

**DIFFERENCES IN PREFERRED TEACHING STRATEGIES: A QUANTITATIVE
STUDY OF NURSING STUDENT PERSPECTIVES**

by

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Abstract

The preparation of nursing students to meet the demands of the nursing profession remains the goal of academic institutions worldwide. The most productive methods of preparation, including specific teaching strategies to attain that goal, have long been debated. This quantitative, non-experimental study included an investigation of the most preferred teaching strategies among baccalaureate degree nursing (BSN) students in an effort to support the development of best practice recommendations for meeting the andragogical needs of adult learners and aid in the preparation of effective nurses who practice safely. The results of the study showed that BSN students most prefer hands-on, simulation-based teaching strategies and least prefer concept-mapping as a primary teaching strategy. The results of the study also indicated that the only differences in preferred teaching strategies among BSN students were in relation to academic year, most specifically differences between junior and freshman academic years. With regard to correlations between learning styles and preferred teaching strategies, the results of the study found significant correlations between BSN students' self-identified learning styles and their preferred teaching strategies. The results of the study indicated that nursing educators should implement hands-on, learner-centered teaching strategies in an attempt to meet the learning needs of BSN students. Finally, the implications of the study support the use of students' dominant learning styles to drive the choice of teaching strategies in the academic setting.

Dedication

This dissertation is dedicated to my parents, Mike and Deb, who have stood by me, encouraged me, offered a listening ear, a shoulder to cry on, and their strength to lean on. There were days when I couldn't see the light at the end of the tunnel and wondered why I ever started this process. You both pushed me through and for that I will be forever grateful. To my sister, Tessa, for the emergent technical and statistical support that more than once saved me from a mental breakdown. To my brother Zac, for the motivational speeches, you have a way with words my man. Last but certainly not least, to my best friend and brother Colton, your words of encouragement and promises that it would all be worth it in the end were sometimes exactly what I needed to get through another long night of writing, well that and wine! I love you all and I could not have done this without you!!

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

As the nursing profession becomes more complex, nursing educators are tasked with developing cutting-edge teaching strategies to prepare students to meet the challenges of the workforce. While nursing educators must rely on research and evidence-based practice to support their choices of teaching methodology, andragogical principles dictate that adult learners be given a voice in the development and use of teaching and learning methods (Knowles, Holton, & Swanson, 2011). At present there is minimal research exploring the nursing students' preferred teaching strategies. Therefore in an effort to add to the existing body of knowledge, this quantitative research study provided an investigation of the differences in preferred teaching strategies among baccalaureate degree nursing (BSN) students based on student age, gender, academic year, traditional/non-traditional status and sought to identify any correlations between preferred teaching strategies and self-identified learning styles.

Endeavoring to identify the nursing students' preferred teaching strategies creates a sense of partnership between educators and learners within the learning environment. Martin, McCormack, Fitzsimons, and Spirig (2014) stated that providing nursing students with the ability to partner with educators in a shared governance role, and engage in the creation of the learning environment, ultimately promotes a sense of ownership and investment in the outcome of the educational journey. Research in nursing education has only superficially explored available

teaching strategies, effective teaching strategies, and preferred teaching strategies from both the educator and student perspectives.

Furthermore, existing research in nursing education has not identified validated connections between learning styles and preferred teaching strategies. In fact, when using a learning styles inventory that explores visual, auditory, reading/writing, and kinesthetic learning styles most nursing students identify with more than one learning style, making them multimodal learners (Frantz & Mthembu, 2014; Prithishkumar & Michael, 2014; Whillier et al., 2014). The implementation of teaching strategies based on multimodal learning styles adds significant complexity to the nursing learning environment. In order to comprehensively explore preferred teaching strategies from the largest population of nursing students, this study provided an investigation of the differences in BSN students' preferred teaching strategies based on age, gender, academic year, traditional/non-traditional status and the correlations to self-identified learning styles, in an effort to aid in the development of best practice recommendations for nursing educators.

The remainder of Chapter 1 will review the background and context of the study, a brief overview of the theoretical framework supporting the study, the problem being explored, the purpose of the study, the rationale for the study, the relevance and significance of the study, definitions of all relevant terms used throughout the study, and finally the assumptions, limitations, and delimitations of the study.

Background, Context, and Theoretical Framework

The underlying research philosophy of the study was embedded in the components of a post-positivist world view. Arghode (2011) stated that positivists believe if there is a problem, a

solution can be found through the collection and analysis of numerical data. Quantitative research often fits the positivist or post-positivist philosophy due to the objective nature of the research designs and the use of numerical data. The identified gap in the literature related to nursing students' preferred teaching strategies and the corresponding areas for improvement of the educational environment led to the development of this study. Additionally, the domains of Bloom's taxonomy and the theory of andragogy offered theoretical support for the study.

Background and Context

The field of nursing education is dynamic and must evolve to meet the demands of the healthcare industry. Nursing educators not only teach concepts but must also develop in students the skills and expertise to provide safe, effective, and compassionate care to patients experiencing often the most trying times of their lives. Both recent and seminal literature show that having an understanding of the students' preferred teaching strategies is of significant benefit to educators. Ahmed (2012), Justicia, Arias, Martinez, and Berben (2005), Knowles et al. (2011), Su and Osisek (2011), and Thompson and Sheckley (1997) all confirmed that adult learners prefer cooperative, student-driven teaching, while Dunn and Griggs's (1995) meta-analysis of 36 research studies showed that students do achieve better learning outcomes overall when personal teaching preferences are the primary means of instruction. When choosing instructional activities, nursing educators must thoughtfully consider both effective teaching strategies and the students' preferences.

In terms of effective research supported teaching strategies, a number of researchers have explored the general educational approaches that lead to the best learning outcomes. Members of the Oregon Consortium for Nursing Education ([OCNE], 2015) have documented a plethora of research supporting improved student learning outcomes under a competency, or problem-

based curriculum model. More specifically, case studies, as an identified method of problem-based instruction, have proven especially effective in increasing the critical thinking skills of students in the classroom (Brandon & All, 2010; Kaddoura, 2010). Yet, the entirety of specific teaching strategies encompassed in the problem-based domain can be vast and varying. This study provided some of the additional research needed to narrow the scope of problem-based teaching strategies and to gain feedback from the BSN student population as to the most preferred specific teaching strategies.

Very few research studies have been conducted in the field of nursing education exploring the nursing students' teaching preferences. However, Clark (2010) identified traditional lecture, PowerPoint® presentations, case studies, concept mapping, simulation exercises, and interactive discussions as the most commonly used teaching tools in nursing education. In an effort to add to the existing literature, the most commonly employed teaching methods were included in this study as the pool from which participants were able to rank their teaching strategy preferences. The limited existing research provided an area of opportunity for the results of this study to be used to expand the current body of knowledge that has identified nursing students' preferences for team-based collaborative simulation exercises, group discussions, and technology laden instruction (Arpanantikul, & Luecha, 2010; Kowalczyk, Hackworth, & Case-Smith, 2012; Marchigiano, Eduljee, & Harvey, 2011; Montenery et al., 2013; Popil, 2011). The results of this quantitative study also identified areas of opportunity for further future studies correlating student's preferred teaching strategies with teaching strategies that demonstrate the best performance outcomes. Devlin and Samarawickrema (2010) asserted that creating alignment between effective teaching practices and student preferences is imperative for improving learning outcomes.

Theoretical Framework

The domains of Bloom's taxonomy and the theory of andragogy were the theoretical frameworks from which this quantitative study was founded. The stages of Blooms' taxonomy are knowledge, comprehension, application, analysis, synthesis, and evaluation (Su & Osisek, 2011). The identification of the most preferred teaching strategies among BSN students has been used to support effective teaching strategies that aid students in progressing through the stages of Bloom's taxonomy. Additionally, the understanding of the specific teaching strategies that students prefer based on gender, age, academic year, and traditional/non-traditional status, along with the correlations between preferred teaching strategies and self-identified learning styles, has added to the theoretical knowledge base in terms of supporting the progression of students' learning throughout a four-year baccalaureate degree program.

The theory of andragogy, on the other hand, has long been applied to the higher education setting. Andragogy holds that adult learners need to see the connection between what and how they are learning and the real world application of their knowledge and skills (Knowles et al., 2011; McKee & Billman, 2011). Utilizing teaching strategies that allow students to make the distinct connection between theory and practice supports the use of andragogical principles in nursing education. More specifically, the understanding of the differences in preferred teaching strategies based on age, gender, academic year, and traditional/non-traditional status garnered from this study can be used to further develop the nursing educators' teaching practices.

The identified gap in the literature highlighted the lack of knowledge pertaining to the nursing students' preferred teaching strategies. The methods utilized in this quantitative study gathered data to enhance the limited existing literature by exploring the preferred teaching strategies of BSN students, related to age, gender, academic year, traditional/non-traditional

status and self-identified learning styles. As a theoretical foundation, Bloom's taxonomy described the learning processes that students progress through during the course of their education (Seaman, 2011; Walden & Gordon-Pershey, 2013). As entering freshman, students are focused on knowledge acquisition. As students progress on to the sophomore level, the previously gained knowledge promotes further comprehension of more complex nursing concepts. In the sophomore and junior levels of nursing education students begin bedside clinical practice requiring advancement to the application and analysis stages of Bloom's taxonomy (Grealish & Smale, 2011). Finally, as senior level nursing students near graduation, prepare to sit for the National Council Licensure Examination (NCLEX-RN[®]), and anticipate entering professional practice, synthesis and evaluation of learning takes place in a more autonomous way. Throughout students' learning stages and processes, applying teaching strategies that students connect with in a practical way will provide a smoother progression from one stage of Bloom's taxonomy to another.

In addition, the principles of andragogy describe the learning needs of adult learners. Draganov, de Carvalho Andrade, Neves, and Sanna (2013) explained that andragogy in nursing education supports a collaborative relationship between student and teacher in the development of the learning environment, in terms of teaching methods and strategies. The results of this study, identifying the nursing students' preferred teaching strategies will allow nursing educators to enhance the use of diverse teaching methods and incorporate preferred teaching strategies to create a learning environment that meets the andragogical learning needs of students.

Statement of the Problem

Emerging research in nursing education has demonstrated an increased focus on cohesion between student learning preferences and evidence-based teaching strategies as a means of producing safe and effective professionals. The Institute of Medicine ([IOM], 2011) and the National League for Nursing ([NLN], 2003) have called for a rapid transformation of nursing education practices, focusing on greater inclusion of student learning styles and preferences and adherence to evidence-based teaching practices. Educational research, investigating efficacious teaching strategies, supports kinesthetic learning (Koch, Salamonson, Rolley, & Davidson, 2011) and Kaddoura (2010) confirmed that students prefer hands-on teaching strategies. Furthermore, Kowalczyk (2011), along with Slavich and Zimbardo (2012) and Yuan et al. (2011), found that problem-based learning, including collaborative discussions, case studies, and group simulation, led to greater knowledge retention and development of critical thinking skills as opposed to traditional lecture based instruction alone. While previous researchers have superficially explored both effective and preferred teaching styles, there is limited supporting literature to identify specific teaching strategies that students most prefer. Additionally, existing research has offered minimal correlation or comparisons between learning styles, preferred teaching strategies, and student variables such as age, gender, academic year, and traditional/non-traditional status. Although, in a study of generational differences in preferred teaching strategies of dental science students, Henry (2011) found that health science students in general are such a unique student population and as a group often prefer similar teaching methods based on the material being taught rather than extraneous factors such as age. In summary, the research literature addressing BSN students' preferred teaching strategies has indicated that students are known to be primarily multimodal learners with preferences for hands-on and problem-based

teaching methods and student collaboration in the creation of the learning environment has been proven to produce the best learning outcomes. What is not known is if there are differences in preferred teaching strategies among BSN students based on student age, gender, academic year, traditional/non-traditional status or if there are correlations between students' preferred teaching strategies and self-identified learning styles.

Purpose of the Study

The purpose of the this quantitative non-experimental study was to investigate the differences in preferred teaching strategies of BSN students based on age, gender, academic year, and traditional/non-traditional status. Additionally, the researcher sought to identify any existing relationships between preferred teaching strategies and self-identified learning styles. The goal of the study was to provide nursing educators with evidence-based teaching guidelines that could be used to improve learning outcomes and create safe and effective nursing professionals.

Research Questions and Hypotheses

The development of the research questions for the study was driven by the identified gaps in the literature and the research questions helped to shape the quantitative methodology of the study. Each research question is accompanied by the alternative and null hypotheses. The primary research question is followed by five sub questions that aid in answering the primary question.

Research question 1. Are there significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students?

Alternative hypothesis 1. There are significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students.

Null hypothesis 1. There are no significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students.

Research question 2. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age?

Alternative hypothesis 2. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age.

Null hypothesis 2. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age.

Research question 3. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender?

Alternative hypothesis 3. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender.

Null hypothesis 3. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender.

Research question 4. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year?

Alternative hypothesis 4. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year.

Null hypothesis 4. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year.

Research question 5. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status?

Alternative hypothesis 5. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status.

Null hypothesis 5. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status.

Research question 6. Is there a significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students?

Alternative hypothesis 6. There is a significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students.

Null hypothesis 6. There is no significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students.

Rationale, Relevance, and Significance

Scholarly research requires the investigation of problems arising from an identifiable gap in existing knowledge. A study of significance must also produce data that will add to the existing body of knowledge on the chosen topic. The basis of this study was founded on the need to support a more student-driven learning environment. The results of this study may help nursing educators create a learning environment that is more attuned to student's learning needs and preferences. The enhanced inclusion of students' preferred teaching strategies can provide greater opportunities for the development of higher order thinking, clinical skill development, and safe bedside practice.

Rationale

In the field of higher education, adult learners maintain the assumption that they are paying for a quality education. Similarly, systems of higher education strive for excellence in the development and preparation of professionals capable of meeting the demands of the chosen workforce (Hassanian, Ahanchian, Ahmadi, Gholizadeh, & Karimi-Moonaghi, 2015). Neuman et al. (2009) explained that teachers and students often have different standards and expectations for what constitutes innovative, high quality teaching and education. The disparity between what is expected and what is delivered often leads to a disconnect between teaching and learning. Additionally, there is a limited existing body of knowledge offering recommendations regarding the best approach for aligning student teaching preferences with didactic teaching strategies. As the nursing profession becomes more complex, nursing educators are tasked with developing cutting-edge teaching strategies to prepare students to meet the challenges of the workforce and the needs of the healthcare community. According to Risling and Ferguson (2013), updating educational practices and educational research is imperative to successfully preparing nursing students to enter the nursing profession as competent practitioners. The results of this study offered nursing educators recommendations for collaboration with students to create progressive and effective learning environments. Data supporting learner driven teaching strategies that promote knowledge and skill acquisition can bridge the gap between student and educator expectations in higher education and nursing education.

