instructional strategies used in course delivery. Several nursing authors have identified benchmarks for measuring quality of online courses (Billings, 2000; Jairath & Stair, 2004, Ternus, Palmer, & Faulk, 2007). Ternus et al. (2007) created an evaluation instrument to determine if an online course “maximizes technology in course construction to enhance quality pedagogy” (p. 52). The rubric measures both course construction and learning outcomes. Identified in the various parts of an online course, the four part rubric assists with online course construction and evaluation of quality. The four areas of the rubric include “structure, content, processes and outcomes” (Ternus, et al., 2007, p. 51). Within the rubric there are more specific teaching and learning activities under each of the four areas that are evaluated as being included in an online course. This rubric could be useful in measuring the quality of online nursing courses.

Summary

With increasing use of online education in nursing programs as an alternate method of course delivery, knowledge of unique factors that influence student learning and satisfaction are needed. Having an understanding of the extent of the three presences as perceived by nursing students in online courses and how they are related to each other as well as to student satisfaction can assist nurse faculty with online course planning, delivery, and evaluation. Student differences between disciplines may influence perceptions of presence. Although the three presence subscales have been measured as perceived by non-nursing students taking online classes, it is unclear as to whether

perceptions of each presence exist with undergraduate nursing students and how such perceptions influence their learning. More studies have examined social presence with only a few which have looked at all three presence subscales. How these perceptions of nursing students might influence their satisfaction and retention in their coursework is an important area for further study.

Satisfied students continue their program of study and ultimately graduate and thus can fulfill the current and future shortage of nursing needs in our health care system. As presented in the literature review of nursing education of online courses, there is limited knowledge of the three presences with social presence being the most studied. The CoI framework, developed specifically for online learning, provides structure for this study in identifying the extent to which nursing students perceived each of the three presences in their online nursing courses and if there were relationships between the three presences.

Also of interest for this study was measuring online quality through student satisfaction with their learning experience. How a nurse faculty designs and implements a course can influence both the perceptions of presence and satisfaction of nursing students in their online course. Satisfaction of nursing students with their online courses may influence their remaining in and completing their online courses and programs. This retention and completion of nursing degree programs can lead to positive outcomes for our health care system by supplying enough graduate nurses, and those with advanced degrees for the practice setting demands. In the next chapter (Chapter III) the methodology is presented including information on the study design, sampling, and the study procedure, protection of human subjects, variables, and instrumentation used.

Chapter III also presents the research questions and data analysis methods. The CoI framework developed specifically for online learning provides structure for this study in identifying if nursing students perceived each of the three presences in their online nursing courses and if there were relationships between the three presences.

CHAPTER THREE

Methodology

This chapter summarizes the methodology that was used in this research. It includes the study design, sampling demographics, and study procedure, protection of human subjects, variables and instrumentation used.

Study Design

This study used a descriptive, correlational design to analyze and evaluate the research questions. The study measured nursing students' perception of social, cognitive, and teaching presence in a sample of RN-BSN nursing students taking one specific online course. The study used an online survey to explore the dimensions of and relationships between teaching, social, and cognitive presence and student satisfaction with their online course. Additionally, the study assessed if there were associations between students' perception of the three presences' subscales, their online course satisfaction, and whether factors related to student characteristics, academic and technology, and the learning strategies used in teaching the online course influenced students' perceptions.

Sample

The convenience sample consisted of RN-BSN nursing students admitted to a nursing degree program and enrolled in a fully online nursing course. Inclusion criteria were RN-BSN nursing students taking a required nursing course and who were a licensed registered nurse. Exclusion criteria included undergraduate nursing students who did not hold a professional nursing license, graduate nursing students, students auditing the course, non-nursing students, students under 18 years of age, and those who chose to exclude themselves by not completing the survey.

The institutional setting from which the sample was obtained was from an accredited nursing program in a Midwest university. The RN-BSN degree from this nursing program offers online nursing courses delivered in eight-week sessions, designed to allow students to continue working while taking classes. Students can be taking the RN-BSN online courses from any of the university's seven campuses and one campus center that offers the RN-BSN program. Students from all of the sites enrolled in the required nursing course titled *H355: Data Analysis in Clinical Practice and Health Care Research* were invited to participate in the study. This course was an undergraduate three credit required nursing course offered online in multiple sections during the spring, summer, and fall of 2014. The course introduced students to basic concepts and techniques of data analysis used in professional healthcare practice. Each module gave an introduction, had required readings, and required the completion of four quizzes and four worksheets with mathematical problems using univariate and bivariate statistics. These activities required students to use excel spreadsheets to make graphs, complete hypothesis testing, and complete descriptive and inferential statistical tests. Students also were required to complete a data analysis project. The project requirements included identifying a clinical question, describing the significance of the problem, collecting data from a sample population, analyzing the data, and discussing the results and their impact on the problem or question.

The desired sample size was calculated a priori, utilizing Lipsey (1990) with alpha set at $p = .05$, beta at $.20$ and desired power at 80% to yield a medium effect and was found to be 100. Actual recruitment resulted in 76 participants that lowered the overall effect size, but can still be considered within the medium effect size category

(Lipsey, 1990). For this sample size, when running multiple regression tests, the recommended sample size was consistent with the general rule of $N > 50 + 8$ (IV) suggested by Tabachnick and Fidell (2012).

For this study the response rate was calculated at 29.2%. On average, educational online survey response rates have been found to be 33% less than when administered face to face on paper (Nulty, 2008). The most prevalent methods for boosting online survey response rates include repeated reminders to non-respondent students and incentives to students, extending the duration of availability of the survey, assuring students of the anonymity of their responses and keeping the questionnaires brief so as to take less time to complete (Berk, 2012; Nulty, 2008). Adding incentives can boost response rate, dependent upon which incentives or interventions are used, from 7-25% (Johnson, 2002; Norris & Conn, 2005; Ravenscroft & Enyeart, 2009).

Protection of Human Subjects

Approval for the study was requested and received from Indiana University Purdue University Institutional Review Board (IRB) (Appendix I). An exempt process was requested and obtained as there was little anticipated risk of harm to a student who voluntarily completed the online survey. Confidentiality was maintained for all study participants. No names were utilized on the survey data collection materials. Participation in completing the survey implied consent. Neither the primary investigator nor co-investigator had ties to the course or to the students enrolled in any section of the course any of the three semesters.

Recruitment Method

Permission was obtained from the director of the RN-BSN degree completion program to recruit enrolled students each of the three semesters to complete the survey. Faculty teaching any of the course sections of *H355: Data Analysis in Clinical Practice and Health Care Research* were asked permission to access students from their course section to request their students' participation in the study. In each of the three semesters students were surveyed, there were two to three faculty members teaching different sections of the course. Both the program director and all faculty were provided information regarding the study purposes, data collection methods, sample eligibility guidelines and timeline as well as how ethical considerations and confidentiality were to be maintained.

Once permission was obtained from the director and course faculty, the administrative secretary for the RN-BSN program then added the researcher as a "guest" to each section of the course for the last three weeks of the eight week course. The researcher was then able to directly send three emails to the students in the course.

As a guest in the course, the researcher sent an introductory email to all students three weeks before the end of the course and one week prior to the survey link being sent. The introductory email explained that the 58-item survey was voluntary, would have no influence on their course grade, would be expected to take 15 minutes to complete, responses would be kept confidential, and responses would not be shared with their course faculty. Students were informed that their completion of the survey indicated informed consent was given for participation in the study. Subjects were provided with a

contact phone number and email address of the researcher for further questions or concerns. The introductory email request for student participation is in Appendix D.

A second email was sent one week after the introductory email and included the link to Survey Monkey with the survey questions (Appendix E). The final email sent by the researcher to students was an additional reminder one week before the end of the course and again included the survey link (Appendix F).

Following completion of the survey, each student who participated in the research study had the opportunity to receive a \$10.00 Walmart gift card sent to them. Upon completion of the survey, the last page of the survey directed them to a separate Survey Monkey link where there were instructions on how to receive the gift card. This link asked them for a name and mailing address as to where to send the gift card. Students' request of the gift card was optional. No data from the instrument items completed by the students was connected to the students who requested the gift card. These instructions are in Appendix G.

The researcher sent ten dollar gift cards to a total of 36 students who completed the request one week after the end of the course. Identifying information for the incentive gift card was kept separate from the survey responses. Data from the two separate links using Survey Monkey Software were in no way connected and results were kept in separate reports and stored in separate files on the researcher's password protected computer. All data about the respondents who participated in the Wal-Mart gift card incentive was kept confidential.

Data Collection

Response data from the Survey Monkey site were downloaded each of the three semesters into an excel spreadsheet file. No response data were connected in any way with the respondents' identity. After each of the three semesters of data collection the excel files were combined into one excel spreadsheet which was then entered into the statistical software package SPSS 17.0 (SPSS, vs 17, Chicago, IL).

Only the researcher was able to access the response data. No email or IP address was identifiable to the researcher. Data were kept confidential, and maintained in a secure password protected Internet and personal computer file of the researcher. A detailed description of instruments used to operationalize study variables follows.

Variables and Instruments

The variables of teaching presence, social presence, cognitive presence and satisfaction were measured in this study. A detailed description of the two survey instruments used to operationalize these variables follows. The first instrument used was the *Community of Inquiry Survey* (Arbaugh et al., 2008; Swan et al., 2008) that measured perceptions on three subscales of presence: Social presence, cognitive presence, and teaching presence. The second instrument administered was the *Perceived Student Satisfaction Scale* (Arbaugh, 2000a) that was developed for the online learning environment to measure student satisfaction with their online course. In addition, the study also collected student characteristic and demographic information, technology and academic factor information, as well as the student reported learning strategies used in their online nursing course. These scales are in Appendices A, B and C respectively.

Instrument One: The *Community of Inquiry Survey*

Instruments reviewed for the variable of presence and the three presence subscales for this study included those instruments measuring social, cognitive, and teaching presence separately. Survey-based measures for social presence by itself are more established in previous research (Gunawardena, 1995; Gunawardena & Zittle, 1997, Rourke et al., 2001b; Tu, 2002), as are measures of teaching presence (Arbaugh & Hwang, 2006; Shea et al., 2006), whereas individual measures of cognitive presence are more limited.

Original investigations of each of the three presence subscales individually identified whether each presence occurred with online students and then identified if separate scales, subscales or dimensions of each presence were present (Arbaugh, 2007; Arbaugh & Hwang, 2006; Garrison & Cleveland-Innes, 2005; Ice et al., 2007a; Richardson & Swan, 2003; Shea et al., 2005; Shea et al., 2006; Swan, 2002; Swan & Shih, 2005). Researchers more recently have come together to combine work in developing an instrument that measures the three subscales of presence simultaneously using a single instrument, the *Community of Inquiry Survey* (Arbaugh et al., 2008; Boston et al., 2009; Garrison et al., 1999; Swan et al., 2008).

The Community of Inquiry Survey instrument has 34 items. It measures three individual presence subscales using commonly agreed upon indicators for each subscale and uses a five point Likert scale on a continuum of strongly agree to strongly disagree. Social presence is measured by nine items, teaching presence by 13 items, and cognitive presence by 12 items. The Community of Inquiry framework notes that there is often an overlap between teaching, social, and cognitive presence.

Recent studies have further developed and validated the *Community of Inquiry Survey* measuring each of the three presence subscales as well as their indicators or sub-dimensions (Arbaugh et al., 2008; Swan et al., 2008). Psychometric analysis of the instrument for each of the three presences, their indicators, as well as evaluating the overall model, has been completed (Akyol & Garrison, 2008; Arbaugh, 2007, Arbaugh et al., 2008.; Arbaugh & Hwang, 2006; Garrison & Cleveland-Innes, 2005; Garrison, et al., 2004; Ice, Curtis, Phillips & Wells, 2007b; Shea & Bidjerano, 2009b; Shea et al., 2003; Shea, et al., 2005; Swan & Shih, 2005). Findings from these studies have operationalized the three presence subscales into responsibilities of teaching presence (Questions # 1-13), categories of social presence (Questions # 14-22), and phases of cognitive presence (Questions # 23-34). These are reflected in the 34 total items in *The Community of Inquiry Instrument* in Appendix A.

Arbaugh et al. (2008) found the *Community of Inquiry Survey* a valid and reliable measure of the three presence subscales using principle component factor analysis with a reliability alpha of .87 or higher. Swan et al. (2008) also found reliability for the *Community of Inquiry Survey* instrument yielding internal consistency of Cronbach's alpha equal to .94 for teaching presence; .92 for social presence and .95 for cognitive presence.

Some studies have also included three additional items in order to measure students' overall satisfaction, perceived learning, and satisfaction with the instructor. However, these three items were not used. An alternate instrument measured student satisfaction with the online course. Permission was obtained from Dr. Swan to use the

Community of Inquiry Survey as well as to adapt the instrument by not using the last three items (Appendix I).

Instrument Two: Perceived Student Satisfaction

The second survey, the *Perceived Student Satisfaction Scale* instrument measured the variable of satisfaction with an online course (Arbaugh, 2000a). Wording changes from “MBA course” to “nursing course” were made in one item with permission. Arbaugh (2000b) validated this scale through factor analysis with an internal reliability of this instrument of .92. This scale measured students’ satisfaction with Web-based courses and the medium of technology, their perceptions of the course’s quality, and their intention of taking future online courses. Each of the twelve items was measured using a five-point Likert-type scale, ranging from one as strongly disagree to five as strongly agree. The 12 items are found in Appendix B with permission obtained from Dr. Arbaugh to use in this study in Appendix J.

Instrument Three: Student Characteristics, Academic & Technology Factors and Online Course Learning Strategies Survey

The researcher developed a third survey with items related to student demographics and characteristics, academic and technology factors which might influence students’ perceptions of the three presence subscales and satisfaction with their online course. These survey items are found in Appendix C and assessed 11 unique variables including age, gender, race, ethnicity, years of nursing work experience, and length of time as an RN. Additionally, items related to the academic factors of expected course grade and grade point average (GPA) were included. Technology information

requested from the respondents included the number of online courses previously taken and if students experienced any difficulty with technology when accessing the course.

Students also identified the types of online teaching-learning strategies used in their online course. The specific teaching and learning strategies listed on the survey were developed from the Teaching, Learning and Technology Group (n.d.) based on Chickering and Gamson's (1987) best practices and the teaching strategies from the rubric developed by Ternus et al. (2007). This list is the last survey question (#12) "What type of learning activities were used during your online nursing course" in which sample respondents identified the types of teaching and learning strategies as being used in their online nursing course. These strategies included: discussion forum postings, feedback to peers or peer editing, online synchronous activities using a type of chat function, virtual office hours, online feedback from faculty, quizzes or tests, use of multimedia presentations by students or faculty, case studies, group projects and collaborative activities, learning modules or lessons with objectives and organized content, use of learning resources such as external links or library links, and activities which require you to reflect on your learning experiences (Appendix C). Each of these variables was considered as this study explored factors that might influence nursing students' perceptions of the three presences and their satisfaction with the online course.

Data Analysis Procedures

All data were downloaded from Survey Monkey into excel spreadsheets. The Survey Monkey items were created in a manner that respondents were required to provide an answer for each item before they could move on to the next item so there was no missing data. Data collected from each of the three semesters were combined into one excel file. These were then checked for accuracy prior to entering them into the SPSS statistical software program statistical software package (SPSS, vs 17, Chicago, IL).

The course grade expected response was recoded from a letter grade to the educational institution's numerical standard for grade point average for each course letter grade. Additionally, the data for the number of completely online courses taken was re-coded. Data from two responses, that of "This is my first completely online course" and "I have taken 1-3 completely online courses prior to this course" were combined to make a categorical variable and re-coded as "one". This was done as there were only three respondents who stated this was their first online course. Response C, "I have taken 4-6 completely online courses prior to this course", was re-coded as a categorical variable of "two" and response D, "I have taken more than 6 completely online courses prior to this course", was re-coded as a "three." This allowed data to be analyzed using *Analysis of Variance* (ANOVA) to determine if technology factors influenced students' perception of the three presences and satisfaction. Once it was determined the data were accurate in the excel file, the data were then entered into the SPSS statistical software package (SPSS, vs 17, Chicago, IL).