Relevance

The production of nursing professionals who are knowledgeable and skilled in the delivery of high quality safe patient care, in a variety of healthcare settings, is the ultimate goal of nursing education programs. The Joint Commission ([TJC], 2015) has established yearly

Patient Safety Goals that all patient care institutions and patient care practitioners, including student nurses, are held to. Nursing educators are tasked to instill in nursing students the non-negotiable nature of patient safety. Alarming, Koohestani, and Baghcheghi (2009) found that nursing students are often making at least two errors that have the potential to result in patient harm during their academic careers. Utilizing more effective teaching strategies in the learning environments may enhance the nursing students' critical thinking capacity, reducing mistakes at the bedside during both clinical education and future professional practice. The results of this quantitative study offered nursing educators information to better understand the learning needs of students, allowing them to enhance their teaching methods and strategies. As the learning environment is transformed to meet the needs of students, the development of clinical skills and higher order cognitive abilities are likely to translate into enhanced safety and best practice for novice nurses and improved outcomes for patients.

From the perspective of the profession as a whole, nursing students comprise the future of healthcare. Dr. Hassmiller stated in a report published by the Robert Wood Johnson Foundation ([RWJF], 2014) that although some nurses are delaying their retirement, the impending nursing shortage is inevitable and will ultimately have a negative impact on the quality of healthcare in the United States. In order to recruit and retain nursing students to curb the anticipated nursing shortage, nursing educators must create a learning environment that fosters a passion for nursing and a propensity for lifelong learning. Allowing nursing students to have a voice in the curriculum and development of the learning environment will cultivate a shared vision for the objectives of the educational program. The results of the study identified the BSN students' preferred teaching strategies, allowing educators to better utilize the identified methods in current nursing education. If the learning environments in nursing education better

meet the needs of the nursing students, recruitment, retention, and graduation rates may increase. The production of a greater number of high quality nurses will ultimately aid in supplementing the growing nursing shortage.

Significance

The current study offered the scientific community data that can be used to evaluate the constructs of Bloom's taxonomy and the theory of andragogy. Bloom's taxonomy, as applied to nursing education, supported the idea that conceptual knowledge is progressively built upon as students move through a four-year baccalaureate program. Nursing students must first learn basic anatomy and physiology before developing the ability to apply that knowledge to disease processes. The role of the nursing educator is to aid students in the progression through the stages of Bloom's taxonomy and the transformation from student to practitioner (Sandvik, Eriksson, & Hilli, 2014). The research methods of this quantitative study exploring BSN students' preferred teaching strategies produced data that added to the understanding of the nursing students' learning process and ultimately to the application of Bloom's learning domains. The students' teaching preferences, specifically relating to changes between academic years, allowed educators to see the development of the nursing students' learning processes through the stages of Bloom's taxonomy and supported the progressive nature of learning presented by Bloom's taxonomy.

In turn, andragogy highlighted the plight of the adult learner. Knowles et al. (2011) explained that adult learners prefer to see the applicability of their learning and desire to partner with the educator in developing an effective learning environment. One aim of this study was to identify whether or not students prefer teaching strategies with more dynamic real world applicability. Results that indicate students do in fact prefer simulation based learning or case

studies as opposed to lecture and PowerPoint® (Clark, 2010) would support the theory of andragogy in its proclamations of adult learning needs.

Nature of the Study

The methodological approach of the study was quantitative, non-experimental comparative and correlational research. Kraska (2010) stated that quantitative research aims to describe the characteristics of a target population and Arghode (2012), Demerir and Sahin (2013), and Turner, Balmer, and Coverdale (2013) advocated for the use of quantitative research in education to establish evidence-based practice (EBP) and drive immediate practice changes. This study included an aim to identify BSN students' preferred teaching strategies that would lend to the recommendations for best practice teaching strategies for producing safe and effective nursing professionals. A discovery of BSN students' teaching preferences also added to the limited body of existing knowledge. Hoe and Hoare (2012) suggested that quantitative analysis is the most precise of any methodology, due to the standardized and tested data collection instruments (Yilmaz, 2013) and the ability to comparatively test the quantitative results of one study with another (Evans, Cools, & Charlesworth, 2010).

Definition of Terms

A number of terms of significant importance to the study required further definition in order to maintain consistent understanding between the researcher, participants, and other relevant stakeholders.

Academic Year

Traditional BSN programs require four years of college education. Many universities define academic years in terms of completed credit hours, but often have varying credit hour ranges for each academic year (Northeastern University, n.d.; University of Iowa, 2012). In order to maintain a universal understanding of academic year, participants were asked to specify their numerical year of enrollment. Freshmen were those students in their first year of nursing school, while sophomores were in their second year. Junior students were those in the third year of nursing school and finally seniors, in their final year.

Auditory Learning Style

The auditory learning style was defined by Fleming (2016) as those preferring the spoken word to learn new information such as lecture, recordings, discussions, and Q&A sessions.

Baccalaureate Degree Nursing Students (BSN)

Nursing students enrolled in a four-year nursing program at a college or university. The American Association of Colleges of Nursing ([AACN], 2015c) stated that although diploma, associate, and baccalaureate prepared nurses are all able to sit for the NCLEX-RN[®] and practice at the same level, BSN prepared nurses are uniquely prepared and are prized for their critical thinking and broader professional development.

Case Studies

Case studies have been used for over a hundred years as a more interactive and engaging method of disseminating information. For this study, case study teaching was defined as the use of real or hypothetical patient care stories or scenarios presented as problems or cases to be solved by students, either independently or in group settings (Herreid, 2011).

Concept Mapping

Concept mapping has been increasingly utilized as a more artistic means of creating patient care plans in nursing education. For this study, concept mapping was defined as creating visual diagrams representing connections between concepts or information presented in the classroom (Harrison & Gibbons, 2013).

Interactive Discussions

Interactive discussions can occur in small group settings or as an entire class led by the instructor. For this study, interactive discussions were defined as small group, student-led, instructor mediated discussions about a topic provided by the instructor (Herreid, 2011).

Kinesthetic Learning Style

The kinesthetic learning style was defined by Fleming (2016) as preferring reality based, hands-on learning such as simulation, case studies, and hands-on manipulation/practice.

Lecture

Lecture is the most traditional of all higher education teaching methods. For the purposes of this study lecture was defined as instructor led teaching using review of textbook material and/or handouts, requiring students to take notes and passively accept new information (Malik & Janjua, 2011).

PowerPoint® Presentations

PowerPoint® presentations are often used in higher education to enhance the lecture based instruction or to introduce technology into the classroom. For this study, PowerPoint® presentations were defined as instructor led teaching using PowerPoint® technology to provide visual representation of information in the form of slide notes and/or pictures (Berk, 2012).

Read/Write Learning Style

The reading/writing learning style was defined as those preferring the written word to display new information such as lecture notes, taking notes, PowerPoint®, and reading assignments (Fleming, 2016).

Simulation

Simulation in nursing education can be used to supplement the learning environment and even replace portions of traditional clinical learning experiences. For this study, simulation was defined as instructor guided, interactive, hands-on learning experiences that replicate real world patient encounters (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014).

Traditional/Non-traditional Status

The AACN (2015b) stated that an increasing number of nursing students are those returning to college for a second degree or even pursuing their first degree later in life. Only 86% of currently enrolled baccalaureate degree students are the traditional young adults progressing directly from high school to college ([NCES], 2015). To maintain the integrity of current statistics in higher education, the definition of traditional students in this study was students who progressed directly from high school to college with less than a 5 year gap between high school and college. Non-traditional students on the other hand were nursing students who returned to college for a second degree or simply enrolled in nursing school after at least a 5 year hiatus after high school graduation ([NCES], 2015).

Visual Learning Style

The visual learning style was defined as those preferring imagery or pictures to represent information. Examples included maps, diagrams, and drawings (Fleming, 2016).

Assumptions, Limitations, and Delimitations

Despite extensive planning and preparation, many aspects of the study remained out of the control of the researcher (Simon, 2011). Carrying out a successful research study required specific assumptions about various aspects of the study to be made and justified. Additionally, thoughtful consideration was given to the limitations or weaknesses of the study and methods to mitigate the limitations. Finally, a thorough review of the purpose and methods of the study highlight the delimitations of the study.

Assumptions

1. Participants answered the survey questions honestly.
2. The non-probability purposive sampling technique garnered participants who were representative of the larger BSN student population.
3. Quantitative methodology garnered data capable of answering the research questions.
4. The study produced results that will add to the gap in existing literature.
5. The definition of terms enclosed with the survey instrument offered participants an adequate understanding of the teaching strategies and learning styles used within the study.
6. The results of the study offered nursing educators new information to improve the learning environment.
7. No participants were at risk for harm during the study.
8. The privacy and confidentiality of participant responses remained secure throughout the study.

Limitations

1. The use of strictly BSN students who are members of the National Student Nurse's Association (NSNA) may have reduced the generalizability of the study results to the larger nursing student population.
2. Internet access was required to complete the data collection survey.
3. The survey was sent to the NSNA membership during the traditional college summer break which may have reduced participation.

Delimitations

1. Quantitative methodology was chosen to determine if there were significant differences in preferred teaching strategies among BSN students based on age, gender, academic year, or traditional/non-traditional status.
2. Quantitative methodology was chosen to determine if there was a significant relationship between preferred teaching strategies of BSN students and self-identified learning styles.
3. Non-probability purposive sampling was used to elicit BSN student responses from the estimated 60,000 members of the NSNA.
4. The survey instrument was modified from the original University Student's Expectations of Teaching (USET) tool because the original tool was proven successful in gathering useful data in previous similar studies.
5. The electronic method of recruitment and data collection was utilized to ease the process of contact with BSN students across the United States.

Organization of the Remainder of the Study

The remainder of the study will be reviewed in terms of the literature, the methodological outline, the research design, and the results of the study. Chapter 2 will provide an in depth literature review, including the theoretical framework of the study. Chapter 3 will offer a methodological outline with detailed descriptions of the quantitative design, recruitment and sampling techniques, data collection methods, data analysis procedures, and ethical considerations. Chapter 4 will provide a detailed description of the study participants, a thorough review of the data analysis procedures and an explanation of the results of the study. Finally, Chapter 5 will offer a summary of the research study, discussion of the results related to the literature, the limitations of the study, indications for implementing the study results into practice, and recommendations for future research.

CHAPTER 2. LITERATURE REVIEW

Introduction to the Literature Review

The purpose of this quantitative non-experimental study was to identify differences in BSN students' preferred teaching strategies based on age, gender, academic year, and traditional/non-traditional status, and to investigate possible correlations between preferred teaching strategies and self-identified learning styles. Chapter 2 presents a detailed review of the literature that supported the study, including the theoretical frameworks of Bloom's taxonomy and andragogy that helped to shape the study, the specific teaching strategies and learning styles utilized as variables within the study, and the concept based curriculum design that employs the teaching strategies used throughout the study. The chapter also provides literary support for quantitative methodology and a review of methodological issues in existing research. Finally, a review of the research findings and critique of previous research is provided.

The literature review was completed using the Capella and Penn State Harrell online libraries. The databases used for the literature searches and to gather scholarly information included EBSCOhost, Academic Search Premiere, CINAHL, Education Research Complete, ProQuest, Google Scholar, and the American Association of Colleges of Nursing. The search terms included *nursing education, teaching strategies and learning styles (both in nursing and higher education), nursing student teaching preferences, nursing student demographics, baccalaureate degree nursing students, traditional and non-traditional nursing students, concept*

based curriculum, concept mapping, case studies, lecture, PowerPoint® presentations, simulation, and interactive group discussions.

Theoretical Framework

Green (2014) explained that theoretical frameworks provide the groundwork for a research study, guiding the entire research process. The theoretical frameworks that provided the foundation for the study were Bloom's taxonomy and Knowles's theory of andragogy. Bloom's concepts highlight the progressive nature of learning (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) which nursing educators strive to achieve in BSN students over the course of a four year degree program. In addition, Knowles's et al. (2011) theory of andragogy describes the needs and preferences of adult learners and helped to support the need to investigate nursing students' preferred teaching strategies.

Bloom's Taxonomy

The six domains of Bloom's taxonomy were first introduced to the academic world in the mid 1950's and were meant to offer educators a framework for learner's cognitive development. The original domains were knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom et al., 1956). The domains have since been revised by Krathwohl (2002) to factual, conceptual, procedural, and metacognitive which offer a more objective approach to knowledge development. However, regardless of the specific names assigned to each domain, the original ideals remain the same; educators strive to create learning environments that allow learners to progress through the domains and maintain the highest order of cognitive abilities.

The progression of learning in the field of nursing education is unique in the sense that foundational concepts must be mastered in order for higher order learning to take place.

Although, Seaman (2011) cautioned educators that Bloom's taxonomy should not be used as a strict blueprint for learning, stating that students do not necessarily need to progress sequentially through the domains, but rather the goal should be achieving the ability to evaluate one's knowledge and learning needs. However, nursing students cannot simply walk into a clinical learning environment and safely care for patients without an understanding of disease processes, medical management, and patient safety guidelines. Progressive learning is the cornerstone of nursing education, yet the challenge remains as to how nursing educators can best guide students to their greatest potential.

The vast amount of information that must be mastered in nursing education requires ingenuity on the part of the educator to utilize teaching strategies that are engaging yet convey the necessary information. Kantar (2014) and Meo (2013) endorsed the use of teacher centered teaching strategies to guide students through the first three stages of Bloom's taxonomy and encouraged educators to enlist more student centered strategies to help students achieve the highest three domains. The struggle for educators is the timeline for learning and knowing when to move from teacher centered methods to more student centered classrooms. The results of this study provided data directly from BSN nursing students regarding what the students themselves most prefer during each year of a BSN program.

Most freshman and sophomore nursing students are gradually progressing through the knowledge, comprehension, and application stages of learning. Students are receiving a great deal of factual information regarding normal and abnormal physical assessment findings, laboratory values, vital signs, etc. Students then begin to make sense of the information, understanding why lab values may be elevated or why a patient may be hypertensive. Finally students can begin to apply their newly gained knowledge to real patient care situations.

Students evaluate patients, recognize abnormal findings with an understanding of the possible causes and work through appropriate nursing interventions. Maquire (2013) studied progressive learning in novice nurses and found that structured learning pathways lead to greater nursing satisfaction and longevity in the field. Creating these structured learning environments and utilizing teacher centered teaching strategies such as lecture or PowerPoint® presentations during the early stages of Bloom's taxonomy allows nursing educators to present very precise data before moving on to more complex concepts.

Once basic nursing concepts are mastered, junior and senior level nursing students are expected to progress on to the higher levels of Bloom's taxonomy; analysis, synthesis, and evaluation. Su and Osisek (2011) found that the most successful progression of instruction for guiding students through the stages of Bloom's taxonomy was lecture then case studies or discussion then on to simulation and concept mapping (Kong, Qin, Zhou, Mou, & Gao, 2014). The evolving nature of teaching and learning provides the opportunity for students to analyze complex patient situations and implement their knowledge in hands on patient care scenarios. The final evaluation phase of learning then requires students to be self-reflective and maintain an awareness of their learning needs pursuant to the mandates of the Quality and Safety Education for Nurses ([QSEN], 2014) consortium. The safety of patients in all facets of the healthcare system is dependent upon the knowledge and skill set of healthcare providers at the frontlines. In light of the minimal existing literature recommendations, the QSEN (2014), along with Robert and Peterson (2013), recommended further research investigating teaching methods that not only aid nursing students in progressing through the stages of Bloom's taxonomy but that also meet the andragogical needs of adult learners.