Data Analysis of the Sample and Instruments

The methodology used to answer the research questions included descriptive and inferential statistics. To provide a detailed description of the sample and instruments, descriptive statistics such as composite scores, means, standard deviation, and minimum to maximum range for the variables were examined using SPSS statistical software program (SPSS, Chicago, IL).

Description of the sample included age, gender, race, ethnicity, and current work status. These were summarized using frequency and percents.

Description of the responses from the two instruments for the three presence subscales and satisfaction included a composite, or sum, of the related questions for each of the presence subscales and satisfaction variable. An index, sometimes called a composite or sum, is a set of items that focuses on multiple yet distinctly related aspects of a dimension or attitude into a single indicator or score. The survey items representing the subscales of social, cognitive and teaching presence, and satisfaction required Likert responses which were later added up into a composite score average. This composite score was assumed to have an underlying characteristic of each of these variables.

Both instruments required a Likert scale response from one to five. These numbered responses are a set of ordered categories. Questions have been raised as to what type of data ordered responses are and the most appropriate tests for analysis of this type of data. Allen and Seaman (2007) stated analysis of ordinal data, as it relates to Likert scales in surveys, are not as straightforward in data analysis as are nominal, interval, and ratio data, and controversy exists over how the data should be considered. Beliefs differ in whether these ordered categories have equal intervals between the five number ratings. If

the intervals are not equal, then it is invalid to apply tests of interval data, such as means and standard deviations, and non-parametric statistical tests should be used (Jamieson, 2004). Others have stated that parametric tests can be used with this type of data (Lubket & Muthen , 2004). The purpose for using Likert responses as interval data in analysis is that parametric statistical tests are more powerful than non-parametric tests. Lubket and Muthen (2004) recommended using non-parametric tests in analysis or using more stringent alpha levels than .05 if parametric tests are used.

This study considered the Likert responses as interval data after a total composite score was calculated for each of the separate presence subscales and satisfaction. By calculating the composite score for each presence subscale and satisfaction the data could then be considered interval data allowing means, standard deviations, and ranges to be completed.

Cronbach's alpha was used to analyze the internal consistency reliability of both the *Community of Inquiry Survey* and the *Perceived Student Satisfaction Scale*. An internal consistency reliability of .70 was considered satisfactory for these instruments (Polit & Beck, 2004).

Data Analysis of the Research Questions

Inferential statistics used to answer the research questions included Pearson's and Kendal's tau B correlational coefficient tests. Other statistical tests used included the Sobel's Test for mediation, the Independent t- Test, Analysis of Variance, and Multiple Linear Regression.

Research question # 1: To what extent do RN to BSN nursing students perceive social presence, cognitive presence and teaching presence to be evident in an online nursing course?

Question one used the composite scores of each presence subscale from the *Community of Inquiry Survey* to calculate the means, standard deviations, and minimum to maximum range of each presence subscale to identify the extent that RN-BSN students perceived teaching, social and cognitive presence in their online course. Graphical representation of each presence subscale was completed using box plots to look at skewedness of the distribution and unusual outliers and histograms to look at normality of the data.

Research question # 2: What are the relationships among RN to BSN nursing students' perceptions of social presence, cognitive presence, and teaching presence in an online nursing course?

To examine research question two, pair wise Pearson's Correlation Coefficient tests were completed to examine whether there were relationships among RN-BSN students perceptions of teaching, social, and cognitive presence in their online course. Once significant correlations were determined between all three presences, further testing was completed to clarify the process of how the three presence subscales might influence each other. The Sobel's test was used to determine if mediation occurred between any of the three presence subscales. The Sobel test is based on regression analysis which tests if the independent variable is significantly related to the dependent variable, if the independent variable is significantly related to the mediating variable, and lastly if the mediating

variable is significantly related to the dependent variable (MacKinnon, Fairchild & Fritz, 2007).

Research question # 3: What are the relationships among social presence, teaching presence, and cognitive presence, and student satisfaction with the educational experience as perceived by RN to BSN nursing students enrolled in online courses?

Examination of research question three used the composite score from the *Perceived Student Satisfaction Scale* to calculate the means, standard deviations, and minimum to maximum range for satisfaction to identify the extent that RN-BSN students perceived course satisfaction. Then the Pearson's Correlation Coefficient test was used to analyze relationships between each of the three presence subscales and course satisfaction. Graphical representation of satisfaction was completed using box plots to look at skewedness of the distribution and unusual outliers and histograms to look at normality of the data.

Research question # 4: What are the relationships among age, gender, and race/ethnicity and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?

In analyzing relationships and associations between demographic co-variates in research question four, Pearson's Correlation coefficient test was used in to look at whether students' age influenced their perceptions of the three presence subscales and their course satisfaction. The Independent *t*-Test was used in examining the associations between gender, race, and the three presence subscales and course satisfaction.

Research question #5: What are the relationships among the number of prior online courses taken, difficulty with technology and RN to BSN nursing students' perception of

social, cognitive, and teaching presence and their perceived satisfaction with their online course?

Research question five examined technology factors that might influence students' perceptions of the three presence subscales and course satisfaction. The Independent *t*-Test was used to analyze the associations between any technology difficulty students had during the course, while ANOVA was used to analyze the prior number of online courses taken and if these influenced the associations between the three presence subscales and satisfaction.

Research question #6: What are the relationships among expected course grade, and cumulative GPA and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?

The Independent *t*-Test was again used to analyze the associations between academic factors related to the students to answer research question six. The two academic factors examined were students reported expected course grade and their cumulative GPA and their influence on students' perception of the three presence subscales.

Research question # 7: Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students' perception of social, cognitive and teaching presence?

Students were asked to indicate from eleven instructional strategies those used in their online course. Research question seven used Kendall's Tau Correlation coefficients' to analyze whether instructional strategies identified as used in their online course influenced students' perceptions of the three presence subscales. Multiple Linear

Regression was then used to take any significant or approaching significant co-variates from any of the prior tests to see if any of these co-variates in the study had associations with students' perceptions of the three presences.

Research question # 8: Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students' perception of satisfaction with their course?

In research question eight, from the eleven instructional strategies given, those that students identified as being used in their online course were analyzed using Kendall's Tau Correlation coefficient test as to whether any of the instructional strategies identified as used in the course influenced students' perceptions of their course satisfaction.

This chapter summarized the methodology that was used in the research study. It included the study design, sampling demographics, study procedure, protection of human subjects, variables and instrumentation used. Descriptive statistics were used to describe the sample using frequencies and percents for students' age, gender, race, ethnicity, and current work status. Cronbach's alpha was used to analyze the internal consistency reliability of both the *Community of Inquiry Survey* and the *Perceived Student Satisfaction Scale*. Other descriptive statistics used were composite scores, means, standard deviation, and minimum to maximum range to describe the responses from the two surveys. Inferential statistics used to answer the research questions included Pearson's and Kendal's tau B correlational coefficient tests. Other statistical tests used in answering the research questions included the Sobel's Test for mediation, the independent t- Test, Analysis of Variance, and Multiple Linear Regression.

The results of this study are discussed in the next chapter. Chapter 4 presents significant findings regarding the relationships between teaching, social and cognitive presence, and student satisfaction with their course. It describes influencing factors on these perceptions related to co-variables of student characteristics and demographics, academics and technology factors, and the learning strategies used in the online course.

CHAPTER FOUR

Results

This chapter presents the results of the analysis of data related to the specific research questions. The purpose of this study was to explore and describe nursing students in an RN-BSN course as to their perceptions related to teaching, social and cognitive presence, and their course satisfaction. This chapter presents the data analysis and the results of the study.

Descriptive Statistics

Provided is a detailed description of the sample and instruments using descriptive statistics. These statistics include composite scores, frequencies, means, and variability measures of standard deviations, and percents for the variables examined using SPSS statistical software program (SPSS, vs 17, Chicago, IL).

Sample

A convenience sample was obtained for this study from RN-BSN students enrolled in a nursing course offered completely online each of three semesters during 2014 at a large midwestern university. Participants were limited to subjects who volunteered to participate in the study by completing the online survey. The sample had prior to enrolling in the RN-BSN degree program completed a program of study that allowed them to obtain a professional Registered Nurse license. Seventy-six nursing students out of 260 were recruited to participate in the study with a response rate of 29.2 percent over the three semesters. The median age of the sample was 36.2 years with a range of 21-59 years of age. The sample represented a generationally diverse group of nursing students attending the online baccalaureate-degree completion program. Baby

Boomers (50-68) made up 9.2 percent ranging in age from 50-58. The Generation X cohort (34-49) made up the largest group at 55.3 percent ranging in age from 34 to 40 with the next largest cohort being the Millennial Generation (33 and under) making up 35.5 percent of the respondents identifying their ages from 21 to 28.

The majority of the respondents (90.8 percent), were female with 9.2 percent being male. In respect to ethnicity all or 100 percent were non-Hispanic or Latino. The majority of the racial makeup the sample most identified with was 85.5 percent white, following by 13.2 percent Black or African American, and 1.3 percent Native Hawaiian or other Pacific Islander. No student respondents identified themselves as Asian or Hispanic or Latino. An overview of the characteristics of the sample is provided in Table 2.

Table 2

Participants' Demographic Overview

Group	Frequency	Percent
<u>Age Group</u>		
Veteran Generation(69 and over)	0	0.0
Baby Boomer Generation(50-68)	7	9.2
Generation X (34-49)	42	55.3
Generation Y(33 or under)	27	35.5
<u>Gender</u>		
Female	69	90.8
Male	7	9.2
<u>Ethnic Group</u>		
Hispanic or Latino	0	0.0
Not Hispanic or Latino	76	100.0
<u>Racial Group</u>		
White	65	85.5
Hispanic-Latino	0	0.0
Black or African American	10	13.2
American Indian-Alaskan Native	0	0.0
Native Hawaiian or other Pacific	1	1.3
Islander	0	0.0
Asian	0	0.0
Other		

N=76

It was found that students' current work status as a registered nurse included 7.9 percent who were registered nurses but not currently working as a registered nurse, 72.4 percent who were working full-time as a registered nurse, and 19.7 percent who were working part-time as a registered nurse. There were no students who responded to the survey who were working in positions other than as a registered nurse (Table 3).

Table 3

Participants' Work Overview

Current Work Status	Frequency	Percent
Not currently working as RN	6	7.9
Full-time as RN	55	72.4
Part-Time as RN	15	19.7
Working but not as an RN	0	0

N=76

Data Analysis of Research Questions

The intent of this study was to evaluate the relationships and associations between RN-BSN students' perceptions of teaching presence, social presence, cognitive presence and their online course satisfaction as to whether demographic, academic, and technological factors and instructional strategies influenced these perceptions. The methodology used to answer the research questions included a variety of descriptive and inferential statistics that are outlined in Table 4.

Table 4

Relationship between Research Question, Instrumentation, and Analysis Method

Research Question	Instrument	Statistical Analysis Method
1. To what extent do RN-BSN nursing students perceive social presence, cognitive presence and teaching presence to be evident in an online nursing course?	CoI Satisfaction	Descriptive: Composite scores for each presence M, SD of composite scores Box plot & Histogram Cronbachs Alpha
2. What are the relationships among RN to BSN nursing students' perceptions of social presence, cognitive presence, and teaching presence in an online nursing course?	CoI	Pearson correlation coefficient 3x3 pairwise Sobel Test
3. What are the relationships among social presence, teaching presence, and cognitive presence and student satisfaction with the educational experience as perceived by RN to BSN nursing students enrolled in online courses?	CoI Satisfaction	Descriptive for Satisfaction: Composite score for satisfaction, Mean, SD of composite score Box plot & Histogram Cronbachs alpha Pearson correlation coefficient 4x4 matrix
4. What are the relationships among age, gender, and race/ethnicity and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?	Q #50 Age	Mean (SD) Pearson correlation coefficient
	Q #51 Gender	Mean (SD) Independent <i>t</i> -Test
	Q #52 Ethnicity Q #53 Race	Mean (SD) Independent <i>t</i> -Test

Continued Table 3

5. What are the relationships among the number of prior online courses taken, difficulty with technology and RN to BSN nursing students' perception of social, cognitive, and teaching presence and their perceived satisfaction with their online course?	Q #54 Number of online courses	Percent Mean (SD) ANOVA
	Q #55 Technology Difficulty	Percent Mean (SD) Independent <i>t</i> -Test
6. What are the relationships among expected course grade, and cumulative GPA and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?	Q #56 Course Grade	Percent Mean (SD) Pearson correlation coefficient
	Q # 57 GPA	Percent Pearson correlation coefficient
7. Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students' perception of social, cognitive and teaching presence? *Significant Co-variates influence	COI Q #s 58-59	Kendall's tau B
8. Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students' perception of satisfaction with their course?	Satisfaction Q #s 58-59	*Multiple linear regression Kendall's Tau B

Note: Question # items on Researcher Developed Survey in Appendix C. CoI = *Community of Inquiry Survey Instrument*

Research Questions

The study addressed the following research questions:

Research Question One

To what extent do RN to BSN nursing students perceive social presence, cognitive presence and teaching presence to be evident in an online nursing course?

Each item from the *Community of Inquiry Survey* instrument required a Likert scale response by students rating from one as “strongly disagree” to five as “strongly agree” if the item was manifest in their online courses. Descriptive data analysis of the *Community of Inquiry Survey* instrument items included calculating a total composite score for each of the three presences subscales.

Measures of central tendency included the means for each presence subscale composite score, standard deviation, and the minimum to maximum ranges of the each of the presence subscale. The minimum to maximum scores of each presence subscale was determined from potential range possible which included for teaching presence 13-65; for social presence nine to 45; and for cognitive presence 12 to 60. Cronbach’s alpha was determined for the nine social presence items, thirteen teaching presence items, the twelve cognitive presence items, and the overall 34 survey items to identify if internal consistency across items were reliable.

For teaching presence, the composite scores minimum to maximum ranged from 13-65 for the 13 items with a mean of 52.64 (SD 9.16) indicating perceptions of agreement that teaching presence was present in the course. Cronbach’s alpha coefficient for the thirteen teaching presence items was $\alpha = 0.95$ indicating excellent consistency across items with reliability (Table 5).

Table 5

Presences' Composite Scores, Means, Standard Deviation, Minimum to Maximum, Range and Cronbach's Alpha

Composite Scores	<i>M</i>	<i>SD</i>	Minimum	Maximum	Scale Range	α
Teaching Presence	52.64	9.16	13	65	52.0	.95
Social Presence	33.84	6.26	9	45	36.0	.92
Cognitive Presence	46.67	7.83	12	60	48.0	.94
Total CoI						.97

N=76

The nine social presence subscale items composite scores had a minimum to maximum score of nine to 45 with a mean of 33.84 (SD 6.26) indicating they were between neutral to agreement in their perception that social presence was present in the course. Cronbach's alpha coefficient for social presence was $\alpha = .92$ indicating excellent internal consistency across items indicating reliability (Table 5).

The 12 items for the subscale of cognitive presence had a minimum to maximum range from 12-60 with a mean of 46.67 (SD 7.83) indicating students agreed in their perceptions of cognitive presence in the course. Cronbach's alpha coefficient for cognitive presence was $\alpha = .94$ indicating excellent internal consistency across items indicating reliability. Cronbach's alpha for the complete 34 item CoI Survey instrument including the three presences subscales for the tool revealed excellent internal consistencies at $\alpha = .97$ (Table 5).

Box-plots were used to visually look for skewedness of the distribution and unusual outliers in the data set. The responses of one respondent had composite scores for all three presences subscales much lower than the mean indicating they strongly disagreed with all 34 items. In addition to this one outlier, for teaching presence two other outliers strongly disagreed and the box plots showed the response data fell slightly lower than the median line indicating they were in agreement to strong agreement with teaching presence. Social presence had several additional outliers some who strongly agreed and others who strongly disagreed. For cognitive presence, there were two additional outliers who strongly disagreed. The box plot for cognitive presence responses were slightly above the median indicating they had agreement to strong agreement, and for social presence the responses were below the median indicating neutral to less agreement as that social presence was perceived in the course (Figure 2).

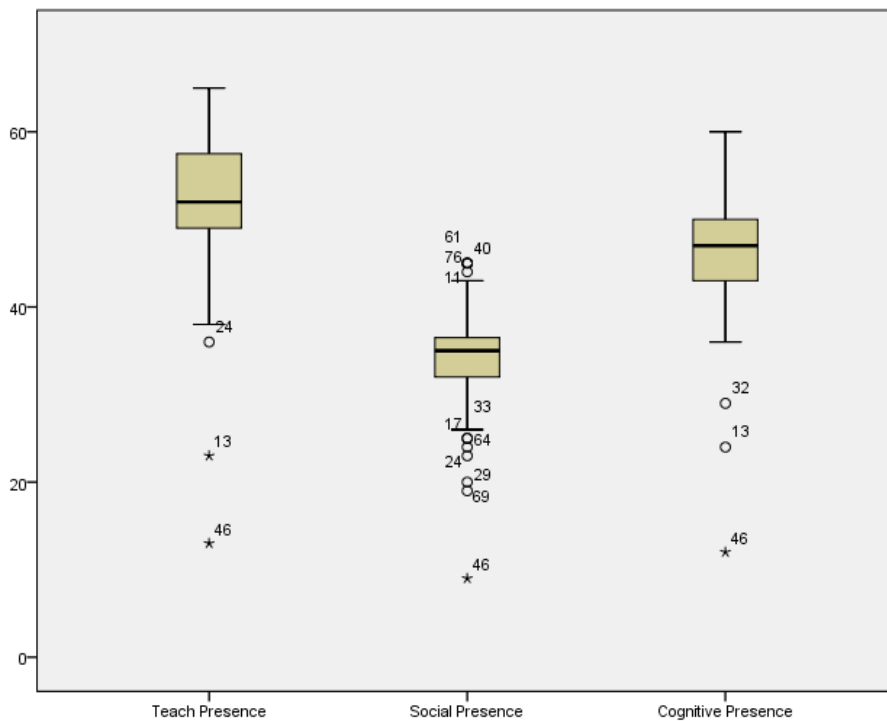


Figure 2. Boxplot of Composite Scores for Teaching, Social and Cognitive Presence

Normality of the data for each of the presence subscales was assessed through visual examinations of histograms looking at the distribution of each presences' composite score. Histograms for the subscale of teaching presence, social presence and cognitive presence were all negatively skewed indicating high scores from neutral to strong agreement that each of the presences were perceived in their course by the RN-BSN students. The histogram for teaching presence was left skewed with a mean of 52.64 (SD 9.16) and a minimum to maximum score range of 13-65 indicating that students agreed in their perceptions of teaching presence in the course. Besides the one respondent who answered strongly disagree for all 34 CoI items, the histogram for teaching presence showed one outlier who fell between 20 and 25 indicating this person disagreed with perceiving that teaching presence in their course (Figure 3).

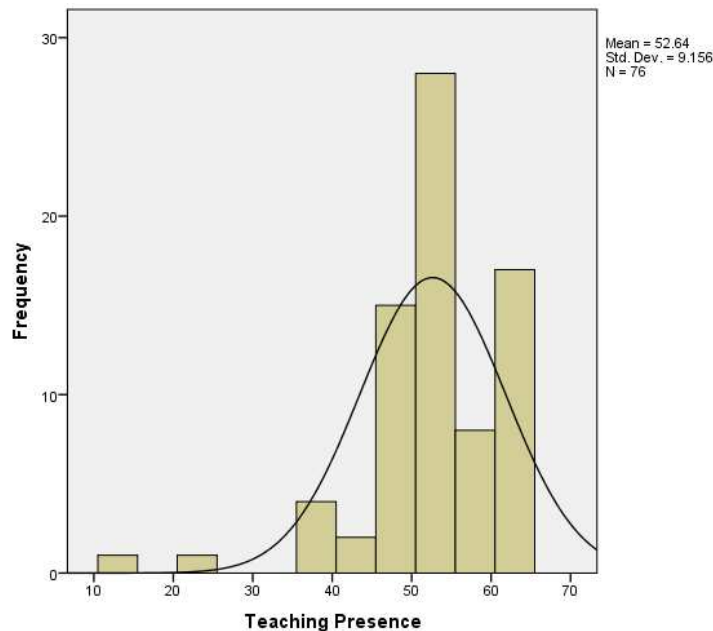


Figure 3. Histogram of Composite Scores for Teaching Presence

The histogram for social presence was also left skewed though slightly less with a mean of 33.84 (SD 6.26) with a minimum to maximum score of 9 to 45 indicating agreement but not as strong in students' perceptions of social presence in the course. Besides the one outlier who strongly disagreed with all survey items, there were a few outliers whose perceptions were more neutral that social presence was present in their online course (Figure 4).

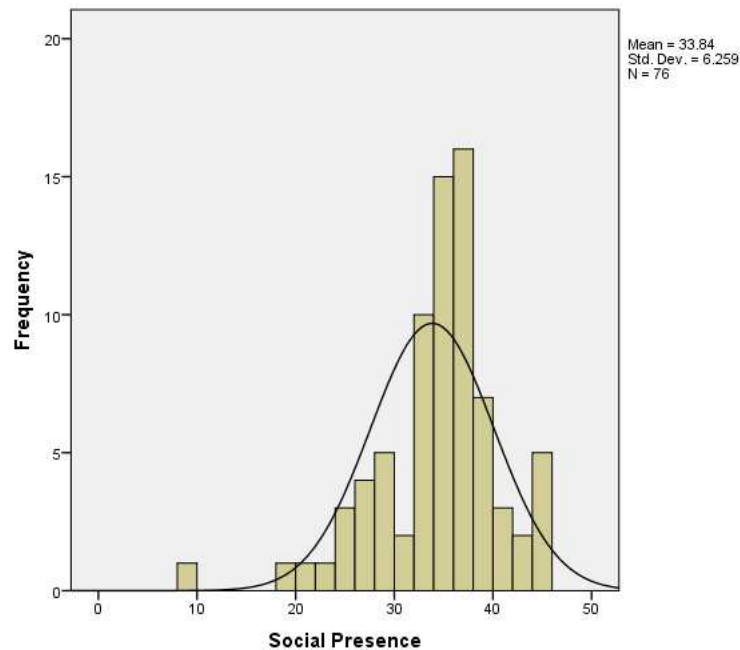


Figure 4. Histogram of Composite Scores for Social Presence

The histogram for cognitive presence was left skewed and had a mean of 46.67 (SD 7.83) with a minimum to maximum range of 12-60 indicating agreement in their perceptions of cognitive presence in their course. Besides the one outlier who strongly disagreed with all survey items, two outliers were more dissatisfied in their perceptions of cognitive presence being present in their course (Figure 5).

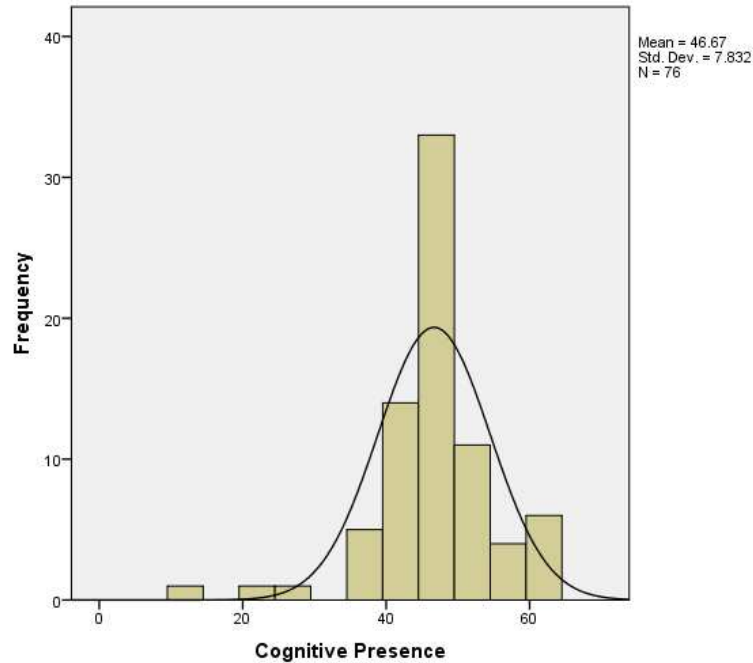


Figure 5. Histogram of Composite Scores for Cognitive Presence

Research Question Two

What are the relationships among RN to BSN nursing students' perceptions of social presence, cognitive presence, and teaching presence in an online nursing course?

Research question two used pairwise Pearson Coefficients to determine if there were statistically significant associations between teaching presence, social presence and cognitive presence. Strong positive correlations were found for each bi-variate analysis. The highest correlation was found between teaching and cognitive presence ($r = .79$, $p = 0.000$); followed by social and cognitive presence ($r = .64$; $p = 0.000$) and lastly a strong relationship was found between teaching and social presence ($r = .52$, $p = 0.000$) (Table 6).

Table 6

Correlation between Teaching Presence, Social Presence, and Cognitive Presence

Presences' Bi-Variate Correlation	<i>Pearson's r</i>	<i>p</i> value
Teaching Presence & Cognitive Presence	0.79	0.000**
Cognitive Presence & Social Presence	0.64	0.000**
Teaching Presence & Social Presence	0.52	0.000**

N=76 ** Correlation is significant at the 0.01 level (2-tailed).

With each of the three presence subscales being significantly correlated, further examination of the process of how the three presence subscales might influence each other was completed. Teaching and social presence in the Community of Inquiry framework have been noted as having a mediating role in developing cognitive presence (Anderson, Rourke, Garrison & Archer, 2001, p. 5; Garrison & Anderson, 2003; Garrison, 2011). Both Archibald (2010) and Shea & Bidjerano (2009b) found teaching and social presence to explain a large percentage of the variance in cognitive presence. Research using the *Community of Inquiry Survey* found that teaching presence was a predictor of learners' ratings of social and cognitive presence. It was also found that social presence was a possible mediator in cognitive presence perceptions (Garrison, Anderson & Archer, 2010; Shea & Bidjerano, 2009a).

Sobel's test of mediation was used to look at whether there were mediators in the Community of Inquiry model from the data indicating if teaching presence indirectly affects cognitive presence through social presence as a mediator and whether social presence indirectly affects cognitive presence through the mediating effect of teaching

presence. Results of the Sobel's test analysis for mediation found both teaching presence and social presence as partial mediators to cognitive presence in the two models.

The first Sobel's Test analysis was to determine if there was a potential mediator effect of teaching presence between social presence and cognitive presence. The result of the Sobel Test was 4.422, standard error = 0.09 ($p = 0.000$). The small p-value indicates that the association between the independent subscale of social presence and dependent subscale of cognitive presence was reduced significantly by the inclusion of the mediator of teaching presence in the model indicating there was evidence of partial mediation (Tables 7 and 8).

Table 7

Sobel's Test for Teaching Presence as Mediator

Variable	β	Sign.
Social Presence to Cognitive Presence	0.798	0.000**
Teaching Presence to Cognitive Presence	0.542	0.000**
Teaching Presence to Social Presence	0.757	0.000**

$N = 76$; * $p < .05$. ** $p < .01$.

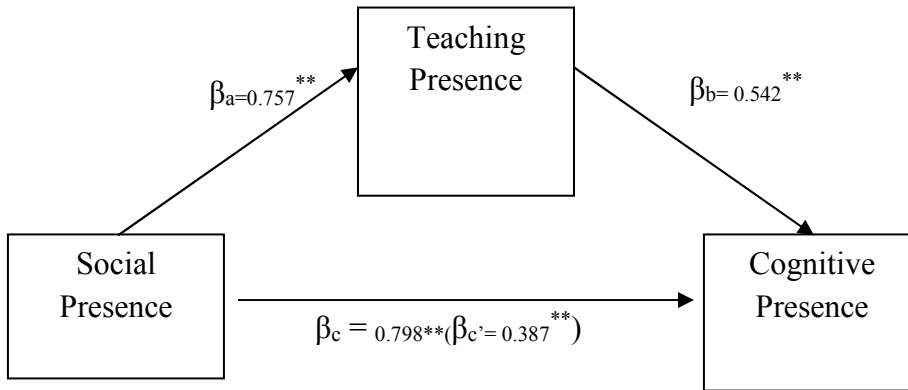
Table 8

Three Regression Tests of the Sobel's Test for Teaching Presence as Mediator

Regression Steps		Unstandardized		Standardized		Sign.
		Coefficients		Coefficients		
		β	SE β	β	<i>t</i>	
Regression 1: Social Presence to Cognitive Presence		0.798	0.112	.638*	7.119	0.000**
Regression 2: Teaching Presence to Social Presence	Social	.387	0.094	.310	4.135	0.000**
	Teach	.542	0.064	.634	8.465	0.000**
Regression 3: Teaching Presence to Cognitive Presence		.757	0.146	.518	5.204	0.000**

$N = 76$, * $p < .05$, ** $p < .01$

The model represented in Figure 6 depicts how cognitive presence is a result of social presence but a portion of the effect of social presence is partially mediated by the impact of teaching presence.



Note. * $p < .05$ ** $p < .01$

Figure 6. Teaching Presence as Mediator between Social Presence and Cognitive Presence Model

Thus, teaching presence partially mediated the relationship between social presence and cognitive presence. This is consistent with previous literature that found teaching presence accounted for a significant amount of variance in the relationship between social presence and cognitive presence.

A second Sobel's test found a significant association between teaching presence and cognitive presence that was reduced significantly by the inclusion of the partial mediator effect of social presence. Identified in tables nine and ten, the second Sobel test analysis found that the test statistic for the Sobel test was 3.229, standard error = 0.04 with an associated p-value = 0.0012. The small p-value indicates that the association between the independent variable of teaching presence and the dependent variable of

cognitive presence was reduced significantly by the inclusion of the partial mediator of social presence in the model indicating evidence of partial mediation.

Table 9

Sobel's Test for Social Presence as Mediator

Variable	β	Sign.
Teaching Presence to Cognitive Presence	0.679	0.000**
Social Presence to Cognitive Presence	0.387	0.000**
Social Presence to Teaching Presence	0.354	0.000**

$N=76$ * $p < .05$. ** $p < .01$.

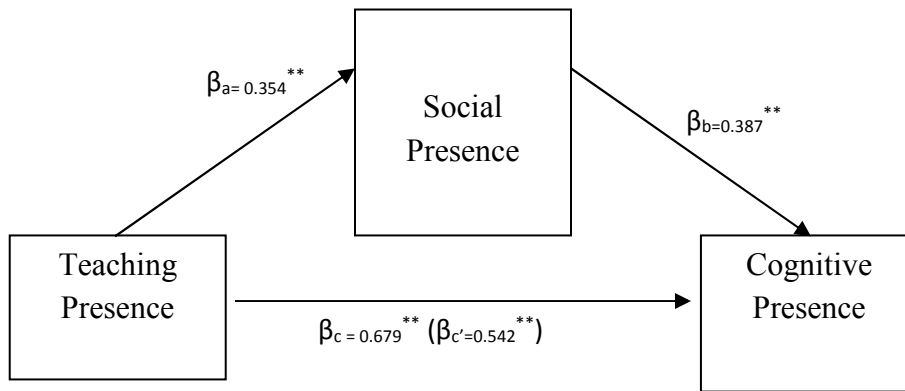
Table 10

Three Regression Tests of the Sobel's Test for Social Presence as Mediator

Variable	Unstandardized		Standardized		Sign.	
	Coefficients		Coefficients			
	β	SE β	β	t		
Regression 1: Teaching Presence to Social Presence	0.679	.060	.794	11.233	0.000**	
Regression 2: Social Presence to Cognitive Presence						
	Teach	.542	.064	.634	8.465	0.000**
	Social	.387	.094	.310	4.135	0.000**
Regression 3: Teaching Presence to Cognitive Presence	.354	.068	.518	5.204	0.000**	

*N=76, *p<.05, **p<.01*

The model represented in Figure 7 depicts how cognitive presence is a result of teaching presence but a portion of the effect of teaching presence is partially mediated by the impact of social presence.