Andragogy

The future of healthcare is in part dependent upon the preparation and retention of skilled and competent nurses who provide frontline medical care. Dragonov et al. (2013) stated that success in nursing is in turn dependent upon the ability to motivate and inspire individuals to pursue a lifelong career in healthcare. Lifetime nursing careers require a passion for the profession, a commitment to lifelong learning, and the ability to adapt to continuous change. As adult learners, individuals pursuing a degree in nursing already have that passion for the profession but are still in need of educators who share that passion and are just as committed to preparing them to successfully meet the challenges of the ever-changing healthcare field.

The goal of nursing education is to prepare students to meet the challenges of the healthcare industry, challenges that often change on a daily basis (Hassanian et al., 2015). Evidence-based practice recommendations are updated as new evidence comes to light, new medications are implemented as they are approved through regulatory bodies, and technological advances alter the pace and methods of care delivery on a regular basis (Felton & Royal, 2015; Maquire, 2013). Self-directed learning (SDL) is an aspect of andragogy that allows adult learners to set the pace and direction of their learning while also fostering a propensity for lifelong learning skills (Draganov et al, 2013). Teaching students the value of adaptability and self-motivation will instill skills that will ensure they can be successful throughout their career and continually provide the safest and highest levels of patient care ([QSEN], 2014). However, as presented in studies by Draganov et al. (2013) and Mulub and Jooste (2014), the timeline for utilizing SDL remains controversial. Nurses must have a level of self-directedness in order to maintain professional competence but freshman BSN students struggle more with SDL in the learning environment than those in their sophomore to senior years (Mulub & Jooste, 2014). The

difficulty with SDL in the novice learner often stems from a lack of personal, professional, and academic experience. Draganov et al. (2013) stated that SDL is more effective in junior and senior level nursing students and Ozuah (2005) confirmed that a lack of relevant past experience creates greater obstacles for younger students to employ SDL. Experts recommend that nursing educators foster SDL when possible and guide novice learners through the experiences that will allow them to be successful self-directed learners (Dragnaov et al, 2013, Mulub & Jooste, 2014; Ozuah, 2005).

Adult learners enter the higher education system with purpose. The required K-12 educational journey is complete but these learners are seeking something more. Nursing students are seeking an education that values life experience (Knowles et al., 2011) and leads to a career of purpose. Learners entering a BSN program do so with an awareness of the challenges and difficulties that await not only in the academic setting but in their careers over the long-term (Zampieron, Buja, Dorigo, Bonso, & Corso, 2012). Nursing educators must create learning environments that foster students' innate passion, value personal and professional experiences, offer opportunity for growth and independence, and meet the learning needs and preferences of diverse groups of students.

Baccalaureate degree nursing programs attract learners from various educational backgrounds. With such variety in student backgrounds and preferences, creating learning environments that meet the individual needs of all students can be a challenge for educators. Speed, Bradley, and Garland (2015) discovered and Taylor and Hamdy (2013) confirmed that educators are better able to manage the classroom environment when they have an understanding of the needs and characteristics of adult learners. The inclusion of student preferences creates a student centered learning environment and allows adult learners to self-direct their learning

journey. Knowles et al. (2011) validated that creating a student centered learning environment is the cornerstone of andragogical teaching practices.

A vital component to student centered learning is allowing nursing students to see a viable connection between the classroom and bedside. Educators are best able to meet this andragogical need by utilizing reality based teaching practices such as simulation, cases studies, or concept mapping (Draganov et al., 2013; Knowles et al., 2011; McKee & Billman, 2011). Ozuah (2005) encouraged educators to present information in a real-life context and in a manner that allows students to see how this knowledge will help them to solve patient care problems at the bedside. Allowing students to make this connection between didactic and clinical learning promotes a sense of value and purpose in the information being taught. When students feel as though they are learning something of worth, they become more motivated to achieve the desired learning outcomes (Draganov et al., 2013). As BSN students progress through a four year degree program they master more complex concepts and gain valuable clinical experience. However, the learning environment parallels students' knowledge development by becoming increasingly vigorous. Mulub and Jooste (2014) found that the specific teaching strategies capable of keeping pace with the complexities of the healthcare environment and the progressive nature of learning in a BSN program need continual review and further investigation. This quantitative study provided valuable information to lend to the support of evidence-based teaching recommendations.

Review of the Research Literature and Methodological Literature

A thorough literature review is necessary to understand what is already known about a topic and what remains to be discovered. A review of the research literature related to preferred

teaching strategies and dominant learning styles in nursing education provided the foundation and justification for this study. This literature review revealed that the existing nursing education research supports the need to correlate nursing curriculum with nursing students' preferred teaching strategies and self-identified learning styles but also identified a gap in the literary recommendations for such endeavors.

Review of Research Regarding Nursing Students' Preferred Teaching Strategies

Nursing students are the future of healthcare; therefore, in order to bolster enrollment and retention and preserve the passion for the profession, nursing educators must create a learning environment that cultivates self-directed learning and embodies best practice recommendations. As nursing educators discover how students prefer to be taught, and how students most effectively learn, the classroom environment can be developed into one that becomes the most effective avenue for knowledge acquisition (Knowles et al., 2011; Su & Osisek, 2011). Positive student outcomes promote a sense of professional competence and a desire to continually improve personal practice. Furthermore, creating a learning environment that aligns with the learning preferences of students creates a more enjoyable learning experience and fosters an ongoing passion for learning. However, the variety of learning styles encountered with traditional and non-traditional students, and students across the higher education spectrum, have required an overhaul of the historical content laden, instructor driven classroom. A review of seminal and recent literature related to concept-based curriculum, student learning styles, and teaching strategies in nursing lends to an understanding of the necessity of this study.

Concept-based curriculum. Traditional approaches to nursing education, also known as content-laden curriculum, have historically been the standard for nursing instruction. However, as Stanley and Dougherty (2010) explained, there is far too much rapidly changing content

information in nursing for students to be expected to successfully master. Due to the breadth of knowledge in nursing education, experts have recommended a shift in nursing education from teaching specific content to a more concept focused curriculum (Giddens & Brady, 2007). This concept-based curriculum includes a review of overarching nursing knowledge such as assessment, diagnosis, intervention, and evaluation (Giddens & Morton, 2010). Concept-based curriculum provides education that can carry from year to year, from one nursing specialty to another, or from one patient population to the next (Stanley & Dougherty, 2010). With abundant technology and resources at the fingertips of bedside clinicians, the mere memorization of medication dosages and lab values is not the best use of time in academia. Although, despite the need to revolutionize nursing curriculum to a more analytical problem-based framework, research as to the effectiveness of content-based versus concept or problem-based curriculum is conflicting. Melo, Williams, and Ross (2010) found no statistically significant difference in student reports of clinical anxiety when engaged in content-based instruction versus problem-based learning, therefore drawing the conclusion that content-based curriculum is just as effective as problem-based instruction. The Oregon Consortium for Nursing Education ([OCNE], 2015) has documented a plethora of research supporting improved student competency under a competency, or problem-based curriculum model. The OCNE has been a pioneer in the utilization of concept-based curriculum, placing a greater emphasis on teaching nursing concepts, such as problem solving and analytical decision making. As a result, nursing educators have been encouraged to reevaluate current teaching practices.

Nursing education research has evolved substantially throughout the years, with advancements in technology, changing healthcare trends, and shifts to learner centered approaches to instruction. Giddens and Brady (2007) first reported on the need to transform

nursing education from a content-laden curriculum to a concept-based approach, with evidence supporting the rapid expiration of relevant data in healthcare. Teaching content focused treatment modalities becomes irrelevant when emerging healthcare research continually offers new methods of disease management. However, the focus on content in nursing education has traditionally been the desired means of instruction (Ostmoe, Van Hoozer, Scheffel, & Crowell, 1984). Students and educators alike have been motivated by the amount of information that can be disseminated in the classroom and clinical settings, with little regard for the development of complex problem solving skills. Influential educational research has been increasingly focused on discovering methods of instruction that do not become outdated and are capable of fostering enhanced cognitive abilities.

In terms of influential nursing education research, the shift to concept-based education has created the most notable advancements in enhancing students' higher order cognitive thinking skills. Stanley and Dougherty (2010) validated the transformation to concept-based education in nursing as a means of bridging the theory to practice gap often seen as new graduates enter professional practice. Teaching nursing concepts such as assessment, intervention, and evaluation of outcomes, across the lifespan allows students to think through the nursing process of care, rather than simply reciting normal and abnormal assessment findings (Giddens & Brady, 2007). A study by Tseng et al. (2011) found that despite higher pre-test scores of control group participants, students engaged in concept-based instructional activities showed a greater increase in post-test scores than the control group. Methods of successful concept-focused instruction are andragogical in nature and include case studies, concept mapping, collaborative discussions, and simulation. Despite the success seen with concept-based

instruction, the curriculum shift from the comfort felt with traditional teaching practices has been difficult for some educators (Hyland, 2014).

While concept-based curriculum design remains an evolving and at times controversial topic in nursing education, the improvements in student outcomes have not been the only factors influencing a push for curriculum change. Giddens et al. (2008), along with Giddens and Morton (2010), found that concept-based instruction has aided in reducing the critical nursing faculty shortages, due to the elimination of the need for content specific instructors. Now, instead of instructors for every nursing specialty, such as pediatrics, psychiatric nursing, and community health courses, fewer nursing educators teach concepts such as physical assessment and professional nursing, spanning all disciplines. Many schools of nursing are slowly making the transition to concept-based education, while others are resistant to change. In a national survey of nursing school administrators, as reported by Hyland (2014), only 27% of nursing schools have implemented a concept-based curriculum model, while 55% of schools are considering making curriculum changes. The time and resources required to overhaul nursing curriculum are substantial but even small changes to the classroom environment through the use of more student centered teaching strategies can result in improvements in learning outcomes.

Teaching strategies in nursing education. Current teaching practices in nursing education encompass a diverse collection of teaching methods in an effort to improve the practices of as many students as possible. Crookes, Crookes, and Walsh (2013) concluded that the goal of any nursing education experience should be to minimize the gap between the classroom and the bedside, creating safe and effective practitioners upon graduation. To that end, andragogical teaching methods such as experiential learning and active learning experiences are often employed in nursing education to aid students in connecting theory to practice (Mills et

al., 2014). Offering nursing students the ability to analyze reality based patient care scenarios provides the pragmatic approach to education that adult learners seek and promotes the acceleration of learning through the cognitive stages of Bloom's taxonomy. A review of the six most commonly employed teaching strategies in nursing education, lecture, PowerPoint®, case studies, simulation, concept mapping, and interactive discussion, as noted by Clark (2010) provides the evidence-based practice recommendations that educators seek to make informed decisions regarding curriculum development (Kalb, O'Connor-Von, Brockway, Rierson, & Sendelbach, 2015).

Lecture. The controversy regarding the use of lecture based instruction in nursing education has been debated for years. Not all concepts or content in the nursing curriculum can be taught using active student centered instruction. There are some foundational concepts that require direct verbal explanation in the form of a lecture. A study by Pourghaznein, Sabeghi, and Shariatinejad (2015) found that students perceive lecture based instruction to be more effective in increasing knowledge of nursing content although lecture remains the least favored form of education. Additionally, the study revealed that while students prefer active teaching methods such as simulation and interactive discussions for understanding more complex concepts, they agree that the means of instruction should be based on the subject matter being taught (Pourghaznein et al., 2015). Nursing educators need to use their clinical discretion in determining the best means of instruction for the content at hand. Teaching acid/base balance and the interpretation of arterial blood gas results would likely be best accomplished through a lecture based format, with explanations of the various components of a blood gas. The care of a patient in respiratory acidosis on the other hand may be more successfully managed through hands-on simulation or even a group case study format (Mills et al., 2014). While engaging

students through student centered teaching methods is vital to the success of the learning environment, educators must also remain cognizant of the most effective means of instruction.

Correlating effective teaching methods with students' preferred teaching methods poses an added challenge to nursing educators. Nursing faculty are tasked with not only preparing students for safe bedside patient care but must also achieve a mandated NCLEX-RN[®] pass rate to maintain accreditation for their institutions. Harrington, Vanden Bosch, Schoofs, Beel-Bates, and Anderson (2015) studied the effectiveness of a flipped classroom in which instruction revolves around the student's needs and preferences and found that the lecture based, instructor-driven classroom environments are equally as effective as the flipped classroom in fostering the mastery of nursing content. Nursing educators can take comfort in the knowledge that utilizing student preferred teaching strategies is effective in instilling knowledge and yet while students maintain specific preferences for instruction they do understand the need to tailor the classroom to the content being taught.

PowerPoint[®] presentations. The use of multimedia presentations in the classroom helps to enhance the learning experience and is often used in conjunction with other teaching methods (Aranha, Shettigar, & Varghese, 2014). Microsoft PowerPoint[®] is one of the most common forms of multimedia used in higher education and is typically used to enhance lecture based instruction. Aranha et al. (2014) discovered that nursing students do prefer the incorporation of multiple teaching methods in the learning environment, with specific preferences for using PowerPoint[®] and lecture together rather than lecture alone. PowerPoint[®] can be used in conjunction with a multitude of teaching methods in order to meet that diversity in learning that students prefer. Boctor (2013) found success using PowerPoint[®] slides to enhance a game of nursing Jeopardy. Schwartz (2014) used video links within a PowerPoint[®] presentation in a

flipped classroom to enhance students' understanding of concepts. Finally, Critz and Knight (2013) found success with PowerPoint® in a flipped classroom setting, utilizing pre-recorded lectures and presentation slides to allow students to prepare for class. The use of visual and auditory means of instruction will also appeal to students with diverse learning styles.

However, educators need to use caution when using multimedia resources so as not to become dependent on PowerPoint® slides to convey all the subject content. Presentations that neglect to provide the bigger picture or direct connection to patient care that adult learners seek will not be successful in engaging learners in the classroom (Knowles et al., 2011). PowerPoint® presentations need to be engaging, creative, attention grabbing, and offer an outline of the information being provided rather than detailed textbook material (Nowak, Speakman, & Sayers, 2016). Educators can incorporate video links, diagrams, patient stories, opportunities for questions and answers, and even case studies built into the PowerPoint® presentation in an effort to captivate and retain the students' interest and attention.

Case studies. When hands-on patient care is not possible, and lecture or PowerPoint® presentations are not realistic enough, case studies can provide students with the practical application challenges that they seek (Mills et al., 2014). Traditional case studies offer descriptions of patient encounters in which students must discern the most effective course of action. Studies by Raurrell-Torreda (2015) and Kamath and Vdayakiran (2015) found that clinical case studies, as a means of problem based learning, produced a greater increase in nursing students' learning outcomes as opposed to students' who experienced only lecture based instruction or class discussions. Brandon and All (2010) and Kaddoura (2011) discovered that realistic patient care case studies have proven especially effective in increasing the critical thinking skills of students in the classroom and allowing that knowledge to be carried into the

clinical environment over the long term (Forsgren, Christensen, & Hedemalm, 2014). The increase in critical thinking abilities afforded by the use of case studies translates into greater student confidence (Forsgren et al., 2014) and thus a preference for the case study approach to education.