Note. * $p < .05$ ** $p < .01$,

Figure 7. Social Presence as Mediator between Teaching Presence and Cognitive Presence Model

Thus, social presence partially mediated the relationship between teaching and cognitive presence. This is consistent with previous findings that social presence as mediator accounted for a significant amount of variance in the relationship between teaching presence and cognitive presence.

In summary there were two models of partial mediation found from the presence subscale data in the study. Teaching presence partially mediated the relationship between social presence and cognitive presence and it was also found that social presence partially mediated the relationships between teaching presence and cognitive presence. This is consistent with previous literature which indicates that both teaching and social presences have made significant contributions to cognitive presence, and that teaching and social presence were found to explain 69% of the variance in cognitive presence (Archibald, 2010).

Research Question Three

What are the relationships among social presence, teaching presence, and cognitive presence and student satisfaction with the educational experience as perceived by RN to BSN nursing students enrolled in online courses?

Descriptive data results from the *Perceived Student Satisfaction* instrument included the total composite score with measures of central tendency of the mean, standard deviation, minimum to maximum scores. Cronbach's alpha was conducted to determine the reliability of the instrument. Each of the twelve items from the *Perceived Student Satisfaction* instrument had a Likert scale response by students rating from one as "strongly disagree" to five as "strongly agree" identifying if satisfaction was perceived in their online courses.

The minimum to maximum scores of the 12 items' composite satisfaction scores ranged from 12 to 60. The composite scores for students' perceptions that they were satisfied with their course had a mean of 42.79 (SD 7.14). This was midway between neutral to agreement with their perceptions of satisfaction with their course. Cronbach's alpha coefficient for the 12 satisfaction items was $\alpha = .78$ indicating an acceptable internal consistency across items with reliability (Table 11).

Table 11

Satisfaction Composite Scores, Means, Standard Deviation, Minimum to Maximum, Range and Cronbach's Alpha

Composite Scores	<i>M</i>	<i>SD</i>	Minimum	Maximum	Scale Range	α
Satisfaction	42.79	7.14	12	60	48.0	.78

N=76

Satisfaction data analysis included examining the spread of the data distribution from the Likert scale responses for the 12 satisfaction items. This included using a box plot to see if there were outliers from the responses. Other than the one outlier who indicated very dissatisfied on all 12 items, there were a few outliers whose composite scores were higher than the mean indicating they agreed with all 12 items in their perceptions of satisfaction with their course. (Figure 8).

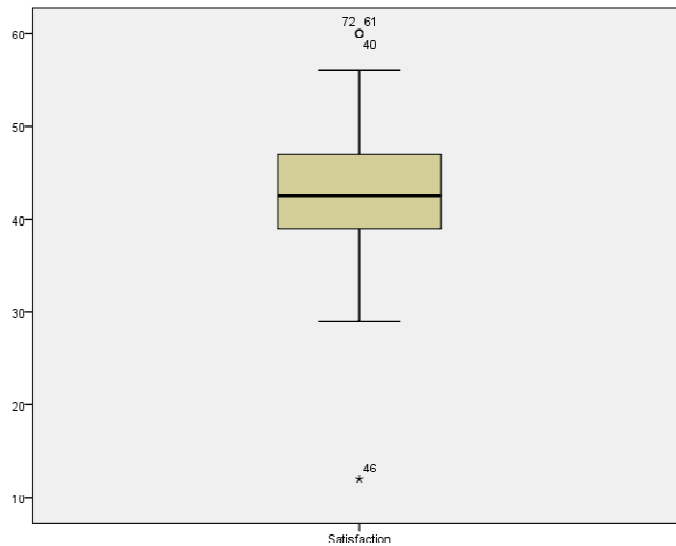


Figure 8. Box-plot of Composite Scores for Satisfaction.

Normality of the data from the satisfaction instrument was assessed through visual examinations of a histogram looking at the distribution of the data and comparing it to a normal curve. The histogram for the satisfaction data was negatively skewed to the left, indicating scores between neutral and agreement in their perceptions of their course satisfaction by the RN-BSN students. Satisfaction had a mean of 42.79 (SD 7.14) out of a

minimum to maximum score of 12-60 indicating the students' perceptions of satisfaction with the course were midway between neutral and agree (Figure 9).

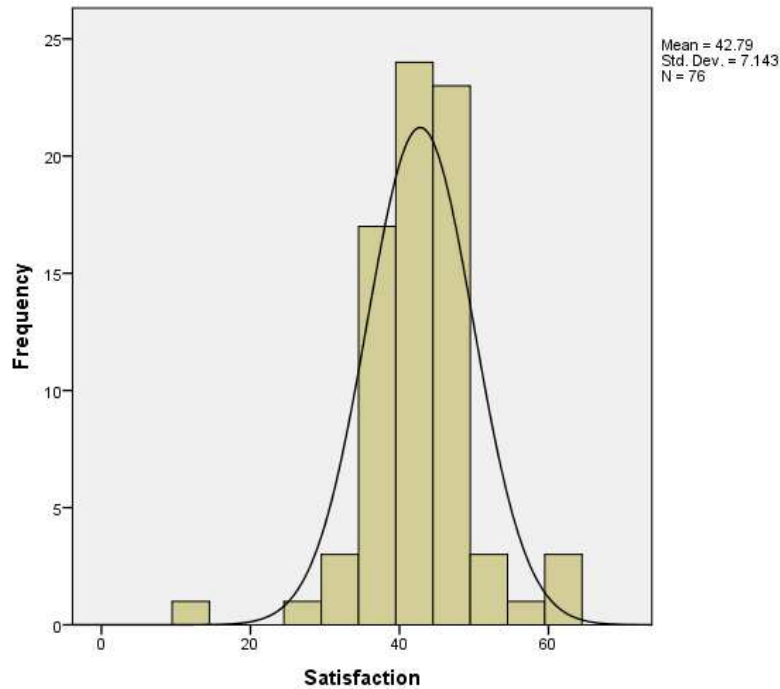


Figure 9. Histogram of Composite Scores for Satisfaction.

To answer research question number three, the analysis included completing four bi-variate Pearson's correlation coefficients for each of the presence subscales and satisfaction to determine the strength and direction of the association between satisfaction and each presence subscales. There were strong positive correlations between all three presence subscales and satisfaction with the strongest relationship between cognitive presence and satisfaction ($r = .82$; $p = .000$) followed by teaching presence and satisfaction ($r = .77$; $p = .000$) and social presence and satisfaction ($r = .63$, $p = .000$) (Table 12).

Table 12

Correlation Between Teaching, Social, and Cognitive Presence and Satisfaction

Presences & Satisfaction Bi-Variate Correlation	<i>Pearson's r</i>	<i>p</i> value
Teaching Presence & Satisfaction	0.77	0.000**
Social Presence & Satisfaction	0.63	0.000**
Cognitive Presence & Satisfaction	0.82	0.000**

N=76 ** Correlation is significant at the 0.01 level (2-tailed).

Research Question Four

What are the relationships among age, gender, race and ethnicity and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?

Demographic co-variables related to students for this study included age, gender, race, and ethnicity. Pearson Correlation Coefficient was used to analyze if there were associations among age and students' perceptions of social, cognitive, and teaching presence, and their perceived satisfaction with their online course. Then the Independent t-Test was used to analyze whether there were associations with gender, and race and students' perceptions of social, cognitive, and teaching presence, and their perceived satisfaction with their online course.

Age.

To answer research question number four related to age, analysis included completing four bi-variate Pearson correlation coefficients. Relationships between age and the composite scores of the nine social presence items, the thirteen teaching presence items, the twelve cognitive presence items, and the twelve satisfaction items were analyzed. Age was not found to have a statistically association with teaching presence, social presence and cognitive presence nor satisfaction (Table 13).

Table 13

Correlation Between Age and Teaching, Social, and Cognitive Presence, and Satisfaction

Presences, Satisfaction & Age Variables	<i>Pearson's r</i>	<i>p</i> value
Teaching Presence & Age	-0.029	0.805
Social Presence & Age	-0.027	0.818
Cognitive Presence & Age	0.067	0.568
Satisfaction & Age	0.014	0.906

N=76 ** Correlation is significant at the 0.01 level (2-tailed).

Gender.

In regard to gender the respondents were 90.8 percent female compared to male respondents at 9.2 percent. Females had a slightly higher teaching presence composite score mean of 53.06 (SD 8.57) than males with a mean of 48.57(SD 13.04) indicating wider variability of the perceptions of males. Cognitive presence perceptions had the next highest composite score mean for females at 46.90 (SD 7.63) and slightly higher than

males with a mean of 44.43 (SD 10.01), again indicating wider variability of male responses.

Though social presence had the lowest composite score mean for males and females, male respondents had a slightly higher composite score mean for social presence of 35.86 (SD 1.77) than females with a mean of 33.64 (SD 6.52). The students' perceived satisfaction composite mean was similar for females (M 42.84, SD 7.04) and males (M 42.29, SD 8.69).

Independent t-Tests were conducted to compare the three presence subscales and satisfaction perceptions between genders among the nursing student respondents in the online course. There were no statistically significant differences between female and male students' perceptions and teaching presence, cognitive presence or satisfaction. The association between social presence and gender found a statistically significant difference with students' perception of social presence as being in their course with in the scores with males ($M = 35.86, SD = 1.77$) in more agreement than females ($M = 33.64, SD = 6.52$), $t(74) = -2.151, p \leq .05, CI_{.95} 4.330, -0.109$ with equal variances not assumed (Table 14). This suggests that gender had an effect on perceptions of social presence in this study, specifically that males had slightly higher perceptions than females of social presence in the course.

Table 14

Descriptive Statistics and Results of t-tests for Gender and Teaching, Social and Cognitive Presence and Satisfaction

Outcome	Group						95% CI for Mean Difference	<i>t</i>	<i>Sign.</i>	df
	Male			Female						
	M	SD	n	M	SD	n				
Teaching Presence	48.57	13.94	7	53.06	8.57	69	-8.422, 17.395	0.836	0.433	74
Social Presence	35.86	1.77	7	33.64	6.52	69	-4.330, -.109	-2.151*	0.040	74
Cognitive Presence	44.43	10.01	7	46.90	7.63	69	-6.817, 11.757	0.634	0.547	74
Satisfaction	42.29	8.69	7	42.84	7.04	69	-7.511, 8.621	0.164	0.875	74

* N=76 p < .05. Equal variance not assumed

Race and Ethnicity.

Respondents identified their ethnicity as 100 percent being non-Hispanic–Latino. Race most identified with by the sample was primarily white at 85.5 percent, Black or African American at 13.2 percent and Native Hawaiian or other Pacific Islander at 1.3 percent. There were no American Indian-Alaskan natives, Hispanic-Latino reported by respondents as their race. Because there was only one Native Hawaiian or other Pacific Islander respondent, for statistical purposes the dataset analyzed excluded this one respondent. With race then having only two categories, an Independent t-Test was used to analyze if the perceptions of the three presence subscales and satisfaction between race was different.

Analysis of the perceptions by race found no statistically significant difference with teaching presence between White ($M = 53.06$, $SD = 8.23$) and Black or African American ($M = 50$, $SD = 14.430$), $t(73) = .655$, $p > .05$, $CI.95 -7.368, 13.491$. There was no statistically significant difference found with social presence between White ($M = 34.00$, $SD = 5.86$) and Black or African American ($M = 32.60$, $SD = 8.96$), $t(73) = .479$, $p > .05$, $CI.95 -5.098, 7.898$. Nor was there any statistically significant difference found with cognitive presence between White ($M = 47.00$, $SD = 7.11$) or Black or African American ($M = 44.40$, $SD = 12.04$), $t(73) = .665$, $p > .05$, $CI.95 -6.109, 11.309$. And lastly, there was no statistically significant difference found with satisfaction between White ($M = 42.97$, $SD = 6.24$) or Black or African American ($M = 41.10$, $SD = 11.93$), $t(73) = .485$, $p > .05$, $CI.95 -6.739, 10.477$ (Table 15). Thus, there was neither an association between race and students' perceptions of each presence subscale nor their satisfaction.

Table 15

Descriptive Statistics and Results of t-tests for Race and Teaching, Social and Cognitive Presence and Satisfaction

Outcome	Group						95% CI for Mean Difference	<i>t</i>	<i>Sign.</i>	df
	African American			White						
	M	SD	n	M	SD	n				
Teaching Presence	50.00	14.43	10	53.06	8.23	65	-7.368, 13.491	0.655	0.528	73
Social Presence	32.60	8.96	10	34.00	5.86	65	-5.098, 7.898	0.479	0.642	73
Cognitive Presence	44.40	12.04	10	47.00	7.11	65	-6.109, 11.309	0.665	0.521	73
Satisfaction	41.10	11.93	10	42.97	6.24	65	-6.739, 10.477	0.485	0.638	73

Note: N=75 as the test run on the dataset excluding one observation of Native Hawaiian or other Pacific Islander* $p < .05$. Equal variance not assumed

Research Question Five

What are the relationships among the number of prior online courses taken, difficulty with technology and RN to BSN nursing students' perception of social, cognitive, and teaching presence and their perceived satisfaction with their online course?

The analysis of the influence of technology used descriptive statistics of percents, means and standard deviations, then *Analysis of Variance* to determine whether the number of online courses taken influenced the perceptions of the three presence subscales, and nursing students' perception of their satisfaction with their online nursing course. An *Independent t-Test* was conducted to look at whether technology difficulties influenced students' perceptions of the three presence subscales and their satisfaction.

Table 16 displays the students' responses to the number of online courses taken prior to the online course they were taking in the study and whether they experienced any difficulty during the course. There were 34.2 percent of the respondents who had previously taken zero to three completely online courses, 26.3 percent having taken four to six online courses with the highest percentage of students having taken more than six prior online courses at 39.5 percent. When students reported whether they experienced difficulty with technology during their present course, 21.1 percent said they had difficulty while 78.9 percent reported having no technology difficulties during their online course.

Table 16.

Students' Technology Influences

Technology Influences	Frequency	Percent
Number of Completely Online Courses Taken		
0-3	26	34.2
4-6	20	26.3
More than 6	30	39.5
Technology Difficulties		
Yes	16	21.1
No	60	78.9
<hr/>		
<i>N=76</i>		

Number of Online Courses Taken.

Analysis of variance was conducted to look at associations between the number of online courses taken and the three presence subscales. There was no significant difference with the presence subscale scores between the number of online courses taken by the students. (Tables 17 and 18). Though no significant association was found, it was noted that for those students who had only taken 0-3 prior online courses, the means for the three subscales of presence and for satisfaction were lower indicating they had less agreement than those who had taken more than three prior online courses. For the three presence subscales, the means were slightly higher for those who had taken four to six prior online courses than for those taking more than six prior online courses. For satisfaction the highest means were for those students who had taken greater than six prior online courses.

Table 17.

Number of Online Courses Taken and Means for Presences and Satisfaction

Number of Courses Taken	Teaching Presence		Social Presence		Cognitive Presence		Satisfaction	
	M	SD	M	SD	M	SD	M	SD
0-3	50.69	10.83	32.27	7.00	45.08	8.85	40.65	8.06
4-6	54.00	6.83	35.00	5.37	48.30	5.31	33.84	6.26
More than 6	53.43	8.93	34.43	6.06	46.97	8.27	43.40	6.62

N=76

Table 18

*Number of Courses Taken and Associations Between Teaching, Social,
Cognitive Presence and Satisfaction*

Presences & Satisfaction	SS	df	MS	F	Sig ^a
Teaching Presence					
Between Groups	154.50	2	77.25	.920	0.403
Within Groups	6132.91	73	84.01		
Total	6287.41	75			
Social Presence					
Between Groups	101.62	2	50.81	1.308	0.277
Within Groups	2836.48	73	38.86		
Total	2938.11	75			
Cognitive Presence					
Between Groups	121.763	2	60.88	0.992	0.376
Within Groups	4479.013	73	61.36		
Total	4600.776	75			
Satisfaction					
Between Groups	198.997	2	99.50	2.002	0.142
Within Groups	3827.635	73	49.70		
Total	3826.632	75			

Sig^a = Significance.