The realistic, yet hypothetical, nature of case studies provides nursing students with a unique opportunity to engage in critical thinking and problem solving without the risk of patient harm during the learning process (Herreid, 2011). Students can work independently or collaboratively to evaluate a patient care scenario, identify the problem, develop a plan of care, theorize nursing interventions, and anticipate patient outcomes. A study investigating the use of collaborative case studies to reduce medication administration errors found that through the use of case studies nursing students were able to successfully identify risk factors for medication errors, verbalize the importance of interprofessional communication in medication safety, and safely administer medications in a simulated environment (Hewitt, Tower, & Latimer, 2015). In addition to increased safety, students stated that they enjoyed the case studies and were able to make better sense of the medication administration process when they could apply the process to a real patient situation (Hewitt et al., 2015). Case studies are versatile in that they can be used as a solitary learning tool, to enhance the didactic learning environment, or to set the stage for a simulated patient experience.

Simulation. Simulation based instruction in nursing education has taken center stage in terms of nursing education research and evidence based practice. While clinical placements and hands-on patient care are the ideal learning environments and are most preferred by students (Bisholt, Ohlsson, Kullen-Engstrom, Sundler Johansson, & Gustafsson, 2014; Courtney-Pratt, FitzGerald, Ford, Marsden, & Marlow, 2011; Coyne & Needham, 2012), many schools of

nursing find it difficult to secure high quality clinical placements. Nursing faculty often struggle to locate clinical placement sites that can accommodate nursing students year after year. Even when clinical placement sites are secured, the daily demands on bedside nurses coupled with the added responsibility of overseeing nursing students often leads to a less than ideal learning environment (Bisholt et al., 2014; Gilbert & Brown, 2015). The use of simulated patient care experiences can be used to supplement learning when high quality clinical placements are not an option.

When planned and carried out appropriately, simulation can create the reality based connection between theory and practice for nursing students. The use of simulation early in the nursing curriculum can also prepare students for future clinical learning experiences. Kirkman (2013) found that students are able to transfer skills and concepts garnered from high fidelity simulation learning experiences to bedside clinical practice and Raurrell-Torreda et al. (2015) confirmed that engagement in simulation experiences increases students' readiness for hands-on patient care. Knowles's et al. (2011) andragogical principles validated that adult learners need to see the practical application of their knowledge in order to find value and success in the learning environment. Simulation, especially high fidelity simulation, creates a safe environment for students to put into practice all of the concepts and knowledge that they gained in the classroom. The majority of existing research reveals that nursing students prefer simulation over all other forms of classroom instruction and simulation does increase student preparedness for clinical practice, from both knowledge and confidence perspectives (Boellaard, Brandt, Johnson, & Zorn, 2014, Corbridge, Robinson Tiffen, and Corbridge, 2010; Founds, Zewe, & Scheuer, 2011). Taking the research into consideration, when quality clinical placements cannot be secured, high

fidelity simulation should be used to supplement the didactic environment and meet the hands-on learning needs of students.

Interactive discussions. Discussions in nursing education are a learning and teaching tool that are most often used to supplement other teaching modalities (Mosalanejad, Koolae, & Abdolahifard, 2012). Discussions can be used as a mode of debriefing after a clinical rotation or simulation experience, as a means of collaboration when working through a case study or developing a concept map, or simply as an avenue for opening the lines of thoughtful and critical conversation (Bristol & Kyarsgaard, 2012). In larger class settings, small group discussions create opportunities for introverted students to share their thoughts and ideas when they otherwise would feel intimidated at the prospect of speaking in front of the larger group (Shah & Salim, 2014). The diversity in the nursing classroom allows for a plethora of past personal and professional experiences to be shared and new ideas to be uncovered (Knowles et al., 2011). Creating a learning environment that fosters and encourages this sharing of information increases the likelihood of student satisfaction and offers opportunities for students to learn from one another. A study by Trobec and Starcic (2015) confirmed that students believe that collaborative education and interactive group discussions better prepare them for the interprofessional collaboration that they will experience in the workplace after graduation. So as not to hinder the learning process, the nursing educator should act as a facilitator during interactive discussions, guiding the conversation and fostering deeper thinking and critical reflection.

Engaging students in collaborative problem-based discussions within the clinical learning environment provides an avenue for the development of critical thinking skills, as opposed to procedural memorization (Mosalanejad et al., 2012). Gubera and Aruguete (2013) investigated nursing students' learning outcomes when interactive group discussions were the primary means

of instruction and found that removing instructor led teaching from the classroom reduces students' learning outcomes. The study led to recommendations to incorporate student-led group discussions into the classroom environment in moderation, allowing for students to garner enough conceptual knowledge to successfully engage in interactive group discussions (Gubera & Aruguete, 2013).

Concept mapping. Concept maps involve the connection of thoughts and ideas through a series of diagrams and interwoven lines (Moattari, Soleimani, Moghaddam, & Mehbodi, 2014). Many nursing educators use concept maps in their curriculum to help students make a visual connection between complex body processes. Samawi, Miller, and Haras (2014) incorporated a concept mapping exercise with a pediatric simulation scenario and reported increased student self-confidence and greater satisfaction with the combined educational practices. Concept maps can help students see the clear connection between interventions and outcomes (Atay & Karabacak, 2012) such as, medication administration and the desired effects seen in each body system. Using visualization, students are better able to store information in their long term memory and often develop problem solving abilities that Moattari et al. (2014) described as “habits of mind” (p. 73). The unique problem solving capabilities afforded by concept mapping allow nursing students to critically think through a patient care scenario and develop a plan of action using the connections of concepts along with interventions and anticipatory outcomes (Moattari et al., 2012), when the students otherwise would not have known how to intervene. Therefore, using concept mapping in conjunction with other teaching strategies may be an optimal method of integration.

Concept maps have been used in nursing education for over a decade and yet the value and timing of their use remain a largely debated topic. Harrison and Gibbons (2013) found that

if used correctly concepts maps can help nursing students develop metacognitive abilities leading to critical self-reflection. However, this level of learning as described by Bloom's taxonomy (Bloom et al., 1956) is the highest level of cognitive development reserved most often for senior level nursing students or advanced learners. The use of concepts maps can be confusing to novice learners especially when the intent and process of development is not clearly explained (Chiou, 2008). As a result of their study conclusions, Harrison and Gibbons (2013) recommended the use of concept maps for senior level BSN students, especially those with a propensity for a visual learning style. Despite the documented increases in critical thinking abilities as a result of concept mapping, Atay and Karabacak (2012) suggested further research regarding nursing students' satisfaction with the use of concept mapping as a learning tool. Additionally, a more thorough review of students' learning styles may aid in determining the most appropriate teaching tools for each classroom.

Learning styles. While diversity in the nursing classroom creates a dynamic learning experience for students, diverse learning styles present unique challenges to educators who are attempting to create a classroom that meets the learning needs of all students. The most common learning styles in higher education are visual, auditory, read/write, and kinesthetic (Fleming, 2016). For this study, learners with a visually dominant learning style were defined as those preferring imagery or pictures to represent information. The auditory learning style was defined as a preference for the spoken word. The reading/writing dominant learners prefer the written word and kinesthetic learners have a preference for reality based, hands-on learning (Fleming, 2016). Students can identify with one primary learning style or may present as a multimodal learner.

Considering the hands-on nature of healthcare and the anticipated learning environment in nursing education, AlKhasawneh's (2013) findings that 60% of both unimodal and multimodal learners were kinesthetically dominant was not a surprise. However, for the other 40% of learners who do not share that predilection for the hands-on environment, educators must utilize teaching strategies that are equally engaging and effective. AlKhasawneh's (2013) suggested that even when a multimodal learner's most dominant learning style cannot be met, the incorporation of at least two of their learning styles will increase satisfaction with the learning process. This versatility among multimodal learners offers a great deal of variability as to what teaching strategies can be successfully employed in the classroom.

While past practice may have been to develop teaching strategies that met the requirements of the curriculum, experts now suggest exploring the learning styles of students and constructing a learning environment that meets the needs of students and conveys the necessary content (Li, Yu, Liu, Shieh, & Yang, 2014). Teaching strategies should be diverse and should be used in a way that encourages students to explore learning methods that challenge their dominant learning styles. The reality of the workforce is that nurses must continually adapt to their environment (Zampieron et al., 2012) and fostering that adaptability early in the educational journey will promote the student's success later in their education and long-term career. Within this study the six most common teaching strategies presented by Clark (2010), lecture, PowerPoint®, case studies, simulation, concept mapping, and interactive discussions, can be aligned with the most common learning styles, visual, auditory, read/write, and kinesthetic as presented by Fleming (2006). Lecture would be categorized as auditory, PowerPoint® as visual, case studies could be read/write, visual, and/or auditory, as could concept mapping and interactive discussions, and finally simulation could encompass all four learning styles. The

results of the study offered statistical representation of any alignment between nursing students' self-identified learning styles and preferred teaching strategies.

Review of methodological issues. The majority of existing research investigating effective teaching strategies in nursing education has taken a quantitative approach. Few studies have explored students' preferred teaching strategies, yet those that did have also utilized a quantitative methodology. Quantitative research offers the benefit of gathering large amounts of data from a representative population (Kraska, 2010) and analyzing that data quickly to offer immediate best practice recommendations (Arghode, 2012; Demerir & Sahin, 2013; Turner et al., 2013). While identifying and utilizing teaching methods that lead students to develop metacognitive abilities and promote safe practice at the bedside, the theoretical concepts of Knowles et al (2011) and Bloom et al., (1956), along with the existing evidence-based practice recommendations of Ahmed (2012), Dunn and Griggs (1995), Justicia et al. (2005), Martin et al. (2014), Su and Osisek (2011), and Thompson and Sheckley (1997) should lead educators to further investigate the learning preferences of nursing students through either quantitative or qualitative research.

The limited existing research exploring nursing students' preferred teaching strategies have been primarily quantitative in nature, utilizing survey based data collection instruments. Qualitative research on the other hand, would allow participants to offer more detailed explanations as to why they maintain their teaching preferences and could offer recommendations for educators to better enhance the learning environment. One study by Ramjan et al. (2013) employed a mixed method design by incorporating open ended questions into the data collection instrument to allow students to express their opinions in their own words. The mixed methods approach provides qualitative data without personal contact with

participants. Anonymity is extremely important in higher education research to ensure that students offer honest opinions without the fear of retribution from their instructors. As a whole, qualitative research poses a greater risk to student anonymity and may be why many researchers opt for the quantitative approach. However, Westin, Sundler, and Berglund (2015) were able to collect qualitative data through written narratives submitted anonymously by nursing students explaining their experiences with learning. Qualitative research has a lot to offer the field of nursing education but requires unique approaches to protect participants and ensure that reliable data is collected. The chosen methodological approach to any research study should be driven by the research question. For this study, a quantitative methodology offered the most reliable means of answering the research questions.

Synthesis of Research Findings. Seminal and current research in the field of nursing education have investigated both students' preferred teaching and learning strategies, along with an alignment of preferences and effective outcomes. Studies have shown that incorporating student preferences in the classroom will lend to the production of clinically competent practitioners. Burruss and Popkess (2012) endorsed the use of evidence based literature to support teaching strategies in both the classroom and clinical settings. Through an analysis of current trends and concepts in nursing education research, conflicting data regarding exactly which teaching strategies are most preferred by students has been uncovered. Many studies have validated the idea that student learning preferences must be considered in the formation of the learning environment. This quantitative study investigated the preferred teaching strategies of BSN students and produced data to analyze differences in preferred teaching strategies based on age, gender, academic year, and traditional/non-traditional status, something that has not been documented to date in the literature. The study also explored correlations between students' self-

identified learning styles and preferred teaching strategies, a topic which also has not been quantitatively studied.

Critique of Previous Research. Since the introduction of concept based curriculum by Giddens and Brady (2007) many experts have recommended the transformation of nursing curriculum to a more student centered dynamic. A plethora of research has exemplified the success of self-directed learning (SDL) and concept based teaching ([OCNE], 2015; Stanley & Dougherty, 2010; Tseng et al., 2011). However, these studies do not take into consideration the academic levels and readiness of novice learners to engage in a student driven environment. The ability to take control of one's education and dictate the course and direction of learning comes with significant life experience. Novice learners entering higher education directly out of high school are not accustomed to SDL (Draganov et al., 2013) and may feel lost or overwhelmed with the course of nursing education. Some studies reported improved learning outcomes with SDL (Kong et al., 2014), while others have discovered that both instructor driven and SDL produce similarly successful student learning outcomes (Kamath & Udayakiran, 2015; Moss, 2013). The age and experience variable needs to be further explored as it was in this current study.

Further critique of the current research highlights gaps related to the alignment of learning styles and teaching strategies. Many studies identified that nursing students are primarily multimodal learners (Frantz & Methembu, 2014; Prithishkumar & Michael, 2014; Whillier et al., 2014) and others debated the preferred teaching strategies of nursing students (Arapantikul & Luecha, 2010; Brandon & All, 2010; Kaddoura, 2011; Kowalczyk et al., 2012; Marchigiano et al., 2011; Montenery et al, 2013; Popil, 2011). Researchers have made assumptions that kinesthetic learners prefer simulation and concept mapping appeals to visual

learners (Harrison & Gibbons, 2013), yet none offer validated research based correlations between learning styles and preferred teaching strategies. The results of the current study provided the data to discern correlations between learning styles and teaching preferences.

Chapter 2 Summary

The development of competent and safe clinicians is the goal of every single nursing education program. The challenge for educators lies in how best to create a learning environment that helps students reach those goals. A review of the literature identified the importance of taking into consideration the andragogical principles of adult learning and the incorporation of Knowles's et al. (2011) principles in leading students through the cognitive domains of Bloom's et al. (1956) taxonomy; knowledge, comprehension, application, analysis, synthesis, and evaluation. Experts and scholars have studied and recommended a variety of teaching strategies to aid students in their cognitive development and have overwhelmingly supported the idea that student preferences be considered when choosing the methods of teaching. The literature has identified the six most common teaching strategies, lecture, PowerPoint®, case studies, concept mapping, interactive discussions, and simulation (Clark, 2010). The implementation of all six strategies have proven successful in one study or another but the resounding proclamation throughout the literature has been that more research is needed in terms of what teaching strategies are most preferred by nursing students. This study included an investigation of the preferred teaching strategies of BSN students based on age, gender, academic year, and traditional/non-traditional status, along with correlations between self-identified learning styles and preferred teaching strategies in an effort to add to the identified gap in the literature and to provide best practice recommendations for nursing educators.

CHAPTER 3. METHODOLOGY

Introduction to Chapter 3

This chapter describes the quantitative methodology employed for the research study investigating nursing students' preferred teaching strategies. Chapter 3 highlights the purpose of the study, research questions along with the corresponding hypotheses, and the research design. The explanation of the research design includes the population, sample size, sampling methods, setting of the study, recruitment strategies, data collection and analysis, limitations and validity of the study, expected findings, and finally ethical considerations.

Purpose of the Study

The purpose of this quantitative non-experimental study was to investigate the differences in preferred teaching strategies of baccalaureate degree nursing students based on age, gender, academic year, and traditional/non-traditional status. Additionally, the purpose of the study was to identify any existing relationships between preferred teaching strategies and students' self-identified learning styles. The goal of the study was to provide nursing educators with evidence-based teaching guidelines that will improve learning outcomes and create safe and effective nursing professionals.