Difficulty with Technology.

In examining whether there were differences in students' perceptions of the three presence subscales and satisfaction with those students who experienced technology difficulties during their online course and those who did not, an Independent t-Test was conducted. No statistically significant difference was found between those who had no difficulties (78.9 percent) and those who had difficulty (21.1 percent) on their perceptions of social presence and cognitive presence, and satisfaction.

However, for teaching presence perceptions, there was a statistically significant difference between those with technology difficulties ($M = 48.44$, $SD = 11.79$) and those without ($M = 53.77$, $SD = 8.07$), $t(74) = -2.116$, $p \leq .05$, $CI.95 -10.347, -.311$ indicating that those experiencing technology difficulty had lower teaching presence perceptions than those who had no technology difficulty (Table 19)

Table 19

Descriptive Statistics and Results of t-tests for Technology Difficulties during Online Course and Teaching, Social and Cognitive Presence and Satisfaction

Outcome	Yes Technology Difficulty			Group No Technology Difficulty			95% CI for Mean Difference	t	Sign.	df
	M	SD	n	M	SD	n				
Teaching Presence	48.44	11.79	16	53.77	8.07	60	-10.347, -.311	-2.116	0.038*	74
Social Presence	32.44	8.37	16	34.22	5.60	60	-5.288, 1.729	-1.010	0.316	74
Cognitive Presence	45.19	10.55	16	47.07	6.99	60	-6.278, 2.520	-0.851	0.397	74
Satisfaction	41.00	9.83	16	43.27	6.26	60	-6.264, 1.731	-1.130	0.264	74

Note: N=75 p < .05 (2-tailed).Equal Variance Assumed. Sig^a = Significance.

Research Question Six

What are the relationships among expected course grade, and cumulative GPA and RN to BSN nursing students' perception of social, cognitive and teaching presence and their perceived satisfaction with their online course?

Expected Course Grade.

In analyzing research question six, Table 20 displays academic factor data of expected course grade which might influence the students' perceptions of their online learning experience. Of the participants, 72.0 percent, identified their expected course grade as being an A+, A or A-, while 22.3 percent were expecting a B+, B or B-. The remaining two students each, 1.3 percent expected to receive a C+ and D respectively.

Table 20.

Student Participants' Expected Grade

GPA	Frequency	Percent
A+	6	7.9
A	40	52.3
A-	9	11.8
B+	3	1.3
B	13	17.1
B-	3	3.9
C+	1	1.3
C	0	0.0
C-	0	0.0
D+	0	0.0
D	1	1.3
D-	0	0.0
F	0	0.0

N=76

Grade Point Average.

GPA was reported by students as a numerical value. This number reported was re-coded using the educational institutions corresponding letter grade standard. The study found those students reporting having between and A+ to A- GPA (42.2 percent), those

reporting a B+ or B (50.0 percent), and 5.2 percent reporting a C+ to C-. Two students (2.6%) noted a zero for GPA. This may be a result of two students who identified they were taking their first online course in the program so answered that they did not have a GPA at this time prior to the end of their first online nursing course (Table 21).

Table 21

Student Grade Point Average (GPA)

GPA	Numerical value	Frequency	Percent
A to A+	4.0	16	21.1
A-	3.7 to 3.95	16	21.1
B+	3.3 to 3.69	24	31.6
B	3.0 to 3.29	14	18.4
B-	2.7 to 2.9	0	0.0
C+	2.3 to 2.69	3	3.9
C	2.0 to 2.29	0	0.0
C-	1.7 to 1.9	1	1.3
D+	1.3 to 1.69	0	0.0
D	1.0 to 1.29	0	0.0
D-	0.7 to .99	0	0.0
No GPA	0	2	2.6

N=76 Numerical value is the University's grade point average numerical value

Pearson's Correlation Coefficient was used to analyze the relationships between each presence subscale, satisfaction, and expected course grade and cumulative GPA.

There were no statistically significant associations between expected course grades and GPA with teaching presence, social presence, cognitive presence, or satisfaction with their online course (Table 22).

Table 22

Correlation between Teaching, Social, and Cognitive Presence and Academic Factors

Presences and Academic Factors Correlation	<i>Pearson's r</i>	Sig ^a
<u>Expected Course Grade</u>		
Teaching Presence & Expected Course Grade	0.137	0.237
Social Presence & Expected Course Grade	-0.020	0.863
Cognitive Presence & Expected Course Grade	0.151	0.194
Satisfaction & Expected Course Grade	0.208	0.072
<u>Grade Point Average (GPA)</u>		
Teaching Presence & GPA	-0.159	0.171
Social Presence & GPA	0.089	0.446
Cognitive Presence & GPA	-0.132	0.255
Satisfaction & GPA	-0.104	0.373
Expected Course Grade and GPA	0.255	0.050**

N=76 ** Correlation is significant at the 0.01 level (2-tailed). Sig^a = Significance.

Research Question Seven

Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students' perception of social, cognitive and teaching presence?

The researcher-developed survey items on learning instructional strategies used in the students' online course required a yes or no responses to each type of teaching strategies used in the course. The data was then re-coded as a binary response of zero and one respectively. Kendall's tau Correlation Coefficient was then used to measure the association between each online teaching strategy used in their online course and their perceptions of the three presence subscales.

There was one significant association between learning strategies and teaching presence. This was "activities which require you to reflect on your learning experiences" with a correlation coefficient of $r = 0.28$, $p = 0.004$. Two teaching strategies approaching significance for teaching presence included "discussion forum postings & responses" ($r = 0.18$, $p = 0.065$) and "virtual office hours" ($r = 0.19$, $p = 0.054$).

There was one significant association between social presence and the learning strategy of "discussion forum postings and responses" with a correlation coefficient of $r = 0.24$, $p = 0.016$. Two teaching strategies that were approaching significance included "feedback to peers or peer editing" ($r = 0.19$, $p = 0.055$) and "virtual office hours" ($r = 0.19$, $p = 0.056$).

Four learning strategies were found significantly associated with cognitive presence. These included "discussion forum postings and responses" with a correlation coefficient of $r = 0.21$, $p = 0.030$; "online synchronous activities using a type of chat function" with $r = 0.19$, $p = 0.049$; "virtual office hours" with $r = 0.196$, $p = 0.044$ and

“activities which require you to reflect on your learning experiences” with $r = .34$, $p = 0.000$. One instructional strategy approaching significance for cognitive presence was “use of learning resources such as external links or library link” ($r = .19$, $p = .057$) (Table 23).

Table 23

Correlation between Learning Activities Used and Presence Subscale Perceptions

Learning Activities in Course	Teaching Presence		Social Presence		Cognitive Presence	
	r	Sig ^a	r	Sig ^a	r	Sig ^a
Discussion Forum Postings & Responses	.180	.065	.235	.016	.210*	.030
Feedback to Peers or Peer Editing	.033	.734	.188	.055	.108	.267
Online Synchronous Activities Using a Type of Chat Function	.096	.325	.148	.129	.192*	.049
Virtual Office Hours	.188*	.054	.187	.056	.196*	.044
Online Feedback From Faculty	.004	.969	.089	.363	-.020	.833
Quizzes or Tests	.007	.945	-.054	.583	-.040	.681
Use of Multimedia Presentations By Students or Faculty	.094	.336	.084	.388	.122	.209
Case Studies	-.011	.912	.028	.772	.068	.487
Group Projects & Collaborative Activities	.077	.430	.001	.995	.096	.323
Learning Modules or Lessons with Objectives and organized content	.019	.849	.074	.447	.122	.209
Use of Learning Resources Such as External Links or Library Links	.008	.932	.099	.312	.185	.057
Activities which Require You to Reflect on Your Learning Experiences	.284**	.004	.104	.286	.341**	.000

N= 76 Kendall's tau b

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Multiple regression analysis was then used to analyze whether there were associations between the three presence subscales and any of the co-variables found significant or those approaching significance. These co-variables were entered into a regression equation for each of the three presence subscales to identify how these co-variables might explain students' perception of each presence subscale.

For teaching presence, the co-variables of technology difficulties, and the learning activities of: "discussion forum postings and responses", "virtual office hours", and "activities which require you to reflect on your learning experiences" were entered into the model. A significant regression equation was found [$F(4, 71) = 5.223, p .001$] with an R^2 of 0.227. Thus, 22.7 percent of the variance in teaching presence scores was accounted for by the co-variables of technology difficulties and the learning activities of: "discussion forum postings and responses", and "activities which require you to reflect on your learning experiences", which were significant with p -values < 0.05 (Table 24).

Table 24

Regression Analysis for Teaching Presence

Variable	Teaching Presence			
	Model		β	Sig ^a
	β	<i>SE</i>	β	Sig ^a
Technology Difficulties	-5.097	2.336	-0.228	0.032*
Discussion Forum postings & responses	5.706	2.410	0.250	0.021*
Virtual Office hours	6.061	6.128	0.107	0.362
Activities which require you to reflect on your learning experiences	4.850	2.093	0.251	0.023*
R^2		0.227		
F for change in R^2		5.223		

$N = 76$ * $p < .05$. Sig^a = Significance.

For social presence, co-variates of gender, and the learning activities used of “discussion forum postings and responses,” “feedback to peers or peer editing,” and “virtual office hours” were included in the regression model. For social presence a regression equation was found to be significant [$F(4, 71) = 3.459$, $p = .012$] with R^2 of 0.163. Thus, 16.3 percent of the variance in social presence was accounted for by the co-variates of “discussion forum postings and responses” ($p = 0.052$) (Table 25).

Table 25

Regression Analysis for Social Presence

Variable	Social Presence			
	<i>B</i>	<i>SE</i>	β	Sig ^a
Gender	1.125	2.378	0.052	0.638
Discussion forum postings and responses	3.723	1.885	0.238*	0.052
Feedback to peers or peer editing	1.970	1.492	0.158	0.191
Virtual office hours	7.190	4.242	0.185	0.094
R^2		0.163		
<i>F</i> for change in R^2		3.459		

$N = 76$ * $p < .05$. Sig^a = Significance.

The instructional strategies with significance for cognitive presence included in the regression model were: “Discussion forum postings & responses”, “online synchronous activities using a type of chat function”, “virtual office hours”, and “activities which require you to reflect on your learning experience”. Additionally, the instructional strategy of “use of learning resources such as external links or library links” which was approaching significance was put into the regression model. The regression equation was found significant [$F(4,71) = 4.091$, $p .005$] with $R^2 = 0.187$ indicating the predictor model was able to account for 18.7 percent of the variance in students’

perception of cognitive presence with “activities which require you to reflect on your learning experience’ which was significant with a p-value of .020 (Table 26).

Table 26

Regression Analysis for Cognitive Presence

Variable	Cognitive Presence			
	<i>B</i>	<i>SE</i>	β	Sig ^a
Online synchronous activities using a type of chat function	4.583	2.960	0.170	0.126
Virtual office hours	5.287	5.492	0.109	0.339
Use of learning resources such as external links or library links	2.052	1.807	0.128	0.260
Activities which require you to reflect on your learning experiences	4.573	1.920	0.276*	0.020
<i>R</i> ²		0.187		
<i>F</i> for change in <i>R</i> ²		4.091		

Note: *N* = 76 **p* < .05. Sig^a = Significance.

Research Question Eight

Is there a relationship between the type of instructional strategies used in online RN to BSN nursing courses and nursing students’ perception of satisfaction with their course?

Similar to research question seven, analysis of research question eight also recoded the type of instructional strategy used in their online course as a binary variable and then Kendall's tau Correlation Coefficient was calculated to determine if the teaching strategy used was associated with perceptions of satisfaction with their online course. The only association found between the learning activities identified and satisfaction was "activities which require you to reflect on your learning experiences" with a correlation coefficient of $r = 0.28$, $p = 0.005$. One teaching strategies though not significant at $p < .05$ was borderline significant and included "Virtual office hours" with a coefficient of $r = 0.178$, $p = 0.068$ (Table 27).

Table 27

Correlation Between Learning Activities Used and Satisfaction

Learning Activities in Course	r	Sig ^a
Discussion Forum Postings & Responses	.142	.144
Feedback to Peers or Peer Editing	.034	.723
Online Synchronous Activities Using a Type of Chat Function	.135	.165
Virtual Office Hours	.177	.068
Online Feedback From Faculty	-.003	.975
Quizzes or Tests	-.113	.244
Use of Multimedia Presentations By Students or Faculty	-.041	.673
Case Studies	.002	.986
Group Projects & Collaborative Activities	.047	.626
Learning Modules or Lessons with Objectives And organized content	-.009	.927
Use of Learning Resources Such as External Links or Library Links	.059	.541
Activities which Require You to Reflect on Your Learning Experiences	.275**	.005

N= 76 Kendall's tau b

** . Correlation is significant at the 0.01 level (2-tailed)

Findings in this chapter indicated students' perceived teaching and cognitive presence were present to a greater extent than social presence. Significant positive correlations ($p < .01$) were found between teaching and cognitive presence ($r = .79$), cognitive and social presence ($r = .64$), teaching and social presence ($r = .52$), satisfaction

and the teaching ($r = .77$), social ($r = .63$), and cognitive ($r = .52$) presences. Partial mediation was found for teaching and social presence with cognitive presence. There were no significant findings associated with age, ethnicity, race, number of online courses taken, expected course grade or GPA, and perceptions of the three presence subscales, and course satisfaction. There was a significant difference ($p \leq .05$) with gender and perceived social presence with male students reporting stronger levels. Students experiencing course technology difficulties reported significantly ($p \leq .05$) lower perceptions of teaching presence than those experiencing no difficulty. Significant associations ($p \leq .05$) were found between specific course instructional strategies and each presence and course satisfaction.

After completing the data analysis, findings and conclusions were identified related to the study questions. Chapter V includes a summary overview of the problem and purpose of the study, research questions, literature review, methods used, and findings of the study. Conclusions drawn from the findings and results of the data analysis are then presented. Finally, limitations of and recommendations from the study for future studies and use in online nursing education are given.

CHAPTER FIVE

Discussion and Summary

The purpose of Chapter five is to summarize the study and to discuss the study's findings. This includes a discussion of the relationship between the results, and the supporting theoretical framework. Finally, the strengths, limitations, implications of the results for nursing education, with recommendations for future research, and conclusions are included.

The purpose of this descriptive correlational study was to investigate eight research questions examining whether teaching, social and cognitive presence were perceived by RN-BSN nursing students enrolled in an online nursing course, and if relationships existed between the three presence subscales and students' perceived satisfaction with their online course. Also examined were co-variates which might influence students' perceptions of the three presences and their satisfaction.

Students' perceptions were measured by the administration of two valid and reliable survey instruments: The *Community of Inquiry Survey* (Swan et al., 2008) and the *Perceived Student Satisfaction Scale* (Arbaugh, 2000), both of which were created for the online learning environment. Cronbach's alpha coefficient for the *Community of Inquiry Survey* for each of the three presence subscales and the overall 34 items had excellent reliability above .92. Cronbach's alpha coefficient for the 12 item *Perceived Student Satisfaction Scale* was $\alpha = .78$ indicating an acceptable internal consistency across items indicating reliability.

Use of a third researcher developed survey to explore co-variates that might influence students' perceptions included: demographic factors of age, gender, race, and

ethnicity. The survey also included question items regarding technology factors related to the prior number of online courses taken and if there was any technology difficulty experienced during the course. Additionally, academic factors of student reported grade point average, expected course grade, as well as teaching strategies used in the course were examined to determine if these factors were associated with nursing students' perceptions of the three presence subscales and satisfaction with their online course.

Data were collected from 76 nursing students in an RN-BSN eight week required nursing course offered online each of three semesters through one institution. The survey was administered through students' course email using a Survey Monkey link. The link included the two survey instruments, along with the third instrument that solicited information regarding demographic identifiers, use of technology, academic factors and instructional strategies identified as used in the course.

The demographic characteristics of the samples in this study were consistent with the larger RN-BSN student population with the majority of subjects being female, similar to RN-BSN programs nationally reporting 86% of nursing students are female (NLN, 2012). Most of the nursing students who chose to participate were between the ages of 34-40 followed by those ages 21-29. A demographic breakdown was provided for age, gender, ethnicity, race, and employment status.

Descriptive and inferential statistics were used to analyze the research questions. Pearson's Correlation Coefficient was conducted to analyze relationships between each of the three presence subscales, as well as between each presence subscale and satisfaction. Pearson's Correlation Coefficient also was used to examine age, expected course grade and grade point average and their association with students' perceptions of

the three presence subscales and satisfaction. Sobel's test was carried out to determine if there were mediation effects between the three presences' subscales.

Independent *t*-Tests were conducted to examine if associations between gender, race and technology difficulties as covariates influenced students' perceptions of the three presence subscales and satisfaction. The Analysis of Variance test was carried out to analyze the prior number of online courses taken and if these influenced the associations between the three presence subscales and satisfaction. Kendall's Tau Correlation coefficients' was used to analyze whether instructional strategies identified as used in the online course influenced students' perceptions of the presence subscales and their course satisfaction.

Finally Multiple Linear Regression was conducted to verify the associations or relationships between each presence subscale and those explanatory co-variates which were found significant or approaching significance for each individual presence from the results of questions four through seven. Each of these co-variates was entered into a regression model for each presence subscale to identify if they were a fit for the regression model.

Findings and discussion

In the following section of this chapter, discussions of the eight research question findings and the implications of the study for nursing education in identification of best online educational practices, and future research needed are provided.

Perceptions of Presence

In examining the extent to which RN-BSN nursing students perceived social, cognitive and teaching presence in the nursing course offered online, the findings

supported the Community of Inquiry (CoI) framework indicating that each of the presence subscales were evident in the online course. Findings indicated that students perceived moderately to a great extent the existence of all three presence subscales within their online course. Teaching presence was perceived as being strongest followed by cognitive presence, and then social presence.

The CoI framework suggests that social presence is foundational for higher level discourse while teaching presence is necessary for supporting learning environments so that cognitive presence can develop and thrive (Arbaugh, 2007; Shea & Bidjerano, 2009b). The findings from the current study add to prior studies and support that nursing students in an online course had positive perceptions of the three presence subscales during their online learning experiences. Students perceived most strongly that teaching presence was evident by the responsibilities the teacher carried out in the design and organization of the course, with direct instruction that occurred, as well as the teacher's facilitation of the course activities.

Cognitive presence also was strongly perceived by students in this study indicating that the course activities assisted them in the phases of knowledge construction which occur with cognitive presence. The CoI theoretical framework notes that the phases of cognitive presence include: The triggering event, exploration, integration and resolution. These phases then were perceived by nursing students in the study as having occurred. Social presence was more moderately perceived but still indicated that the nursing students perceived they could express themselves, there was open communication, and that group cohesion occurred.

Nurse educators' knowledge of each presence experienced by students during their online course can be useful as they design, facilitate and evaluate nursing courses. Course activities need to consider each presence subscale and include activities and participation to enhance each of these presence subscales to improve course satisfaction that can lead to positive learning experiences of nursing students.

Intersecting of the Presence Subscales

In examining whether there were relationships between each of the three presence subscales with RN-BSN students, significant positive correlations were found between each of the three presence subscales. The strongest relationships were between teaching presence and cognitive presence followed by social presence and cognitive presence and lastly between teaching presence and social presence which was slightly weaker but still a strong relationship. This supports prior findings that a significant positive relationship exists between teaching and social presence as well as that social presence plays an important role in increasing cognitive presence (Garrison and Cleveland-Innes, 2005; Shea & Bidjerano, 2009b; Shea et al., 2010).

Findings of this study reflect the CoI framework in that there were significantly strong associations between the perceptions of each of the presence subscales by nursing students in an online course. This implies that to move students through the phases of cognitive development, the teacher must carry out specific teaching responsibilities important in course design, organization and direct instructions as well as be a participant in the online class. These findings also imply that though slightly weaker but still strong, that the social presence categories of expression, open communication, and group cohesion also increase student perceptions of their learning. Future design and

implementation for online nursing courses should include activities that support and encourage each of the three presence subscales. By designing a course with activities which promote each of the presence subscales, this can further enhance students' perceptions of the three presences and their satisfaction with courses taught online.

Mediation.

While each of the three presence subscales were found to be highly correlated with each other, further examination of how the three presences were interrelated was examined through mediation analysis. Teaching presence partially mediated the relationship between social presence and cognitive presence. Social presence was also found to partially mediate the relationship between teaching and cognitive presence. This is consistent with prior findings that teaching and social presence have been found to have a mediating role in developing cognitive presence (Anderson, Rourke, Garrison & Archer, 2001; Archibald, 2010; Garrison & Anderson, 2003; Garrison, 2011; Shea and Bidjerano, 2009b).

The responsibilities of teaching presence perceived by nursing students were found to partially mediate the relationships between social presence categories of allowing students to express themselves, have open communication and development of group cohesion, and led to students' perceptions of the phases of cognitive presence that can ultimately result in a positive learning experience.

It was also found that social presence partially mediated the relationship between teaching presence and cognitive presence. This is consistent with previous literature finding that social presence accounted for a significant amount of variance in the relationship between teaching presence and cognitive presence. Social presence then may

play an important role in governing part of the relationship between teaching and cognitive presence. When faculty carry out their teaching presence responsibilities and at the same time consider social presence categories in their instruction, these both then increase students' perception of cognitive presence. Nursing faculty knowledge of this effect can influence how they design and implement the online courses they teach. Understanding of the overlapping of the presence subscales can assist with course development and implementation.

Awareness of nursing faculty who teach online courses of the responsibilities of teaching presence in course design, organization, assignments and their participation can help explain the relationship that cognitive presence has with social presence. In addition to the teacher carrying out their responsibilities, they must also create activities that connect students to peers and faculty which develops and maintains social presence. Both teaching and social presence activities then may increase students perceiving themselves going through the stages of cognitive presence and being satisfied with their learning. Having an understanding of these interrelationships between and among teaching, social and cognitive presence adds to the CoI framework and can inform nurse educators of best online educational practice.

Satisfaction

Nursing students' perceptions of satisfaction were measured by the *Perceived Student Satisfaction Scale* and were between neutral and agreement. When examining whether there were significant associations between satisfaction and teaching, social and cognitive presence, significantly strong positive correlations were found between each of the presence subscales and satisfaction.

Significant strong relationships were found between cognitive presence and satisfaction followed by a strong positive relationship between teaching presence and satisfaction. Lastly, social presence and satisfaction had a weaker but still strong significant correlation. The results of this study support prior studies that indicate that students who perceive a greater extent of cognitive and teaching presence are more satisfied with their course (Bangert & Easterby, 2008; Burgess et al., 2011; Garrison & Arbaugh, 2007; Joo et al., 2011; Rubin et al., 2013). Students' perceptions of their learning in the course through the phases of cognitive presence had the strongest relationship to their course satisfaction indicating that students' perception of their learning can increase their course satisfaction. The teacher's activities and participation in an online course are important to students. Students' course satisfaction appeared to have a strong influence on their perceptions of the teachers' responsibilities in teaching presence and the teachers' participation.

Though slightly weaker, students' perceptions of social presence occurring in the course were significantly associated with students' course satisfaction. This current study was consistent with other studies which have found the perceived extent of social presence impacted students' online course satisfaction. Social presence categories may vary as to their importance with different students taking online courses and needs further investigations as to the influence social presence has on students online course satisfaction.

It is important for faculty to consider how the three presence subscales in a course influence students' satisfaction. Ultimately a student's satisfaction may result in faculty retaining students in their courses and in their online program of study. These

instructional strategies used by faculty might include the faculty participating more frequently in the course, responding to students with faster feedback, having synchronous chat rooms for peer communication, and planning more activities that require students to work collaboratively.

Demographic Factors Influence

In examining student demographics, the co-variate of age was not found to influence students' perceptions of the three presence subscales or their course satisfaction. No significant association was found between gender and cognitive presence, teaching presence or course satisfaction. Males were found to report higher perceptions of social presence than females though the sample size consisted of only 9.2 percent male. These findings were similar to Carlon et al., (2012) who found no effect by age but differed in respect to gender where no effect was found in students' perceptions of the three presence subscales with students from four different health care disciplines including nursing. Explanations of why social presence was higher with male students may be that males and females view online social relationships and connections differently, resulting in different perceptions of what constitutes social presence.

Initial research using the CoI framework with students in online courses has been within the United States. More recently, the *Community of Inquiry Survey* has been translated from English to Korean & Portuguese, finding all three presences had high reliability with confirmed validity (Moreira, Ferreira & Almeida, 2013; Yu & Richardson, 2015). In this study the racial and ethnic composition of the sample was predominately white with no significant differences between racial/ethnic background and perceptions of teaching, social or cognitive presence and course satisfaction. Based

on these findings and the lack of diversity within the student sample, it is not possible to determine if the racial and ethnic backgrounds of students affected the perceptions of teaching, social or cognitive presence in online courses, or their course satisfaction.

Expanding CoI framework research of nursing students of other racial, ethnic and cultural backgrounds and whose primary language is other than English is needed.

Technology Factors Influence

Examination of the association between the co-variate of technology influences reported as occurring by RN-BSN students and their perceptions of the three presence subscales and satisfaction, found students' experience level with online courses did not significantly impact their perceptions of the three presence subscales, nor did it impact their satisfaction with the course. The student sample was relatively experienced with online education, with 66% having taken four or more online courses prior to this course.

Students who experienced technology difficulties during their online course were found to perceive less teaching presence than those who had no technology difficulties. Technology difficulties did not influence students' perceptions of social and cognitive presence or course satisfaction. In the current study, it is possible that having technology difficulties interfered with the students' ability to interact with and develop a relationship with the faculty in the course. Students may also have perceived faculty as having some responsibility for aiding in the resolution of technology difficulties, and if that did not happen, it resulted in a perception of less teaching presence in the course.

Though no studies were found in the literature which specifically explored the association of technology difficulty with teaching, social and cognitive presence, one study did report that technical readiness predicted cognitive presence (Akyol, Garrison and Ozden (2009). Another study by Abraham (2013) using the Community of Inquiry

framework, found when looking at whether there were relationships between students technology readiness and cognitive presence, that the readiness sub-constructs of optimism and innovativeness were significant predictors of cognitive presence but discomfort and insecurity had no predictive effect. Though it was found that insecurity predicted the triggering event in cognitive presence, optimism predicted exploration and discomfort predicted resolution. These findings may indicate that enhancing students' technology readiness may increase their perceptions of cognitive presence.

The use of technology can also include the type of Learning Management System (LMS) and its features uses in an online course. Rubin, Fernandes & Avgerinou (2013) found several patterns of student use of select LMS educational technology as it related to the CoI model. They found the ease of communication provided by the LMS and the amount of online reading materials predicted cognitive presence, while the ease of finding information was marginally significant. So the more active learners who sought out and read given resources from the LMS had higher perceptions of their learning.

Academic Factors Influence

Analysis of academic factors found in this study that the self-reported GPA and expected course grade did not influence students' perception of the three presence subscales and their course satisfaction. This could have resulted from the lack of variability in GPA and course grade, as 97.4 percent of the respondents reported their expected course grade to be between an A+ to B- and 92.2 percent reported their GPA as a B or above. Those who did not choose to participate in the study might have been those having more course or academic difficulty and thus may have had different perceptions of the presence subscales and satisfaction.

Faculty are using online teaching methods with blended courses and increasingly using newer technologies available with mobile technologies. Two studies were found with blended learning college classrooms and perceptions of the three presences. In a recent case study of six disciplines including nursing, faculty used blended learning strategies including blogs, discussion groups, online experiments, recorded videos and screen casts and examined the influence they had on students' perceptions of the three presence subscales (Wicks, Craft, Mason, Gritter, & Bolding, 2015). They found engineering and psychology students had higher rating of cognitive presence and senior students across all disciplines had higher perceptions of teaching presence. Scialdone (2013) in a qualitative case study of masters level library science students in a blended course looked at whether social media influenced students' perceptions of the three presence subscales. The findings suggest that social presence was the most important type of presence on social media within blended courses, while cognitive and social presence were relatively important on social media within online courses. Further studies are needed of nursing students' perceptions of the three presence subscales in blended learning courses to identify if there are differences in students' perceptions of the presence subscales between blended learning and the online learning environment.

More recently, study of the use of the *Community of Inquiry Survey* with community college students taking online courses has taken place. Traver, Volchok, Bidjerano & Shea (2014) carried out one of the first studies of community college students using the CoI survey as a pre and post test with 17 blended courses. They found no difference in the presence subscales with those who completed their course and those that did not complete their course. Hall (2013) in a sample of community college non-

nursing students used an intervention of reflective lead in prompts in the discussion forum and found a direct positive relationship between the use of reflective practice and teaching presence compared to those sections of the courses that did not use reflective practices.

Online Instructional Strategies Influence

Instructional strategies were examined in the current study to see if there were associations between the type of strategies used in their online course and students' perceptions of the three presence subscales. The researcher developed questions, which gave eleven instructional strategy choices for students to identify if they were used in their online course, were created using Chickering and Gamson's (1987) principles of best practices for undergraduates. Also used in creating these 11 instructional strategies was a rubric of best practices and benchmarks for the development of online courses (Ternus et al., 2007). These principles and best practices are useful in developing online course structure and content, the process and interactions that occur during the course, and evaluation of course outcomes.

There were several instructional strategies found in the current study to have weak but significant associations with each presence subscale. The instructional strategy found to have an association with teaching presence was "activities which require you to reflect on your learning experiences." As faculty create assignments for their online courses, awareness of those which require students to reflect on course concepts, the course discussion, and their professional nursing experiences may increase students' perception of teaching presence.

There was one instructional strategy, “discussion forum postings and responses”, that had a significant but weak relationship with social presence. Discussion postings are collaborative in nature, thus this finding was supportive of prior findings in the non-nursing literature which found social presence increased with collaborative learning activities (Richardson & Swan 2003; Rovai 2002). Awareness that social presence may increase through the design and facilitation of discussion forums can encourage faculty to use various designs of discussion forums as well as consider how they facilitate the discussions during an online course. Examples might include for a course having higher enrollment, to place students into smaller discussion forum groups, have students create the discussion questions, and alter student leaders of different discussion forums.

Four instructional strategies were found to have a significant but weak relationship with cognitive presence. These included “online synchronous activities using a type of chat function” , “virtual office hours”, “discussion forum postings and responses” , and “activities which required you to reflect on your learning experiences” These last two learning strategies may be more understood by nursing faculty as being used to create cognitive presence and higher order thinking. The chat function and virtual office hours which are synchronous in nature; however may be thought of as more social in nature. It may be these activities provide stimulation in students’ thinking and provide clarification of questions and concepts during their learning experiences, thus increasing their perceptions of cognitive presence.

In examining all the co-variates which were significant or approaching significance that might influence each presence subscale, those examined for teaching presence found that 22.7 percent of the variance in teaching presence scores was

accounted for by technology difficulties and the learning strategies of: “discussion forum postings and responses”, and “activities which require you to reflect on your learning experiences”. Only the instructional strategy of “discussion forum postings and responses” was found to be associated with social presence perceptions. One instructional strategy, “activities that require you to reflect on your learning experience” was found to be associated with students’ perception of cognitive presence.

In comparing the instructional strategies found associated with the presence subscales in this study to those principles for good teaching practice for undergraduates by Chickering & Gamson (1987), several principles were found to be similar to those found in this study associated with the three presence subscales. Four principles of best practice include encouraging active learning, developing reciprocity and cooperation among students, student to faculty contact and prompt feedback. These have been found to be useful principles in designing and carrying out “discussion forum postings and responses” which were found in the current study significantly associated with each of the presence subscales. Discussion postings require active participation and cooperative learning between students and faculty and require faculty to give feedback either individually or to the class as a whole. There are times when faculty need to have input into the discussions between students to provide information, and clarification of concepts and assignments. Yet at other times, faculty need to step back and allow students to interact with open communication and in developing group cohesion, so students may perceive both higher teaching, cognitive and social presence through discussion forums are design and facilitation. So as faculty design a course discussion forum to enhance all three of the presence subscales, it can be beneficial to use student

leaders as moderators, have awareness of when to step in with comments and clarifications and when to allow students to carry on the discussion without faculty input.