Research Questions and Hypotheses

The research questions, hypotheses, and null hypothesis were:

RQ1. Are there significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students?

H₁₁. There are significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students.

H₀₁. There are no significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students.

RQ2. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age?

H₁₂. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age.

H₀₂. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age.

RQ3. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender?

H₁₃. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender.

H₀₃. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender.

RQ4. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year?

H₁₄. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year.

H₀₄. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year.

RQ5. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status?

H15. There is a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status.

H05. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status.

RQ6. Is there a significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students?

H16. There is a significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students.

H06. There is no significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students.

Research Design

A quantitative non-experimental methodology was used to guide the research study, with components of both comparative and correlational designs. Following the quantitative research design, data were collected using an online cross-sectional survey distributed to freshman, sophomore, junior, and senior level BSN students. Participants were recruited from the National Student Nurses Association (NSNA) membership database. Previous studies in higher education found success with the online survey method of data collection (Delaney, Johnson, Johnson, & Treslan, 2010). Participants were asked basic demographic information, including, age, gender, academic year, and traditional/non-traditional status to provide the data necessary to answer the research questions. Participants were also asked to identify their dominant learning style(s),

based on provided definitions, so correlational data would be available to answer the final research question. Finally, participants were presented with a list of the six most commonly employed teaching strategies in nursing education: traditional lecture, PowerPoint® presentations, case studies, concept mapping, simulation exercises, and interactive discussions (Clark, 2010), and were asked to rank their preferences: one for most preferred up to six for least preferred. Brief definitions of the learning styles and teaching strategies were provided to allow for consistency in answers and understanding. Participant responses were then analyzed using quantitative methods to provide statistical data that were used to answer the research questions and test the stated hypotheses.

Target Population, Sampling Method, and Related Procedures

Ravid (2011) defined a population as the larger group of individuals who share a common trait and a sample as the smaller cohort of individuals from the population who are selected to represent the whole. Baccalaureate degree nursing students comprised the target population for the study and were represented by a sample of BSN students from the National Student Nurse's Association (NSNA). This section describes the rationale for the chosen population and sample and the methods for narrowing the sample size.

Target Population

The field of nursing allows for multiple preparations for entry into practice: diploma, associate degree (ADN), and BSN. While students continue to enroll in diploma and ADN programs, the IOM (2011) has called for an 80% increase in baccalaureate prepared nurses by 2020. Therefore, the future of nursing education will likely shift toward students enrolled in baccalaureate degree programs and thus current research must be representative of the largest

population. As supported by the literature and the regulations for increasing BSN prepared nurses, the sample was pulled from the larger population of baccalaureate degree nursing students enrolled in four year university nursing programs. According to the AACN (2015a) there are nearly 175,000 nursing students enrolled in entry level baccalaureate degree programs in the United States. Since the feasibility of sampling the entire BSN population was out of reach, a more targeted approach to sampling was taken. Lohmeier (2010) stated that an advantage to non-experimental quantitative research is the ability to target a specific sample group from a larger population in educational settings.

The targeted sample group was nursing students enrolled in BSN programs within the NSNA. The limited existing literature specifically investigating nursing students' preferred teaching strategies (Marchigiano et al., 2011; Walker et al., 2006; Walker et al., 2007) was conducted across the United States. Therefore, conducting the study with a sample participant group within a national database helped to add to the existing body of knowledge and identify any generalizability of the study results. The practicality of gathering data from every BSN student in the United States is limited, so the study utilized the BSN students within the NSNA. Due to the shift in BSN as an entry level degree ([IOM], 2011), the baccalaureate degree students represent the future of nursing education and thus can shed light on the perspective of the larger BSN group of learners.

Sampling Method

A non-probability purposive sampling technique was used to gather the participants for the study. Non-probability purposive sampling offered the researcher the ability to gather data from participants who met inclusion criteria and were able to help answer the research questions (Pearce, Christian, Smith, & Vance, 2014). Although the sample was taken from a national

database and all BSN students had equal opportunity for participation, a non-probability purposive sampling method was chosen due to the exclusion of diploma, associate, and graduate degree students (Fritz & Morgan, 2010). The inclusion criterion for the study was nursing students who maintain membership in the NSNA and who were enrolled in a baccalaureate degree nursing program. Participants were freshman, sophomore, junior, and senior level students, male or female, traditional and non-traditional students, who had a willingness to participate, and an ability to answer ranked scale survey questions. The exclusion criteria for the study were diploma, associate and graduate degree nursing students, and students who had an inability or unwillingness to participate in the study.

Sample Size

The sample was drawn from the NSNA membership. The NSNA (2011) reported an approximate membership of 60,000 students enrolled in diploma, associate's, bachelor's, master's, and doctoral programs and has issued support for the Institute of Medicine's call to increase the number of BSN prepared nurses. At the time of data collection, the best estimation of BSN members in the NSNA was roughly 30,000. Due to the inability to send targeted surveys to only BSN members, specific questioning was incorporated into the data collection tool to ensure that all participants met the inclusion criteria. Determining the appropriate sample size to yield generalizable data required a review of similar study sample sizes and the determination of a confidence interval. The original USET data collection instrument was used as a reference, in which 358 participants took part in the original study (Sander, Stevenson, King, & Coates, 2000). Zientek, Yetkiner, Ozel, and Allen (2012) reported that the most commonly used confidence interval in quantitative research is 95%, especially when the exact population size is unknown. Using the sample size calculator provided by Creative Research Systems (2012) with

a 95% confidence interval and +/- 5 margin of error, a target sample size was determined to be approximately 375 participants.

Setting

The study took place entirely in an online setting. Participants were recruited via email and were able to complete the survey instrument online within the secure Survey Monkey® database. Participants were able to complete the survey at their leisure in their own environments over a 2-3 week period. The researcher's contact information was provided as a reference for any questions or concerns that arose. Participants were able to contact the researcher at their convenience from their own location.

Recruitment

Upon receipt of IRB approval and permission from the NSNA director, the data collection instrument was sent via email to a cumulative list of NSNA members. The instrument was imbedded with a screening question to determine if participants met the inclusion criteria. Participants were contacted via e-mail, by the NSNA director, with an introduction to the study and a link to the Survey Monkey® data collection instrument. The researcher's email address and phone number were provided within the email for any questions or concerns throughout the study. Participants were instructed within the introductory email to click the link to the survey if they were interested in participating. The first page of the survey instrument contained the detailed informed consent. Participants were instructed to click the "I agree to participate" link if they wished to continue with the survey. Participants who clicked the "I do not agree to participate" link were directed to the end of the survey. The informed consent explained that participants had the right to withdraw from the study at any time. The demographic data collection questions included a question asking participants if they were enrolled in a

baccalaureate degree program. If the participants answered no to this initial question, they were automatically directed to the end of the survey. Employing a skip logic question provided built in screening criteria to ensure that all participants met the inclusion criteria and saved time in collecting and analyzing invalid data (Minnaar & Heystek, 2013).

Instrumentation

The survey instrument was modified from the original University Students' Expectations of Teaching tool (USET). The USET tool was developed by Dr. Paul Sander and used in a primary research study in 2000, of first year undergraduate university students' preferred teaching and learning strategies (Sander et al., 2000). The original study explored the students' learning preferences as well as the students' expectations of the educator within the learning environment. The USET tool was later adapted to further investigate the very specific teaching strategies that a smaller cohort of graduate students preferred (Hashim, Habib, Zakariah, & Mohamad, 2014). The newly adapted version of the USET survey tool was also used by Rodrigues (2004) in a larger study investigating the university students' opinions of the importance of specific teaching strategies. In both adapted studies, a ranked scale approach was taken, asking students to either rank their top three teaching strategies or rate the teaching strategy on a scale of one to three. The adapted USET survey tool (Hashim et al., 2014) was determined to be internally reliable via a Cronbach's Alpha of .974 and .972 for the preferred and not preferred strategies respectively. Each study utilized the adapted USET tool to gather demographic and ordinal data. The ordinal data indicating the preferred teaching strategies were then correlated with the demographic data and degree specialization, to determine if any relationships existed (Hashim et al., 2014). Similarly, within this study, the initial questions of

the survey tool collected demographic or nominal data indicating the participants' age, gender, academic year, and traditional/non-traditional status. The remaining questions were ranked scale in nature, seeking the participants' self-identified learning style(s) and most preferred teaching strategies, producing ordinal data.

Permission from Dr. Paul Sander was obtained to personalize the data collection instrument to offer participants of this study one simple ranking scale to rank their most to least preferred teaching strategies, from 1 through 6. The modified instrument also offered detailed descriptions of the included teaching strategies, along with definitions of the optional learning styles. Providing baseline definitions ensured that the researcher, the consumer of the research, and the participants shared the same operational definitions of the variables.

The survey instrument contained questions that asked for basic demographic data including age, gender, academic year, and traditional/non-traditional status in multiple choice format. Participants were then asked to select their dominant learning style from the options of visual, auditory, read/write, or kinesthetic. The learning styles were presented in a multiple choice format but allowed the participant to rank their learning styles if they identified as a multimodal learner. Finally, participants were asked to rank their preferred teaching strategies from most preferred (1) to least preferred (6).

Data Collection

The quantitative study included the use of a survey based data collection instrument modified, with permission from the creator of the instrument, from the original USET data collection tool. After final IRB approval was obtained, an email invitation with the survey link and the required fee were sent to the director of the NSNA. The director sent the email invitation

containing a description of the study, the deadline for completion, and the researcher's contact information to the entire NSNA membership. If potential participants were willing to participate in the study, they were directed to follow the link at the end of the email that connected them to the Survey Monkey® data collection instrument. The first page of the survey included the components of informed consent ensuring participants that they were able to withdraw from the study at any time without fear of retribution. If participants consented to participate they were instructed to click the "I agree to participate" link at the bottom of the informed consent page. Those unwilling to participate were instructed to click the "I do not agree to participate" link at the bottom of the informed consent page and thus were directed to the end of the survey.

Participants agreeing to participate in the study were initially asked if they were enrolled in a BSN program. An answer of yes allowed progression to the remainder of the study. An answer of no led participants to the end of the study. These initial questions ensured that all participants met the inclusion criteria. The next page of the survey provided participants with detailed descriptions of the study variables. Definitions of the teaching strategies and learning styles utilized throughout the survey were provided and validated by current literature. Offering detailed descriptions of the optional teaching strategies and learning styles ensured that the participants had the same understanding of the variables as the researcher and the reader of the research results.

The remainder of the survey instrument was comprised of closed-ended multiple choice and ranked-scale questions to gather the descriptive data. Mrug (2010) endorsed the use of closed-ended questions in eliciting relevant quantifiable data. Demographic data including age, gender, academic year, traditional/non-traditional status were gathered via dichotomous and nominal questions. Participants were asked to select their gender (male/female), age (17-22, 23-

30, 31-40, 41-50, 50 & older), academic year (freshman/sophomore/junior/senior), and traditional/non-traditional status using a multiple choice format allowing only one response per question. Participants were then asked to choose their dominant learning style (visual, auditory, read/write, kinesthetic), ranking from 1 (best) to 4 (least) if they identified as a multi-modal learner. Finally, a ranked scale question allowed participants to rank their preferred teaching strategies (case study, concept mapping, lecture, simulation, interactive discussions, PowerPoint® presentations) from 1 (most preferred) to 6 (least preferred).

Upon completion of data collection participants were thanked for their time and honest answers. All collected data were transferred directly from the Survey Monkey® database into SPSS ([IBM Corp.], 2013) software for further analysis and double checked for accuracy. Descriptive statistical analysis was then completed within SPSS to answer the research questions.

Pilot Test

A pilot test was not conducted for this study. The data collection instrument was modified, with permission from the creator, only slightly from the original USET tool. The modifications included combining the ranking of preferred teaching strategies to allow participants to rank their most to least preferred teaching strategies within one question rather than separate questions. Additionally, questions from the original USET tool regarding preferred qualities in an educator were removed. The modifications were deemed by Capella University's Scientific Merit Review Committee and IRB to not have significantly altered the validity and reliability of the original tool.

Operationalization of Variables

The quantitative non-experimental study contained components of both comparative and correlational research to investigate differences in nursing students' preferred teaching strategies based on specific independent variables. Additionally, the final research question gathered data used to identify any existing relationships between two dependent variables. Explanations of how both the independent and dependent variables were operationalized and measured during the study are provided.

Independent Variables

- Age- nominal variable providing demographic information about participants. Options included age ranges 17-22, 23-30, 31-40, 41-50, 50 and older.
- Gender- dichotomous nominal variable providing demographic information about participants. Options included Male/Female
- Academic Year- nominal variable providing demographic information about participants. Options included freshman, sophomore, junior, and senior.
- Traditional/Non-traditional Status- dichotomous nominal variable providing demographic information about participants. Options included traditional status (less than 5 years since high school graduation) and non-traditional status (more than 5 years since high school graduation).

Dependent Variables

- Self-identified learning styles- ordinal data providing correlational data. Options included visual, auditory, read/write, and kinesthetic and were measured using a multiple choice option or a ranked response 1 (best) to 4 (least) for multimodal learners.

- Preferred Teaching Strategies- ordinal data providing correlational and comparative data measured but the modified USET ranking tool. Options included traditional lecture, PowerPoint® presentations, case studies, concept mapping, interactive discussions, and simulation and were ranked 1 (most preferred) to 6 (least preferred).

Data Analysis Procedures

Upon completion of data collection, the data analysis procedures began within the Survey Monkey® database. Total responses were tallied and the data were exported into the IBM Corporation's (2013) SPSS version 22 data analysis software program. The transference of the data was double checked for accuracy between Survey Monkey® and SPSS. Once in the SPSS database, demographic data, or independent variables, were analyzed for frequencies to determine how many participants fell into each category of each independent variable. Measures of central tendency data were further analyzed using various statistical methods to answer each research question and to test the corresponding hypotheses. This section details the data analysis process.

Research Question 1

In order to answer the primary research question, the sub-questions had to first be answered. The preferred teaching strategy response data were analyzed for central tendencies to determine the most preferred teaching strategy among the entire $N=355$. Manikandan (2011) stated that measures of central tendency include the mean, median, and mode and allow the researcher to show how the data is representative of the larger population. Then the results of the central tendency analysis were reviewed to determine the mean rank score for each independent variable, age, gender, academic year, and traditional/non-traditional status. This answered the

first research question by uncovering differences in preferred teaching strategies among subgroups of BSN students.

Research Question 2

To evaluate whether there were differences in preferred teaching strategies based on age, a Kruskal-Wallis H test was run. The Kruskal-Wallis H analysis method allowed the researcher to determine if there were differences in ordinal dependent variables between independent groups within the independent variables, but offered the ability to analyze independent variables with more than two subgroups (Lund & Lund, 2013). The variable age was presented to participants with five subgroups, 17-22, 23-30, 31-40, 41-50, and 50 and older.