Another principle for good teaching practice identified by Chickering and Gamson (1987) is that of communicating high expectations through the use of challenging assignments and application of course knowledge to real-world situations. Setting high expectations may be similar to the instructional strategy the current study found in “activities which require you to reflect on your learning experiences” which was significantly associated with teaching and cognitive presence. Communicating high expectations can be done through “discussion forum posting and responses” with challenging questions and setting expectations for quality postings in an online course. Faculty can give examples of exemplary postings, give directions at the beginning of a discussion forum assignment, and summarize towards the end of the discussion which may increase students’ perception of the teacher being present in their online course. Communicating high expectations in discussion forum postings may challenge nursing students to reflect on the assignments and then apply their knowledge to their professional practice settings, thus, increasing students’ perception of cognitive presence.

Lastly, Chickering & Gamson’s (1987) principle of student to faculty contact is important in three of the choices of instructional strategies given in this study including “discussion forum postings and responses”, “virtual office hours”, and “online synchronous activities using a type of chat function. These interactive communication strategies were found associated with cognitive and social presence in the current study. Faculty not only need to communicate with their students during the course, provide opportunity for them to ask questions and clarify course materials and assignments, but

faculty also need to encourage student to student communication through the assignments required. The type and frequency of these contacts vary with student needs. Faculty awareness of the need for various communication strategies can improve students' perceptions of social presence as well as continue their learning through the different phases of cognitive presence.

Many new technologies are being used in on the online classroom. Prior studies indicate that the availability of technology tools is not enough for successful use; but students need the skill and motivation to use the tools suggesting the need for different instructional interventions and support for different groups of students (Clarebout et al., 2013; Kovanovic et al, 2015; Lust et al., 2012).

The current study also examined associations between students' satisfaction with the course and the type of instructional strategies students reported as being used in their online course. Students' satisfaction had a significantly associated, though weak, relationship with the learning activity of "activities which require you to reflect on your learning experiences". It was interesting to note from this study that out of the eleven learning activity options given that this strategy was the only one that had a significant but weak positive correlation to students' satisfaction with their online course. Reasons for students' satisfaction are unknown but could be a result of course content, course design and assignments, or different faculty teaching methods and timely response to students. Further study of various instructional strategies that increase nursing students' course satisfaction is needed.

Theoretical Implications

The Community of Inquiry model (Figure 1 on page eight) was used to guide, interpret, and analyze the data for this study. This framework includes three interacting and overlapping presence components in an online course which can impact students' learning experiences (Garrison & Anderson, 2003). The framework assumes that higher order learning occurs through the interaction of the three presences (Garrison et al., 2000). In the model, teaching presence is a precursor to the development of social and cognitive presences and social presence also contributes to cognitive presence in the model. The conclusions drawn from the results of the current study were that the findings supported the theoretical model. This study found with RN-BSN students the three presence subscales were perceived and that there were significantly strong positive correlations between the each of the three presence subscales as well as between course satisfaction and the subscales. Partial mediation was found for teaching and social presence in the model confirming prior findings. The framework can be useful in explaining experiences and perceptions of nursing students in their online learning environment.

More recent studies have expanded the CoI framework to include a fourth presence, that of learning presence. Learning presence is distinct from the other three presences and emphasizes the goals and activities of the learners, and includes the self and co-regulatory processes students bring to online learning (Remesal & Friesen, 2014; Shea & Bidjerano (2010); Shea, Hayes, Uzuner-Smith, Vickers, Bidjerano, Gozza-Cohen, et al., 2013; Shea, Hayes, Uzuner-Smith, Gozza-Cohen, Vickers, & Bidjerano, (2014); Shea, Hayes, Smith, Vickers, Bidjerano, Pickett, et al., 2012). There are three

phases identified as occurring with the learning presence including: forethought, performance, and reflection. A more recent study of engineering students by Wertz (2014) examined learning presence along with the other three presences. It was found that social presence was a mediator between teaching, cognitive, and learning presence when each relationship was analyzed individually but social presence was not a mediator when all four constructs were included in the model simultaneously. No nursing studies have examined this fourth presence in the online classroom, thus, future studies of nursing students' perception of this fourth presence is needed and whether a mediation effect occurs with this presence and the other three presences with nursing students in online courses.

Study Strengths

Strengths of the study include that the study is one of few nursing studies to utilize the *Community of Inquiry Survey* instrument with nursing students in the online learning environment. Findings of the study support the theoretical model with identification of agreement that the three presence subscales and satisfaction were present in the online course and that there were significant positive relationships between each of these variables. The co-variables which influenced students' perceptions included technology difficulties being associated with teaching presence and male students having greater perceptions of social presence, though gender was not a significant influencing factor in the social presence regression model.

Another strength of the study was the identification of specific instructional strategies found which influenced students' perceptions of each presence subscales. This study gives additional knowledge of the type of instructional strategies that might be

associated with each presence subscale though further investigation is needed on these instructional strategies.

Limitations of the Study

Limitations of the study include the correlational design of the study, as correlational designs do not have the ability to imply causation (Houser, 2015). Therefore, it is important to note that relationships and associations found in this study do not imply causation.

Other limitations include those related to the sample. The convenience sampling used in the study included only nursing students enrolled in one online course in an RN-BSN program from one institution, thus findings may not be generalizable to other nursing programs and courses. Convenience sampling can present bias as can self-selection. The convenience sample of RN-BSN students included those who chose to participate in the study. While the researcher requested participation of all students enrolled in the online course, it is possible that students who self-selected to participate, were those who perceived they were performing well academically in the course and already engaged in course activities. The majority of students (92.2 percent) who responded, reported expecting to receive an A to B- in the course. It is possible that those who had lower grades might have had different perceptions than those doing well in the course.

The sample was recruited from one nursing course with similar course design and assignments but taught by two to three faculty in different sections each of the three semesters. This could result in variations among course faculty in their responses to students that might account for variations in the student responses. A different nursing

course might also have resulted in different perceptions as a result of course content, design, organization and required assignments.

The overall sample size (N= 76), with a response rate of 29.2 percent was small though considered adequate for online surveys. In order to achieve a higher power, a larger sample size would be beneficial (Brase & Brase, 2012). With a small sample size the results may not be generalizable; thus, further research with a larger sample size, from multiple institutions is recommended.

Implications for Nurse Educators

Retaining students in online courses and programs requires nursing faculty teaching in online programs to re-evaluate their course delivery methods and implement methods supporting online learners (Morris, Buck-Roland & Gagne, 2002). The present findings of this study contribute to the body of nursing education literature by extending current research on the CoI framework in the online learning environment.

Prior to this study there were limited studies that had used the *Community of Inquiry Survey* instrument to evaluate nursing students' perceptions of the three presence subscales and their course satisfaction using the *Perceived Student Satisfaction Scale*. Also, few studies have looked at instructional methods of online nursing courses and how these might influence students' perceptions of the three presence subscales and satisfaction. Increased awareness of nursing faculty who teach online courses is needed regarding course design and learning strategies most useful in creating and maintaining students' perceptions of the presence subscales and whether certain instructional strategies improve students' course satisfaction.

This study examined nursing students' perceptions of teaching, social and cognitive presence. Each of these presences have specific indicators that were not examined in this study with nursing students. These include the responsibilities of teaching presence, the categories of social presence and the phases of cognitive presence. Future studies might look at these indicators for each presence subscale to identify their association with each other and which are most influential in the model. An additional construct needing further study is learning presence as a possible future addition to framework. Pecka, Kotcherlakota, & Berger (2014) also suggested Bloom's taxonomy as a useful addition to the CoI model for measuring nurse anesthesia students' higher order thinking in distance education courses.

Another recommendation for future studies is to examine co-variates which might influence students' perceptions of the presence subscales and their online course satisfaction. Faculty awareness of co-variates which influence students' perceptions of their online courses can assist nurse educators in overcoming additional barriers students encountered in the online environment. Co-variates to examine might include gender, new technologies, course and academic variables and instructional strategies used in teaching online courses. In the past most nursing programs had more females than males but this is changing to where more males are now enrolled in online nursing programs. Future studies of male nursing students, racially diverse, and non-english speaking groups of nursing students as to their perceptions of the three presences would be beneficial to study.

Future evolving technologies have the potential for creating rich learning experiences, and additional implications for online learning. The use of new technologies

may influence students' perception of the presence subscales and their online course satisfaction. New technologies can provide new connections between learners and faculty in their communications as well as with the use of technology in presenting course content. Evaluating the use of these new technologies in the online classroom and student technology readiness using valid and reliable instruments such as the *Community of Inquiry Survey* and *Perceived Student Satisfaction Survey* instruments. Using these instruments prior to and following the use of an instructional strategy to determine outcome measures of these newer online teaching methods would be a valuable addition to our understanding of online education teaching-learning strategies.

Another recommendation for future studies is to examine academic co-variates which might influence students' perceptions of the presence subscales and their online course satisfaction. One area to examine would be those nursing students receiving low grade achievement rather than high grade achievement and whether they have different needs and benefit more from one of the three presences. Additional research is needed in comparing more than one course, those in blended nursing courses, nursing students in more than one learning institutions, and with community college and graduate nursing students. Future studies would be beneficial to examine if students' perception of the three presence subscales change over time from the beginning to the end of a course. This could reveal, for example, if social presence is more evident at the beginning of a course when more social presence activities occur with students sharing about themselves, but then as the course continues perceptions of cognitive presence may become greater as more time is spent in activities which represent the cognitive presence phases. Nursing students who are grouped into cohorts in online programs and continue through as a

cohort could be studied as to how perceptions of social presence changes as the cohort progresses throughout their program of study.

In looking at specific instructional strategies used in an online course, prior studies of nursing students taking online courses have primarily looked at social presence. Use of best teaching practice principles such as Chickering and Gamson's (1987) might serve as a useful model for designing online activities. Future studies are needed of the three presence subscales simultaneously comparing student perceptions prior to and following specific teaching strategies in the online course environment.

The results of this study may provide structure and future guidelines for designing online courses in RN-BSN online programs. The findings deserve additional research and attention by nurse educators to assure students are receiving appropriate online instruction as they continue to pursue higher levels of education.

Conclusion

In conclusion, the study utilized the *Community of Inquiry Survey* and the *Perceived Student Satisfaction* instruments to ascertain students' perception of teaching, social, and cognitive presence and relationships between these and their satisfaction with their online course. Both instruments performed reliably finding significant strong positive correlations between teaching, social and cognitive presence and satisfaction of RN-BSN students. The findings of the study were consistent with previous studies that demonstrated the existence of presence, with strong relationships between the three presence subscales as well as strong relationships between satisfaction and each subscale. Teaching presence and social presence were found to be partial mediators to cognitive

presence; thus, important to consider in online course development. These findings give further support to the Community of Inquiry framework with RN-BSN nursing students.

Co-variates examined in the study confirmed associations between technology difficulties experienced with teaching presence, and gender differences with social presence but failed to confirm the significance of other covariates of age, race, academic factors and number of online courses taken. Specific instructional strategies were found associated with each of the presence subscales that can be useful in future course design. Limitations included small sample size and lack of generalizability.

The results of this study are promising for nurse educators who are looking for ways to increase presence and satisfaction in their online courses. Knowledge from the study can be useful for nursing faculty in the design and implementation of online courses. Knowledge of various teaching strategies to include in an online course to create each of the three presences and to improve satisfaction can be useful for those planning online courses. Faculty should be mindful of online course design and use strategies that create and maintain teaching, social and cognitive presence in future online courses. This can improve student satisfaction and retention for those nurses furthering their education as well as maintaining quality of nursing courses and programs that are taught online.

Appendix A

Community of Inquiry Survey

Likert-type scale

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Statement	1	2	3	4	5
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.					
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 course.					
10. Instructor actions reinforced the development of a sense of Community among course participants.					
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.					
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.					
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.					
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.					
23. Problems posed increased my interest in course issues.					
24. Course activities piqued my curiosity.					
25. I felt motivated to explore content related questions.					
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.					

Appendix A Continued

28. Discussing course content with my classmates was valuable in helping me appreciate different perspectives.					
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.					
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.					

Permission received for use in Appendix G. (Arbaugh et al., 2008; Boston et al., 2009; Swan et al.,2008)

Appendix B

Perceived Student Satisfaction Instrument

Likert-type scale

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Question Items	1	2	3	4	5
I am satisfied with my decision to take this course via the Internet.					
If I had an opportunity to take another course via the Internet, I would gladly do so.					
I was very satisfied with this course.					
I feel that this course served my needs well.					
The quality of the course compared favorably to my other nursing courses.					
I feel the quality of the course I took was largely unaffected by conducting it via the Internet.					
My choice to take this course via the Internet was a wise one.					
Conducting the course via the Internet improved the quality of the course compared to other nursing courses.					
I will take as many courses via the Internet as I can.					
I was disappointed with the way this course worked out.					
If I had it to do over, I would not take this course via the internet.					
Conducting the course via the Internet made it more difficult than other nursing courses I have taken.					

Permission received for use with adaptation in Appendix H. (Arbaugh, 2000a).

Appendix C

Student Characteristics, Academic and Technology Factors and Online Course Teaching

Strategies Survey

1. Are you an RN to BSN student who holds a professional registered nurse license?
 - A. Yes
 - B. No (If you are not please do not complete the survey)

2. How many years have you worked as a Registered Nurse?
 - A. None
 - B. Less than one year
 - C. 1 to 3 years
 - D. 3 to 5 years
 - E. 5 to 10 years
 - F. 10 to 20 years
 - G. More than 20 years

3. What is your current employment status?
 - A. I am not currently working
 - B. I am currently working Full-time as a Registered Nurse
 - C. I am currently working Part-time as a Registered Nurse
 - D. I am not currently working as a Registered Nurse but in another position

4. What is your age in years? ____

5. What is your gender?
 - A. Female
 - B. Male

6. Please select the ethnic group you identify most with:
 - A. Hispanic or Latino
 - B. Not Hispanic or Latino

7. To which racial group(s) do you most identify? (Select all that apply)
 - A. White
 - B. Hispanic-Latino
 - C. Black or African American
 - D. American Indian-Alaskan Native
 - E. Native Hawaiian or other Pacific Islander
 - F. Other (please specify)

8. How many completely online courses have you taken prior to this course?
- A. This is my first completely online course
 - B. I have taken 1-3 completely online courses prior to this course
 - C. I have taken 4-6 completely online courses prior to this course
 - D. I have taken more than 6 completely online courses prior to this course
9. Have you experience any technology difficulties that have affected your ability to access this course while taking it?
- A. Yes
 - B. No
10. What grade do you expect to receive in this course?
- A. A+
 - B. A
 - C. A-
 - D. B+
 - E. B
 - F. B-
 - G. C+
 - H. C
 - I. C-
 - J. D+
 - K. D
 - L. D-
 - M. F
11. What is your current cumulative grade point average (GPA)?

12. What type of learning activities were used during your online nursing course?
(Check all that apply)
- A. Discussion forum postings and responses
 - B. Feedback to peers or peer editing
 - C. Online synchronous activities using a type of Chat function
 - D. Virtual office hours
 - E. Online feedback from faculty
 - F. Quizzes or tests
 - G. Use of multimedia presentations by students or faculty
 - H. Case studies
 - I. Group projects and collaborative activities
 - J. Learning modules or lessons with objectives and organized content
 - K. Use of learning resources such as external links or library links
 - L. Activities which require you to reflect on your learning experiences

Appendix D

Introductory Letter Requesting Participation Email

Dear Nursing Student,

You are invited to participate in a research study of RN to BSN students entitled “Nursing Students’ Perceptions of Presence in Online Courses”. If you agree to participate, you will be one of many nursing students complete the survey.