Research Question 3

To determine whether there were differences in preferred teaching strategies based on gender, a Wilcoxon Mann Whitney test was run using SPSS software. The Wilcoxon Mann Whitney test is a non-parametric test that can decipher differences among means when there are only two independent subgroups within the independent variable and the data is assumed to be not normally distributed (Leeper, 2006). The dichotomous nature of gender, noting only male and female subgroups, as independent variables and the ordinal nature of the ranking of preferred teachings strategies allowed accurate analysis using a Wilcoxon Mann Whitney test.

Research Question 4

In order to answer the fourth research question, a Kruskal-Wallis H test was performed to determine if there were differences in preferred teaching strategies based on academic year. Similar to Wilcoxon Mann Whitney test, the Kruskal-Wallis H analysis method allowed the researcher to determine if there were differences between ordinal dependent variables and independent groups of independent variables, but offered the ability to analyze independent

variables with more than two subgroups (Lund & Lund, 2013). The academic year variable provided participants with four subgroups to choose from, freshman, sophomore, junior, and senior and no participant could fall into more than one group.

Research Question 5

To determine whether there were differences in preferred teaching strategies based on traditional/non-traditional status, a Wilcoxon Mann Whitney test was performed. Wilcoxon Mann Whitney is a non-parametric test that can decipher differences among means when there are only two independent subgroups within the independent variable and the data is assumed to be not normally distributed (Leeper, 2006). The independent variable of traditional/non-traditional status is dichotomous in nature and the ordinal nature of the ranking of preferred teachings strategies allowed accurate analysis using a Wilcoxon Mann Whitney test to answer the fifth research question.

Research Question 6

Finally, to determine if there were any relationships between learning styles and preferred teaching strategies, frequency data was entered into a contingency table using SPSS software. Participants' self-reported learning styles were evaluated for combinations of unimodal and/or multi-modal responses. Where multimodal learning styles were identified, the participants were asked to rank their most dominant learning style. As such, multimodal learners were reported in the data analysis process as visually multimodal, auditory multimodal, etc noting their most dominant learning style first. The other component of the contingency table was the most preferred teaching strategy as reported by the participants. Therefore, within the contingency table each cell illustrated the number of responses that correlate both a most preferred teaching strategy and a dominant self-identified learning style(s) (Slater, Lujan, DiCarlo, 2007). In order

to answer the research question and determine if a statistically significant relationship existed among the data within the contingency table, correlational analysis was run on the data using SPSS software (Kharb, Samanta, Jindal, & Singh, 2013). Due to the ordinal nature of both the independent and dependent variables, Spearman's rho correlation analysis was run to uncover any existing relationships between BSN students' self-identified learning styles and preferred teaching strategies (Lund & Lund, 2013). Spearman's rho correlation was successfully used in a similar study investigating online learners' preferred means of instructional delivery (Kebritchi, 2014).

Limitations of the Research Design

The non-experimental quantitative research design offered this study the ability to gather data from a large sample that can be generalized to the larger BSN population (Ravid, 2011). Additionally, the data produced by this study can be used to generate and support best practice recommendations for nursing educators across the globe (Arghode, 2012; Demerir & Sahin, 2013; Turner et al., 2013). Quantitative research prevents the researcher from taking a more personalized approach to data collection. This study, conducted with a qualitative methodology, would have produced data that could have been able to discern the reasoning behind the participants teaching preferences and might have gathered more detailed data regarding past educational experiences. Another limitation to this study was the sample size. The estimated target sample size was approximately 375 participants to achieve a 95% confidence interval and +/- 5 margin of error (Creative Research Systems, 2012). However, without an accurate estimation of the population of BSN students in the NSNA the targeted sample size was not as accurate as it could have been. While using a national database allowed for a more

representative and randomized sample, the online impersonal method of data collection may have resulted in incomplete survey instruments. The use of a more personal approach to data collection, perhaps in-person explanations of the study through local schools of nursing, would have increased quality response rates.

Internal Validity

Internal validity in quantitative research is most often concerned with extraneous variables causing the effect seen as a result of the intervention, rather than the intervention itself (Ravid, 2011; Trochim, 2006). However, for this study threats to internal validity were considered with regard to the reliability of the data collection instrument and potential factors influencing the participant's responses. The data collection instrument, though slightly modified, was determined to be internally reliable via a Cronbach's Alpha of .974 and .972 during a similar study by Hashim et al. (2014) investigating students' most and least preferred teaching strategies. With regard to extraneous factors influencing participant responses, some BSN students, especially those in their freshman and sophomore years of enrollment may not have been exposed to all six teaching strategies listed on the survey instrument. While this lack of exposure to diverse teaching strategies may have skewed the responses, the degree of the potential threat to internal validity cannot be verified. Finally, respondents who did not complete the survey in its entirety could reduce the internal validity of the study. In order to mitigate this threat, missing data was taken into consideration during the earliest stages of data analysis using a specific missing data function within the SPSS software program.

External Validity

The ability to generalize the results of educational research to the larger population is a key strength of quantitative research. The degree to which the results can be generalized is referred to as external validity (Lund Research, 2012; Ravid, 2011). The biggest threat to external validity is too small of a sample or sampling methods that do not allow for representation of the larger population. A non-probability purposive sampling technique was used to gather the BSN participants for the study that would represent the larger target population (Fritz & Morgan, 2010; Pearce et al., 2014). The targeted sample size was 375 (Creative Research Systems, 2012), making this study generalizable to the larger BSN population representing the future of nursing education (IOM, 2011).

Expected Findings

This study included methods that aimed to identify differences in baccalaureate degree nursing students' preferred teaching strategies, further delineated by age, gender, academic year, traditional/non-traditional status and any relationships between self-identified learning styles and preferred teaching strategies. The expected finding for the primary research question was that there would be a significant difference in preferred teaching strategies between subgroups of BSN students at the $p < .05$ level. The primary research question was answered by the sub questions and supported by the literature validating the sub questions' predicted findings.

With regard to the subgroup of age, it was expected that there would be a significant difference, at the $p < .05$ level, in BSN students' preferred teaching strategies based on age. Tanner (2014) explored generational differences in preferred teaching methods among nurses and found a statistically significant difference between Generation X, Y, and Baby Boomers.

Additionally, Simonds and Brock (2014) discovered in a study of nursing students that older students preferred more lecture based, instructor driven teaching methods, while younger students were drawn to interactive, learner centered instruction.

The stated hypothesis correlating with the second sub question was that there would be a significant difference, at the $p < .05$ level, in BSN students' preferred teaching strategies based on gender. Choudhary, Dullo, and Tandon (2011) found that male and female students do in fact have different preferred teaching/learning methods. Researchers went on to recommend that educators take the time to evaluate their students preferred learning styles and specific teaching strategies and use that information to tailor the classroom to the learning preferences of students.

The expected findings for the third sub question was that there would be a difference, at the $p < .05$ level, in BSN students' preferred teaching strategies based on academic year. Donche, Maeyer, Coertjens, Daal, and Petegem (2013) found that the students' preferred methods of learning are directly related to their current levels of cognition, which do develop and expand over time. Thus, the teaching strategies that students prefer do change from the progression of freshman to senior year. Donche et al. (2013) also stated that the preferred teaching strategies are more teacher centered in the freshman year and ultimately take on a more learner focused autonomous approach in the junior and senior years.

The stated hypothesis correlating with the fourth sub group of BSN students was that there would be a difference, at the $p < .05$ level, in preferred teaching strategies based on traditional/non-traditional status. In the field of nursing education, many non-traditional BSN students are enrolled in accelerated programs. Caldwell, Tenofsky, and Nugent (2010) found that non-traditional students prefer more flexible, self-motivated teaching strategies.

Finally, there was an expectation that there would be a statistically significant relationship between preferred teaching strategies of BSN students and their self-identified learning styles. Kharb et al. (2011) found that students' preferred teaching strategies are in fact directly related to their dominant learning style(s).

Ethical Issues

Ethical standards in research involving human participants mandated that strict policies and procedures be followed to protect study participants and to secure the validity and reliability of research results. Potential conflicts of interest and ethical concerns are addressed in this section.

Conflict of Interest Assessment

The researcher had no personal or professional relationships with the NSNA or the study participants. The researcher received no financial gain from conducting the study. All contact with study participants was conducted by the Executive Director of the NSNA. The researcher held no influence over participants or their responses. The study was approved by the Capella University Institutional Review Board (IRB).

Position Statement

As a novice clinical adjunct faculty, the researcher sought a solution to an identified problem regarding student engagement in learning. The literature highlighted a gap in knowledge related to students' preferred teaching strategies. At the time of the study the researcher worked professionally with associate degree nursing students and thus had no preconceived biases or notions as to the results of the study investigating BSN students'

preferred teaching strategies. The study was conducted solely to aid in supplementing the current existing literature and to support best practice recommendations for nursing educators.

Ethical Issues in the Study

This quantitative study of the differences in BSN students' preferred teaching strategies took into consideration the directives of the *Belmont Report* (US Dept. of Health & Human Services, 1979). Ethical considerations included equity and justice requiring equal opportunity for participation in the study. All BSN nursing students within the National Student Nurses Association (NSNA) were invited to participate in the study. There was no discrimination based on grade level, race, gender, or academic standing. All BSN students had equal opportunity to participate.

The principle of respect for persons requires consideration of confidentiality and informed consent, as well as ensuring the participants experience no undue influence to participate in the study (US Dept. of Health & Human Services, 1979). For this study, the autonomy of the participants was protected through the signing of informed consent for participation and the use of a gatekeeper within the NSNA. The researcher explained through the informed consent document that involvement in the study could cease at the wishes of any participant at any time during the study. The researcher maintained communication with the Executive Director of the NSNA who was able to facilitate the nursing students' participation without undue influence. All communication with participants occurred through an e-mail sent by the NSNA. The researcher's contact information was provided for participants who sought further clarifications or assistance. The Survey Monkey[®] tool was used to create the online version of the USET tool. Previous studies using Survey Monkey[®] for data collection have found success with quantitative data organization and analysis (Ruth-Sahd & Schneider, 2014).

The anonymous raw data were organized within the Survey Monkey[®] database and on a secure USB drive. The USB drive was stored in a locked filing cabinet in the researcher's home. Raw data were downloaded into the SPSS database and double checked for accuracy of transmission.

Finally, the principle of beneficence requires assurance that participation in this study would be of some benefit to the participants (US Dept. of Health & Human Services, 1979). The validity and reliability of the data was first considered in the use of a reliable data collection tool. The USET was adapted and validated through previous studies and was deemed a reliable tool for quantitative data collection via a Cronbach's Alpha of .974 (Hashim et al., 2014; Rodrigues, 2004). The results of the study were made available to all invested stakeholders at the NSNA, as well as published in ProQuest. Participants were supplied access to the study results through the NSNA and nursing educators were able to access and use the data to guide recommended classroom teaching methods.

Chapter 3 Summary

Non-experimental quantitative methodology set the framework for this study to collect data regarding BSN students' preferred teaching strategies. The research design was driven by the research questions and aligned with the purpose of the study. The recruitment of participants and the analysis of data took into consideration the privacy and confidentiality of participants. The non-probability purposive sampling method targeting participants from the NSNA ensured external validity by allowing the results of the study to be generalized to the larger population of BSN students across the United States. All contact with participants was made by the Executive Director of the NSNA. Data collection was anonymous and was completed through the Survey Monkey[®] database. Utilizing a modified version of the validated USET tool (Hashim et al.,

2014; Rodrigues, 2004; Sander et al., 2000) ensured that valid and internally reliable data was collected from study participants. Accounting for threats to validity, conflicts of interest, and ethical concerns offered stakeholders the assurance that the results of the study could be trusted and were worthy of consult in determining best practice teaching recommendations for nursing educators in baccalaureate degree programs.

CHAPTER 4. DATA ANALYSIS AND RESULTS

Introduction

Chapter 4 presents the data analysis procedures and the corresponding results of the study investigating BSN students' preferred teaching strategies related to age, gender, academic year, traditional/non-traditional status, and self-identified learning styles. A combination of descriptive statistics was run to analyze the data and answer the six research questions. Measures of central tendencies provided frequency data, the Wilcoxon Mann Whitney test answered the research questions with dichotomous independent variables, Kruskal Wallis H analysis provided answers to the research questions related to age and academic year, and finally Spearman's rho correlational analysis identified any existing relationships between BSN students' self-identified learning styles and preferred teaching strategies. This chapter first offers a description of the sample, then a summary of the results of the study organized by research question, and finally a detailed explanation of the aforementioned data analysis procedures.

Description of the Sample

The modified USET survey instrument (Sanders et al., 2000) was sent to the entire NSNA membership body totaling approximately 60,000 nursing students. Prior to data collection a targeted sample size was calculated to offer a 95% confidence interval and +/- 5

margin of error using the sample size calculator provided by Creative Research Systems (2012). The target sample size was determined to be approximately 375 participants based on a population of 60,000 NSNA members. The total number of NSNA members who were BSN students could not be determined and therefore the targeted sample size was likely larger than needed to provide the 95% confidence interval. A total of 448 members of the NSNA responded to the survey invitation and agreed to participate in the research study. As data analysis progressed, areas of missing data were identified. Thirty-three participants did not answer all of the questions in the survey, creating gaps in data analysis. While there are many options to account for or replace missing data in survey research and data analysis, each replacement method risks the validity of the results in some manner (Raghunathan, 2010). Parent (2012) suggested removing the participants who did not provide enough data to add to the main analytical themes of the research. Since identifying preferred teaching strategies as related to individual demographic data was the plight of this research, the participants who did not answer all of the survey questions were removed from the data analysis process entirely, producing an $N=415$. Of those willing participants who completed the survey in its entirety, 355 indicated that they were enrolled in a BSN program and thus just over 85% of the initial study participants met the inclusion criteria. After removal of invalid data and review of inclusion criteria the research study's $N=355$.

Using SPSS version 22.0 ([IBM Corps.], 2013) data were analyzed using frequencies to provide demographic descriptions of the participants. Table 1 provides the total count and percentages for each participant's age, gender, academic year, and traditional/non-traditional status.

Table 1

Demographic Data

Demographic		<i>N</i>	%
Age	17-22	157	44.2%
	23-30	115	32.4%
	31-40	53	14.9%
	41-50	24	6.8%
	50 & older	6	1.7%
Gender	Female	328	92.4%
	Male	27	7.6%
Academic Year	Freshman	24	6.8%
	Sophomore	38	10.7%
	Junior	105	29.6%
	Senior	188	53.0%
Traditional/Non-traditional Status	Traditional	190	53.5%
	Non-traditional	165	46.5%

Summary of the Results

The results of data analysis are summarized into answers for each research question within this section. A more detailed analysis of the results is presented in the next section.

Research Question 1

A significant difference in preferred teaching strategies was found among one subgroup of baccalaureate degree nursing students.

Research Question 2

There was no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age.

Research Question 3

There was no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender.

Research Question 4

There was a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year.

Research Question 5

There was no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status.

Research Question 6

There was a significant relationship between self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students.

Detailed Analysis

The detailed analyses of the study results are presented based on each research question and the corresponding null hypotheses.

Research Question 1

RQ1. Are there significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students?

H₀1. There are no significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students.

To answer RQ1, results for RQ2 through RQ5 had to first be analyzed. Based on the non-parametric Kruskal Wallis H test, the subgroup of BSN students demonstrating significant differences in preferred teaching strategies was academic year. The Kruskal Wallis H test was run on the four levels of academic year, freshman, sophomore, junior, and senior and found significant differences in preferred teaching strategies ($p=.022$), shown in Table 2. Further support for the rejection of the null hypothesis is shown in Figure 1 which depicts the differences in overall teaching preferences.

Table 2

Kruskal Wallis H Test for Academic Year

	Lecture	PowerPoint	Case Studies	Simulation	Concept Mapping	Discussions
Chi-Square	2.330	9.633	.149	6.192	.632	1.213
df	3	3	3	3	3	3
Asymp. Sig. ^a	.507	.022	.985	.103	.889	.750

Note. df= degrees of freedom

^a Significant at the $p < .05$ level

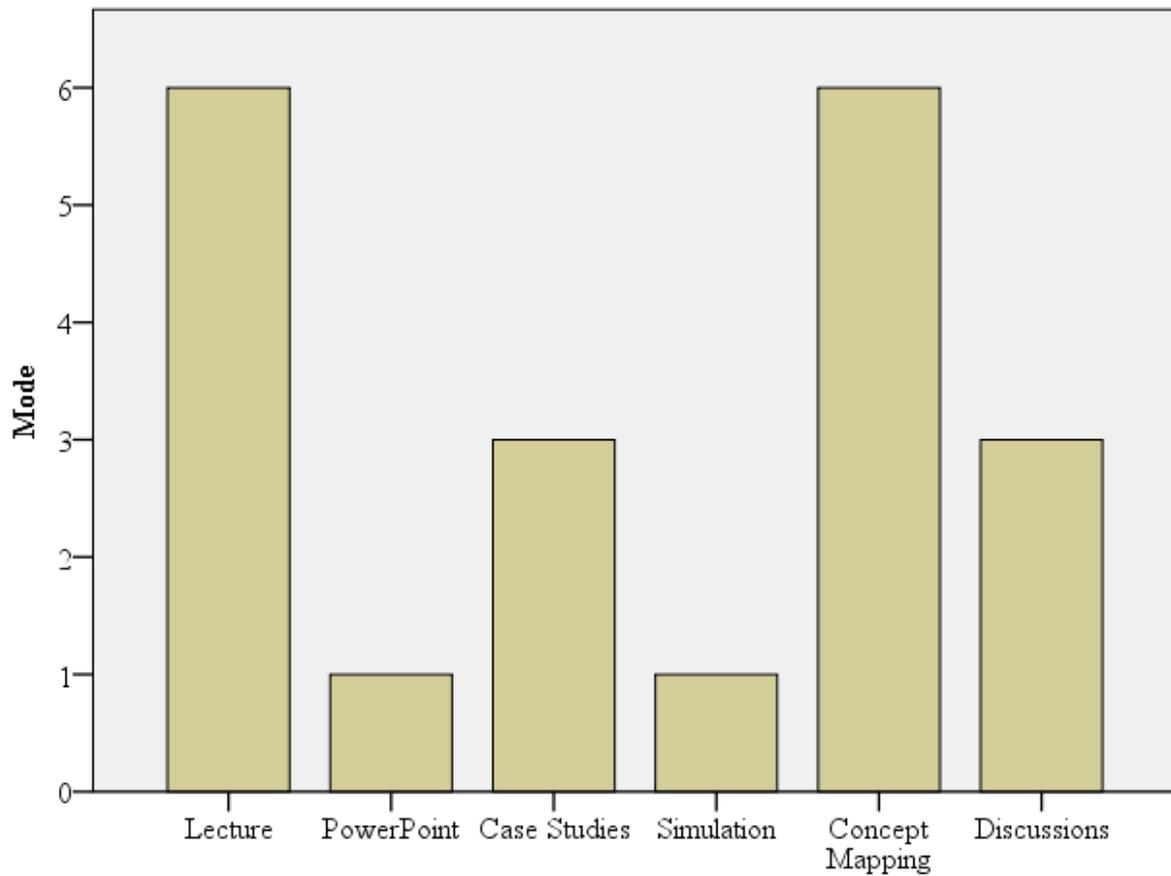


Figure 1. Most preferred teaching strategy (1). Least preferred teaching strategy (6).

Figure 1. Ranked Teaching Strategy Preferences

Research Question 2

RQ2. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age?

H₀2. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age.

A Kruskal Wallis H test was conducted to determine if there was a significant difference in preferred teaching strategies of BSN students based on age. The categories of age were: 17-22

($n=157$), 23-30 ($n=115$), 31-40 ($n=53$), 41-50 ($n=24$), and 50 and older ($n=6$). Distributions of participants in each age category were similar in shape based on visual inspection, allowing for analysis of the median ranks of the data. Median ranks ranged from 1.50 for the 50 and older group's preference for lecture up to a 5.00 for all groups' preference of concept mapping. However differences in median ranks were not considered significantly different, with the lowest p value at .058 for all combinations of age group and preferred teaching strategy shown in Table 3. Therefore the null hypothesis failed to be rejected.

Table 3

Kruskal Wallis H Test for Age

	Lecture	PowerPoint	Case Studies	Simulation	Concept Mapping	Discussions
Chi-Square	7.047	4.312	1.400	9.114	.162	5.553
df	4	4	4	4	4	4
Asymp. Sig. ^a	.133	.365	.844	.058	.997	.235

Note. df= degrees of freedom

^a Significant at the $p < .05$ level

Research Question 3

RQ3. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender?

H₀3. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender.

A Wilcoxon Mann Whitney test was conducted to determine if there was a significant difference in preferred teaching strategies of BSN students based on gender. Using visual

inspection, the distribution of participants between male and female subgroups was not similar. The largest difference in mean ranks occurred for lecture. The mean ranks for males (155.83) and females (179.82) indicated that males have a higher preference for lecture than females but the difference was determined to not be significant, $U = 3,829.500$, $z = -1.189$, $p = .234$. Therefore the null hypothesis failed to be rejected.

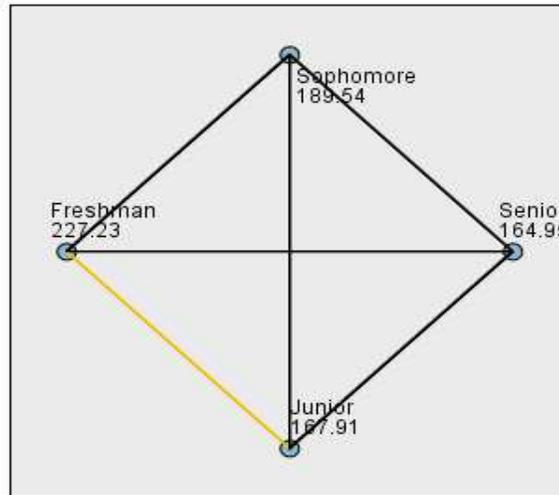
Research Question 4

RQ4. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year?

H₀4. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year.

A Kruskal Wallis H test was conducted to determine if there was a significant difference in preferred teaching strategies of BSN students based on academic year. The categories of academic year were freshmen ($n=24$), sophomore ($n=105$), junior ($n=188$), and senior ($n=38$). The distribution of participants between each category was not similar based on visual inspection. The mean rank for PowerPoint® (167.91) as a preferred teaching strategy was significant between groups, $X^2(3) = 9.633$, $p = .022$. More specifically, Table 2 shows the full results of the Kruskal Wallis H test and Figure 2 illustrates that the most significant difference occurred between freshmen and juniors, $p = .040$. Therefore, the null hypothesis was rejected.

Pairwise Comparisons of Academic Year



Each node shows the sample average rank of Academic Year.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Senior-Junior	2.962	17.918	.165	.869	1.000
Senior-Sophomore	24.591	19.071	1.289	.197	1.000
Senior-Freshman	62.282	26.266	2.371	.018	.106
Junior-Sophomore	21.629	12.273	1.762	.078	.468
Junior-Freshman	59.320	21.836	2.717	.007	.040
Sophomore-Freshman	37.691	22.792	1.654	.098	.589

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

Figure 2. Differences for PowerPoint® based on academic year

Research Question 5

RQ5. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status?

H₀₅. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status.

A Wilcoxon Mann Whitney test was conducted to determine if there was a significant difference in preferred teaching strategies of BSN students based on traditional/non-traditional status. Using visual inspection, the distribution of participants between traditional and non-traditional subgroups was similar. Median ranks between subgroups were exactly the same for all teaching strategies except discussions as seen in Table 4. The median ranks for discussions traditional (4.00) and non-traditional (3.00) were not statistically significantly different, $U = 16,753.00$, $z = 1.136$, $p = .256$.

Table 4

Wilcoxon Mann Whitney Medians for Traditional/Non-Traditional Status

	Lecture	PowerPoint	Case Studies	Simulation	Concept Mapping	Discussions
Non-traditional	4.00	3.00	3.00	2.00	5.00	3.00
Traditional	4.00	3.00	3.00	2.00	5.00	4.00
Total	4.00	3.00	3.00	2.00	5.00	3.00

Research Question 6

RQ6. Is there a significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students?

H₀₆. There is no significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students.

Crosstabulation using Spearman's rho correlation was run to assess the relationship between self-identified learning styles and the preferred teaching strategies of BSN students.

There were strong positive correlations between visual learning style and PowerPoint® ($p = .014$), auditory learning style and lecture ($p < .0005$), simulation ($p < .0005$), read/write learning style and lecture ($p = .007$), PowerPoint® ($p = .010$), simulation ($p = .001$), discussions ($p = .019$), and between kinesthetic learning style and lecture ($p < .0005$), PowerPoint® ($p < .0005$), case studies ($p = .004$), and simulation ($p < .0005$). Table 5 illustrates the significant relationships between self-identified learning styles and preferred teaching strategies allowing the rejection of the null hypothesis.

Table 5

Spearman's rho Correlation

		Lecture	PowerPoint	Case Studies	Sim	Concept Mapping	Discussion
Visual	N	355	355	355	355	355	355
	Correlation Coefficient	-.044	.130	.012	-.045	-.020	-.038
	Sig. (2-tailed)	.413	.014	.825	.394	.713	.470
Auditory	N	355	355	355	355	355	355
	Correlation Coefficient	.203	.010	-.090	-.223	-.044	.060
	Sig. (2-tailed)	.000	.858	.090	.000	.410	.263
Read/Write	N	355	355	355	355	355	355
	Correlation Coefficient	.143	.137	-.060	-.173	.011	-.124
	Sig. (2-tailed)	.007	.010	.258	.001	.835	.019
Kinesthetic	N	355	55	355	355	355	355
	Correlation Coefficient	-.286	-.282	.152	.414	.051	.104
	Sig. (2-tailed)	.000	.000	.004	.000	.339	.050

Chapter 4 Summary

This quantitative non-experimental study sought to determine if there were differences in BSN students' preferred teaching strategies based on age, gender, academic year, and traditional/non-traditional status. The study also included an exploration of the presence of relationships between BSN students' self-identified learning styles and preferred teaching strategies. Utilizing the non-parametric Wilcoxon Mann Whitney test, there were no significant differences in preferred teaching strategies found between subgroups of gender (male, female) or students' traditional and non-traditional enrollment status. The use of the non-parametric Kruskal Wallis H test found no significant difference in preferred teaching strategies between age groups of BSN students (17-22, 23-30, 31-40, 41-50, 50 & older). Significant differences in preferred teaching strategies were found between subgroups of academic year, specifically between freshman and junior level BSN students. Finally, using Spearman's rho correlational analysis, significant relationships between BSN students' self-identified learning styles and preferred teaching strategies were uncovered.

Chapter 5 will explore the results of the study in greater detail. A discussion of the results of this study in relation to current literature will be provided. In addition, the implications for current educational practice as a result of this study will be reviewed. Finally, recommendations for further research will be described based on the experiences, limitations, and results of this study.

CHAPTER 5. CONCLUSIONS AND DISCUSSION

Introduction

The purpose of the this quantitative non-experimental study was to investigate the differences in preferred teaching strategies of BSN students based on age, gender, academic year, and traditional/non-traditional status. Additionally, the study included methods to identify any existing relationships between preferred teaching strategies and self-identified learning styles. The methodological approach of the study was quantitative, non-experimental comparative and correlational research using an online cross-sectional survey design. The goal of the study was to inquire as to the best practice recommendations for nursing educators and add to the lacking body of existing knowledge.

Chapter 5 explores the results of the study from Chapter 4 in greater detail, offering a summary and discussion of results, then a detailed discussion of the results related to the literature, a review of the limitations of the study, implications of the results of the study for current practice, and finally recommendations for further research.

Summary of the Results

This study included a non-experimental survey design to collect data from baccalaureate degree nursing students who were members of the National Student Nurses' Association. A non-probability purposive sampling method garnered 355 participants who met the inclusion criteria.

A modified version of the USET (Sanders et al., 2001) survey tool was used to identify participants' preferred teaching strategies ranked 1 (most preferred) to 6 (least preferred) from the provided choices, lecture, PowerPoint®, case studies, simulation, concept mapping, and interactive discussions (Clark, 2010). Participants were also asked to choose their most dominant learning style(s), visual, auditory, read/write, and/or kinesthetic. Data were then collected in the Survey Monkey® database and exported directly to SPSS ([IBM Corps.], 2013).

Data were analyzed with statistical methods best suited to answer each research question. Data analysis using the non-parametric Kruskal Wallis H test found a significant difference in preferred teaching strategies of BSN students based on academic year, $p = .022$. For all other subgroups of BSN students (gender, age, traditional/non-traditional status) there were no significant differences in preferred teaching strategies. Additionally, using Spearman's rho correlation, significant relationships were found between BSN students' self-identified learning styles and preferred teaching strategies. A summary of the results of the data analysis are presented in relation to each research question.

Research Question 1

RQ1. Are there significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students?

H₀1. There are no significant differences in preferred teaching strategies among subgroups of baccalaureate degree nursing students.

The results of the first four sub questions indicated that there were significant differences in preferred teaching strategies among subgroups of BSN students. RQ3 utilized the non-parametric Kruskal Wallis H test which found a significant difference in preferred teaching

strategies between academic years of BSN students, $p = .022$. All other analyses uncovered no significant differences between subgroups. The null hypothesis was rejected.

Research Question 2

RQ2. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age?

H₀2. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on age.

The non-parametric Kruskal Wallis H test found no significant difference in preferred teaching strategies between age subgroups of BSN students, $p = .058$. The null hypothesis failed to be rejected.

Research Question 3

RQ3. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender?

H₀3. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on gender.

The non-parametric Wilcoxon Mann Whitney test found no significant difference in preferred teaching strategies between gender subgroups of BSN students, $p = .238$. The null hypothesis failed to be rejected.

Research Question 4

RQ4. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year?

H₀4. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on academic year.

The non-parametric Kruskal Wallis H test found a significant difference in preferred teaching strategies between academic year subgroups of BSN students, $p = .022$, specifically between junior and freshman preferences for PowerPoint®, $p = .040$. The null hypothesis was rejected.

Research Question 5

RQ5. Is there a significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status?

H₀5. There is no significant difference in preferred teaching strategies of baccalaureate degree nursing students based on traditional/non-traditional status.

The non-parametric Wilcoxon Mann Whitney test found no significant difference in preferred teaching strategies between traditional/non-traditional subgroups of BSN students, $p = .256$. The null hypothesis failed to be rejected.