This survey information will be used in completing a nursing research project for my PhD dissertation. The purpose of the study is to examine RN to BSN nursing students’ perceptions of social, teaching and cognitive presence in their online nursing courses, their perceptions of course satisfaction and whether they are related to one another and to the teaching strategies used in their online course.

You will receive and email in one week with the link to the survey embedded in the email. Participation in the study will require the completion of a 56 item online survey questions that collect demographic data and measures your perceptions of social, teaching and cognitive presence, as well as your perceptions of your satisfaction with this online course. It is estimated that it will take approximately 15 minutes to complete and electronically submit the survey. Please complete the survey before the last day of the course.

All responses to this survey will be confidential. Your responses will not be shared with your course faculty. Participants will remain anonymous and will only be known to the researcher. All data will be reported as group data. If the results of the study are published or presented, subjects will not be identified. There are no known risks to participation in this study. Outcomes of this study can provide future direction for developing positive learning experiences for nursing students who engage in online learning. The grade that you will receive in this course will not be influenced by your decision to participate or not participate in this study.

You may choose not to participate or to stop participating in this study at any time. Your completion and submission of the online survey indicates your willingness to participate in the study. If you have any questions about this study or wish to have results of the study provided to you at the completion of the study you may contact me at the email and phone number given below.

In appreciation of your participation by completion of the survey, a \$10.00 gift card for Wal-Mart will be sent to you. Once you have completed the survey questions, an additional link will take you to a page where you can complete your name and address which will only be used to send you the gift card. This personal information will be kept separate from the survey information and be kept anonymous and confidential with only the researcher having access to this information.

Thank you,
Jennie Van Schyndel, MSN, RN
PhD student, Indiana University School of Nursing
E-mail: [REDACTED]
Phone: [REDACTED]

Appendix E

Introduction to Precede the Survey Questions

[Introduction which will precede the actual questions of the survey]

Students,

This survey is part of a nursing research study which will look at RN to BSN nursing students' perception of social, cognitive and teaching presence and their satisfaction with online nursing courses. The questions are not part of your school's course evaluations. Information from this survey will be confidential and no information from your responses will be shared with your faculty nor will completing this survey influence your grade in this course. Completion of this survey will take approximately 15 minutes to complete, is voluntary and will indicate that you have agreed to participate. If you complete the survey you will receive an incentive \$10.00 gift card from Wal-Mart by following the directions to a separate link at the end of the survey. Please complete the survey by the last day of your online nursing course.

Thank you for your participation.

Jennie Van Schyndel, MSN, RN

PhD student

Indiana University

School of Nursing

E-mail: [REDACTED]

Phone: [REDACTED]

Directions:

Question number one asks "are you an RN to BSN student who already holds a professional nursing license". If you are not already an RN, a graduate student, not a nursing student, or not in a completely online course please do not complete the survey.

Items numbers 2-46 are for you to consider regarding your perceptions of your online nursing research course experience this semester. Please read each statement and using the rating scale select one answer which most closely represents your perception of the degree to which you agree or disagree with the statement.

Item numbers 47-56 are questions regarding demographic, technology, academic information, and the teaching and learning strategies used in your online nursing course.

Below is the Survey Monkey link with the survey questions.

Link

Appendix F

Second Request to Participate Letter

Dear students,

You should have received an email one week ago requesting your participation in a nursing research study focused on the perceptions of RN to BSN nursing students with their online course. If you have not already completed the survey, I am inviting you to participate in this research project. The survey should take no longer than 15 minutes of your time to complete. Your participation is voluntary and will not influence your grade in this course. Completion of the survey will constitute your consent. No identification will be associated with your responses and only summarized data will be reported in statistical results. Please complete the survey by the last day of your online nursing course.

Below is the Survey Monkey link with the survey.

LINK

Thank you for your participation.

Sincerely,
Jennie Van Schyndel, MSN, RN
PhD student
Indiana University
School of Nursing
E-mail: [REDACTED]
Phone: [REDACTED]

Appendix G

Gift Card Survey Monkey Link

I sincerely appreciate your completing the survey for my research study “Nursing Students’ Perceptions of Presence in Online Courses”. This information will assist future nursing faculty in their design and implementation of online courses. To receive your \$10.00 Wal-Mart gift card please click on the link below. You will be asked for your name and mailing address. This information will remain anonymous and confidential. You should expect your card one week following the end of your course.

Thank you,

Jennie Van Schyndel, MSN, RN

PhD student, Indiana University School of Nursing

E-mail: [REDACTED]

Phone: [REDACTED]

What is your name: _____

What is your mailing address

Street or PO Box

City

State

Zip Code

Appendix H

Permission to use the Community of Inquiry Presence Instrument

RE: Permission to use the Col instrument

<http://mail.aol.com/38023-111/aol-6/en-us/mail/PrintMessage.aspx>

From: Swan, Karen <kswan4@uis.edu>
To: 'tallvan@aol.com' <tallvan@aol.com>
Subject: RE: Permission to use the Col instrument
Date: Thu, Aug 29, 2013 1:56 pm

That is fine with me Jennie.

From: tallvan@aol.com [mailto:tallvan@aol.com]
Sent: Thursday, August 29, 2013 1:56 PM
To: Swan, Karen
Subject: Permission to use the Col instrument

Karen,

I would like to have permission to use the Community of Inquiry Instrument for my dissertation as a student at Indiana University, College of Nursing.

The study will look at nursing students' perception of the three presences, satisfaction and teaching strategies used in their online class.

The proposed sample will be those students who have a nursing license but are in a program to obtain their Bachelors degree.

I would like to use the first 34 questions but not include questions 35, 36, 37 as I will use another instrument to measure satisfaction.

Thank you for your consideration,

Jennie Van Schyndel
jvanschyndel@iupui.edu
217-414-0590

1 of 1

9/9/2013 10:31 AM

Appendix I

Permission to use Perceived Student Satisfaction Instrument

Re: latest request this file

Page 1 of 2

Re: latest request this file
 Ben Arbaugh [arbaugh@uwosh.edu]
 Sent: Thursday, September 05, 2013 10:47 AM
 To: Vanschyndel, Jennie L.

Hi Jennie,
 This is fine with me. Good luck with the study, Ben

On Wed, Sep 4, 2013 at 7:37 PM, VanSchyndel, Jennie L. <Jennie.Vanschyndel@stjohnscollegespringfield.edu> wrote:
 Dr. Arbaugh,

September

2, 2013

Please disregard the earlier request.

My name is Jennie Van Schyndel and I had contacted you in 2010 and obtained your permission to use your satisfaction instrument for a pilot study as part of my PhD in nursing at Indiana University research practicum. I used it with the Community of Inquiry presence instrument. After finishing my coursework, I am now working on my dissertation with a similar focus. The study will look at nursing students' perception of the three presences, satisfaction and teaching strategies used in their online class. The proposed sample will be those students who have a nursing license but are in a program to obtain their Bachelor's degree.

I plan to use the Col instrument without questions #35-37 and then would like to obtain permission to use your satisfaction instrument using the 12 questions.

Your instrument from the article measuring student's perceived satisfaction had twelve questions to measure perceived student satisfaction. I would like to use with your permission the twelve items with adaptation of MBA (change to nursing) courses¹

Thank you for your time in considering this request,

Jennie Van Schyndel, RN, MSN
 Assistant Professor of Nursing
 St. John's College
 729 E. Carpenter
 Springfield, IL 62702
 217 414 0590 (c)
 217 544 6464 ext 45455 (W)
 jvanschyndel@stjpu.edu

Questions I would like to use

Perceived Student Satisfaction
 Likert-type scale 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Original Question Items	1	2	3	4	5
I am satisfied with my decision to take this course via the Internet.					
If I had an opportunity to take another course via the Internet, I would gladly do so.					
I was very satisfied with this course.					
I feel that this course served my needs well.					
The quality of the course compared favorably to my other MBA (change to nursing) courses.					
I feel the quality of the course I took was largely unaffected by conducting it via the Internet.					
My choice to take this course via the Internet was a wise one.					
Conducting the course via the Internet improved the quality of the course compared to other MBA (change to nursing) courses.					
I will take as many courses via the Internet as I can.					
Reverse coded questions:					
I was disappointed with the way this course worked out.					
If I had it to do over, I would not take this course via the internet.					
Conducting the course via the Internet made it more difficult than other MBA (change to nursing) courses I have taken.					

Arbaugh, J.B. (2006a). Virtual classroom characteristics and student satisfaction with internet-based MBA courses. *Journal of Management Education*, 24(1), 32-54.
 doi:10.1177/105256290602400104 (p. 41)

J. B. (Ben) Arbaugh, Ph.D.
 John McNaughton Rosebush Professor
 College of Business
 University of Wisconsin Oshkosh
 800 Algoma Blvd.
 Oshkosh, WI 54901
 (920) 203-2647
 email: arbaugh@uwosh.edu

<https://owa.il.hshsd.org/owa/?ae=Item&t=IPM.Note&id=RgAAAADyjQXBtk1tRZ6bLjw...> 9/5/2013

Appendix J

Intitutional Review Board Approval

vd: Van Schyndel Action List Reminder

Page 2 of 3

the site is that it has passed. Is that how you see it?

Jennie

You should have received the same email action list notice. When I went through using the links in the email below I see

Id: 82788

From: admin

Recipients: jhalstea , jvansch

Channel: KC Notification Channel

Producer: Notification System

Type: FYI

Priority: Normal

Send Date: 2014-03-17T10:25:29.000-04:00

Removal Date: none

Title: Protocol 1403891772 Exempt

Content:

The IRB protocol number 1403891772, Principal Investigator Halstead, Judith A has had the action "Protocol Exempt" performed on it. The action was executed by Mills, Adam Michael. Additional information and further actions can be accessed through the Kuaii Coeus system.

Then I went in Under the regular IRB login and clicked the tab status and updates when I clicked it says

Status & Dates

Protocol #:1403891772

Approval Date:03/17/2014

Initial Submission Date:03/11/2014

Protocol Status:Exempt

Last Approval Date:Generated on
Renewal Approval

Expiration Date:Generated on
Approval

-----Original Message-----

From: workflow <workflow@iu.edu>

To: jvansch <jvansch@iupui.edu>

Sent: Mon, Mar 17, 2014 9:25 am

Subject: Action List Reminder

Your Action List has an eDoc(electronic document) that needs your attention:

Document ID: 27006945
Initiator: Notification System
Type: Add/Modify KualNotification
Title: Protocol 1403891772 Exempt

To respond to this eDoc:

Go to <https://onestart.iu.edu/kr-prd/ken/DetailView.form?docId=27006945&command>

Or you may access the eDoc from your Action List:

Go to <https://onestart.iu.edu/kr-prd/kew/ActionList.do>, and then click on the numeric Document ID: 27006945 in the first column of the List.

<http://mail.aol.com/38466-111/aol-6/en-us/mail/PrintMessage.aspx>

3/28/2014

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Amacom

CURRICULUM VITAE

Jennie L. Van Schyndel

Education

Indiana University, Indianapolis, Indiana, 2015

PhD in Nursing Science

Major: Health Systems

Minor: Nursing Education

Focus: Online nursing education

University of Missouri, Columbia, Missouri 1992

Master of Science

Emphasis: Clinical Nurse Specialist in Adult Preventive Health

University of Illinois, Chicago, Illinois, 1979

Bachelor of Science in Nursing

Lincoln Land Community College, Springfield, Illinois, 1976

Associates of Science Degree in Nursing

Honors, Awards, Fellowships, Memberships

2010 Nurse Educator Fellowship Program (\$10,000.00); Illinois Board of Higher Education: Project: Online Education.

Member: Sigma Theta Tau 1992-Present.

1991 Sigma Theta Tau-Alpha Iota Chapter sponsored Thesis project.

Member: American Public Health Association.

Member: Association of Community Health Nursing Educators.

Member: Midwest Nursing Research Association.(past)

Member: National League for Nursing 1993-2014.

Member: Illinois Public Health Association.(past)

Research and Training Experience

Factors predicting St. John's College students NCLEX passage. 2005

Nurses' Definition and Practice of Health Promotion (Thesis). 1992

Professional Experience

State of Illinois: Department of Human Services, Champaign, Illinois. 2014-Present.

Maternal Child Health Consultant.

- Monitor State Grants & Clinical Nursing Outcomes for Maternal Child programs.

Family Case Management

High Risk Infants

Health Works-Foster Children Medical Case Management

Home Visiting Programs

St. John's College, Springfield, Illinois. 1993- 2014.

Assistant Professor of Nursing

- Responsible to teach didactic and clinical in BSN and RN- BSN online program: Community Health, Informatics, Nursing Research, Introduction to the Health Care system, Geriatric-Psychiatric nursing. Guest lecturer in courses: Leadership Management, Maternal Child Nursing, Pathophysiology/Pharmacology.
- *Technology Coordinator.*
 - Assessment Technology Institute (ATI) coordinator.
 - Learning Management System Coordinator. 2003-2014.
 - Tutorial Development: How to use new learning management system (developed for faculty and students). Spring 2011.
 - Provided input into technology long range plan needs.
 - Technology consultant for Continuing Education Department grant for technology equipment and smart classroom.
 - Reviewed NLNAC online RN to BSN online program application related to technology.
 - Collaborate between company, IT, faculty in installation and use of smart classroom in 2011-2012.

St. Clare's Medical Center, Crawfordsville, Indiana, 2004-2007 (part time).

Staff Nurse: Geriatric Psychiatric Unit

Illinois State University, Bloomington, Illinois, July-August 2009.

Adjunct Clinical Instructor.

- Responsible to teach clinical in BSN program: Community Health.

Three Rivers Community College. Poplar Bluff, Missouri, 1983-1993.

Instructor of Nursing.

- Responsible to teach didactic and clinical in Associate Degree Nursing program. Fundamentals, Obstetric, & Pediatric Nursing.

Dent County Health Center, Salem, Missouri, 1979-1982.

Community Health Nurse II.

- Clinical: Public Health Department: Maternal and Child Health Programs.

Memorial Medical Center, Springfield, Illinois 1976-1978.

- Clinical: Staff & charge nurse in renal and kidney transplant unit

Professional Presentations

- American Association of Community Health Nurse Educators. Poster presented 2015
 - State of Illinois Webinar (2014). Reproductive Life Plan.
 - Illinois Public Health Evidence Based Nursing, “Perinatal *Group*”, Poster presented Illinois Public Health Association, 2008.
 - Illinois Coalition for Nursing Resources. “*Teaching Strategies for Educating future Practitioners about Health Care Reform*” Springfield, Illinois. August 13, 2010.
- St. John’s College.

2011

Pendulum of change: Mobile device use for nursing education.

Use of new learning management system tutorial for students & faculty.

Online teaching strategies: Discussion forums.

Technology tools: Resources for educators.

2010

Web 2.0 teaching strategies.

Moving to online education.

2005 Factors predicting St. John’s College students NCLEX passage.

2003 Advising.

1998 Community based nursing.

1996 Innovative teaching strategies.

Institutional Service Activities St. John’s College

- Advisement
- Committee Responsibilities
 - *Research and Evaluation* Committee. 2008-2014. Oversight of college evaluation program.
 - *NLNAC Accreditation Report*. Chairperson of Study Group: 2008-2009.
 - *HLC Accreditation Report*. Study Group: 2008-2009.
 - *Student Affairs Committee*: 2003-2009 Reviewing & complete outcome studies, Student records,. Revision of Advisement program and handbook.
 - *NSNA Advisor*, 2008-2014.
 - *Student Government Committee advisee* (2005-2006).
 - *Student Grievance Committee* (2004-2007).
 - *NCLEX AD Hoc Committee* (2001--2007) (Chair 2003-2004)(Co Chair 2004-2007) including literature reviews, long range plan development and evaluation.
 - *Faculty Development Committee* member (1993-2003) and chairperson(2 years)which included updating faculty handbook, biannual workshop preparation. Completed outcome studies on faculty development & role effectiveness (1999); Faculty policies (2000); Faculty characteristics & qualifications (2003).