Research Question 6

RQ6. Is there a significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students?

H₀6. There is no significant relationship between the self-identified learning styles and the preferred teaching strategies of baccalaureate degree nursing students.

Spearman's rho correlation found significant relationships between BSN students' self-identified learning styles and preferred teaching strategies. Specifically, visual-PowerPoint® ($p = .14$), auditory-lecture ($p < .0005$), auditory-simulation ($p < .0005$), read/write-lecture ($p = .007$), read/write- PowerPoint® ($p = .10$), read/write-simulation ($p = .001$), read/write-discussions ($p = .019$), kinesthetic-lecture ($p < .0005$), kinesthetic- PowerPoint® ($p < .0005$), kinesthetic-case studies ($p = .004$), and kinesthetic-simulation ($p < .0005$). The null hypothesis was rejected.

Discussion of the Results

This study employed a non-experimental, cross sectional survey design. Participants ($N=355$) were initially asked demographic questions including age, gender, academic year, and traditional/non-traditional status. The final questions of the survey asked participants to rank their preferred teaching strategies, lecture, PowerPoint®, case studies, simulation, concept mapping, and discussions (Clark, 2011) from 1 (most preferred) to 6 (least preferred). Finally, participants chose their most dominant learning style, visual, auditory, read/write, and/or kinesthetic. Participants ranked their dominant learning styles 1 (best) to 4 (least) when they identified as multimodal learners. Data were analyzed to determine if differences existed in preferred teaching strategies based on the demographic data collected, age, gender, academic year, or traditional/non-traditional status. Finally, data were analyzed to explore any existing relationships between participants' self-identified learning styles and their preferred teaching strategies.

The results of the study indicated that there was a significant difference in preferred teaching strategies of BSN students based only on academic year (RQ4). There were no significant differences in preferred teaching strategies among any other sub group of BSN students, age (RQ2), gender (RQ3), or traditional/non-traditional status (RQ5). Additionally, a significant relationship was discovered between BSN students' self-identified learning styles and preferred teaching strategies (RQ6).

Research Question 1

The results of the study indicated a difference in preferred teaching strategies within one subgroup of BSN students and therefore lead to the rejection of the null hypothesis. Existing

literature has exposed controversial findings related to differences in preferred teaching strategies among nursing students. Kaddoura (2010) along with Koch et al. (2011) found that nursing students prefer hands-on kinesthetic methods of learning, while Kowalczyk (2011), Slavich and Zimbardo (2012), and Yuan et al. (2011) reported students' preferences for collaborative learning such as interactive group discussions, case studies, and group simulation. Henry (2011) reported that health science students base their preferences for learning on the material or content being conveyed and not necessarily their own personal teaching preferences. While the differences between all subgroups within this study were not significantly different, the study results allowed the researcher to conclude that BSN students do prefer collaborative, interactive, hands-on learning over lecture based instruction.

Research Question 2

Previous researchers have discovered differences in preferred teaching strategies based on generational age groups (Tanner, 2014), with older students preferring instructor centered teaching methods such as lecture and younger generations having a preference for interactive student centered learning. While the results of this study did reveal a median rank of 1.50 for lecture in the 50 and older age group and a 2.00 median rank for simulation in the 17-22 age group, these differences were not statistically significant at the $p < .05$ level. The H_02 could not be rejected. The differences seen in this study as compared to previous research may have resulted from an unequal distribution of participants between age groups, 17-22 ($n = 157$), 23-30 ($n = 115$), 31-40 ($n = 53$), 41-50 ($n = 24$), and 50 and older ($n = 6$). The results indicated that while there may be slight differences in teaching preferences among age groups of nursing students, participants in this study maintained an overall preference for simulation ($N = 355$, $Mdn = 2.00$).

Research Question 3

The results of this study indicated that males and females have very similar teaching strategy preferences with differences lying only in their preferences for lecture ($p = .234$) and discussions ($p = .499$), though still not statistically significant at the $p < .05$ level. The H_03 could not be rejected. During previous studies, Choudhary et al. (2011) and Wehrwein, Lujan, and DiCarlo (2007) found gender differences in preferred methods of learning, specifically in learning styles. This study's results may have been limited by the inequality between male participants ($n = 27$) and female participants ($n = 328$).

Research Question 4

The study results indicated a significant difference in BSN students' preferred teaching strategies based on academic year ($p = .022$) with the largest differences occurring between freshman ($Mdn = 4.00$) and junior ($Mdn = 2.00$) level students in their preferences for PowerPoint® focused instruction ($p = .040$). The H_04 was rejected. Interestingly, while the finding of significant differences in preferred teaching strategies based on academic year are consistent with previous research, Donche et al.'s (2013) study found that students' preferences typically take on a more learner centered focus as students progress through academic years. This study found simulation to be the overall most preferred teaching strategy ($Mdn = 2.00$), with freshman participants showcasing the strongest preference ($Mdn = 1.00$) for this learner focused teaching strategy. This study's findings were consistent with previous research in the discovery of significant differences in preferred teaching strategies based on academic year but slightly contradict previous findings with regard to where those differences lie.

Research Question 5

The results of this study indicated that there were no significant differences in preferred teaching strategies based on traditional or non-traditional status at the $p < .05$ level. The median ranks for all teaching strategies were identical between groups with the exception of discussions where non-traditional students ranked discussions ($Mdn = 3.00$) higher than traditional students ($Mdn = 4.00$) resulting in a non-significant $p = .256$. The H_05 could not be rejected. Previous research presented conflicting reports of differences in teaching preferences between traditional and non-traditional nursing students. Caldwell et al. (2010) conducted a study and found that non-traditional students maintained stronger preferences for more self-motivated learning strategies while Thompson and Scheckley (1997) found no significant differences between traditional and non-traditional students. Limitations in previous studies were related to small sample sizes and disparities between participant groups. This study maintained an $N=355$ with similar distributions between traditional ($n= 190$) and non-traditional ($n =165$) subgroups, potentially adding to the validity of the previous research findings.

Research Question 6

This study's results uncovered significant relationships between BSN students' self-identified learning styles and preferred teaching strategies. The H_06 was rejected. Previously, only Kharb et al. (2011) had found that learning styles were related to preferred teaching preferences but no specific research study had investigated the direct correlations between learning styles and specific teaching methods. However, previous research had indicated that the majority of nursing students are multimodal learners (AlKhasawneh, 2013; Nuzhat, Salem, Hamdan, Ashour, 2013), allowing for greater flexibility in developing a learning environment that meets the learning needs of all students. The results of this study found that all participants

($N=355$) were multimodal learners. This finding could be due to the wording of the survey question, “Please select the learning style that BEST represents your dominant learning style. (Simply rank your dominant learning style with the #1. If more than one applies, please rank in order 1=best, 4=least)”. Data from this study indicated that 28.5% of participants ($n=101$) were visually dominant multimodal learners, 7.9% ($n=28$) were auditory dominant multimodal, 14.6% ($n=52$) were read/write dominant multimodal, and 49% ($n=174$) were kinesthetically dominant multimodal. These findings were in keeping with the existing research by AlKhasawneh (2013) who found 60% of multimodal participants to be kinesthetically dominant.

In terms of the relationships between learning styles and preferred teaching strategies, there were significant relationships at the $p < .05$ level between the majority of participants most preferred teaching strategies and their dominant learning styles. Results indicated that visually dominant learners preferred PowerPoint® ($p = .014$). Auditory dominant learners preferred both lecture and simulation equally ($p < .0005$). Read/write dominant learners maintained preferences for lecture ($p = .007$), PowerPoint® ($p = .010$), simulation ($p = .001$), and discussions ($p = .019$). Finally, and interestingly, kinesthetically dominant learners preferred lecture, PowerPoint®, and simulation equally ($p < .0005$), along with preferences for case studies ($p = .004$). These significant relationships provided evidence to educators that a multitude of teaching strategies can be used to enhance the learning environment and meet the learning style needs of nursing students.

Discussion of the Results in Relation to the Literature

A discussion of the results of the study related to the literature is provided with specific consideration given to the theoretical frameworks of the study including Knowles’s et al. (2011)

theory of andragogy and Bloom's taxonomy (Bloom et al., 1956). Additionally, a review of the relationships between the results of this study and the previously reviewed literature is examined. The discussion of previous literature is organized into categories mirroring Chapter 2's literature review, concept-based curriculum, teaching strategies, and learning styles.

Relationship between the Results and the Theoretical Framework

The theoretical frameworks that provided the foundation for this study were Bloom's taxonomy and Knowles's theory of andragogy. The domains of Bloom's taxonomy, knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom et al., 1956) explore the progressive nature of learning, highlighting a framework for cognitive development. Since its inception in 1956, Bloom's taxonomy has been modified and revised by more recent scholars and many experts have cautioned educators to use the domains as a guide rather than a strict blueprint of expectations for students (Seaman, 2011). Progressive learning in nursing education focuses on teacher centered teaching strategies in the early stages of learning, namely freshman and sophomore years, leading to more learner focused teaching methods in the junior and senior years. Maquire (2013) studied progressive learning in novice nurses and found that structured learning pathways lead to greater nursing satisfaction and longevity in the field, yet student preferences should be highly considered in the development of the learning environment (Speed et al, 2015; Taylor & Hamdy, 2013). The results of this study indicated that BSN students do in fact have differences in preferred teaching strategies between academic years ($p < .022$) but those differences show that junior level students have a stronger preference for teacher centered instruction such as PowerPoint® ($Mdn = 2.00$) versus freshman who have a stronger preference for student centered instruction such as simulation ($Mdn = 1.00$). These differences could be related to the recent push for shifts to concept based curriculum (Giddens and Brady, 2007;

Giddens et al., 2008; Giddens and Morton, 2010; Stanley and Dougherty, 2010) leading to greater exposure to more student centered teaching strategies earlier in the nursing education curriculum.

Knowles's theory of andragogy maintains that the success of adult learners is contingent upon learners feeling valued and empowered to partner with educators in the development of the learning environment (Draganov et al., 2013; Knowles et al., 2011). Adult learners are a unique population in the sense that most come to the learning environment with significant personal and professional experiences which have influenced their learning preferences and practices.

Draganov et al. (2013), Knowles et al. (2011), McKee and Billman (2011), and Ozuah (2005) have all encouraged the use of learner centered, reality based instruction utilizing teaching strategies such as simulation, case studies, and concept mapping in order to meet the needs of adult learners. While the results of this study did not find significant differences in every subgroup of BSN students, the overall preferred teaching strategy among all participants ($N=355$) was simulation (36.9%), which validated Knowles's theory. However, Mulub and Jooste (2014) encouraged the continual review of both preferred and effective teaching strategies in nursing education in an effort to keep pace with the rapidly changing face of healthcare and generational variances

Relationship between the Results and the Literature Reviewed

The results of this study are discussed in this section as they relate to the previously reviewed literature. The literature review in Chapter 2 was separated into three sections relating to concept-based curriculum, teaching strategies, and learning styles. The discussion of the relationship between the results of the study and the literature reviewed follows the same organizational sections.

Concept-based curriculum. Traditionally, the focus of nursing education has been the dissemination of as much information as possible throughout a four year baccalaureate degree program (Ostmoe et al., 1984). The desire to prepare nursing students to pass the NCLEX-RN[®] has been a primary focus of nursing education but experts and regulating bodies have encouraged educators to re-evaluate their teaching practices in an effort to produce safer and more effective practitioners. Methods of successful concept-focused instruction were identified as case studies, concept mapping, collaborative discussions, and simulation ([OCNE], 2015). These teaching strategies are largely self-directed and learner focused, requiring students to be capable of engaging in self-directed learning (SDL). Previous studies have found that SDL is more effective in junior and senior level nursing students (Draganov et al., 2013) and earlier classes of students, freshman and sophomores often experience greater difficulty engaging in SDL (Ozuah, 2005). The results of this study indicated that participants ($N=355$) preferred simulation (36.9%) over the other presented teaching strategies with PowerPoint[®] (25.4%) as the second most preferred, lecture as the third choice (15.2%), next discussions (11.5%), followed by case studies (6.5%) and concept mapping (4.5%). While the preference for simulation is in keeping with the literature review of concept-based curriculum changes, the lack of preference for other SDL methods such as case studies and concept mapping may possibly be due to lack of exposure to these methods, as Hyland (2014) reported that only 27% of nursing programs have made the shift to a concept-based curriculum model.

Teaching Strategies. The goal of nursing education is and has always been to bridge the gap between theory and practice and produce safe and effective nurses upon graduation (Crookes et al, 2013; Mills et al., 2014). The methods to accomplish that goal have long been debated, researched, and revised based on new and improving practice recommendations. Clark (2010)

provided the six most commonly used teaching strategies in nursing education, lecture, PowerPoint®, case studies, simulation, concept mapping, and interactive discussions, which were used in this study. Participants were presented with these six teaching strategies and asked to rank their most preferred (1) to least preferred (6) strategies. The primary preference for simulation (36.9%) was consistent with previous research indicating that students prefer hands-on practical learning (Boellaard et al., 2014, Corbridge et al., 2010; Founds et al., 2011). While Bloom's taxonomy states that students typically prefer teacher centered instruction such as lecture in their freshman and sophomore years and student centered instruction such as simulation in their junior and senior years, this study's findings are more consistent with Kirkman (2013) and Raurrell-Torreda et al.'s (2015) findings that students prefer the introduction of hands-on practical teaching methods earlier in their academic journey as a means of better preparation for clinical placements and patient care.

The results of this study indicated that simulation was the most preferred teaching strategy among all subgroups of participants. The consistencies seen with preferences for simulation across subgroups of participants correlates with the literature stating that the incorporation of simulation early in the learning environment leads to more successful outcomes later in the academic journey (Kirkman, 2013; Raurrell-Torreda et al., 2015). Existing research findings encouraged educators to employ high fidelity simulation exercises when hands-on patient care experiences cannot be secured. This study's results supported the current literature in validating that not only is simulation an effective means of instruction but it also meets the andragogical needs of students and remains the most preferred teaching strategy across the age, gender, academic year, and traditional/non-traditional subgroups of BSN students.

PowerPoint® ranked as the second most preferred teaching strategy among participants (25.4%) consistent with Aranha et al.'s (2015) findings that students enjoy the use of multi-media in the classroom and prefer the incorporation of multiple teaching strategies. The strongest preferences for PowerPoint® in each subgroup of participants came from females (*Mdn* =3.00), traditional students (*Mdn* =3.00), seniors (*Mdn* =2.50), and students ages 31-40 (*Mdn* =3.00). The traditional students' preference for PowerPoint® may be directly related to their experiences with similar teaching methods in the high school domain. Senior level nursing students, having been exposed to a plethora of teaching strategies over the course of a four year baccalaureate program are often engaged in clinical learning experiences at the bedside throughout their curriculum and thus may prefer more direct means of instruction afforded by PowerPoint® in the classroom setting.

In terms of lecture based instruction, participants in this study ranked lecture as their third most preferred. While the findings were not significant at the $p < .05$ level, the strongest preference for lecture in each subgroup came from males (*Mdn* =3.00), non-traditional students (*Mdn* =4.00), sophomores (*Mdn* =4.00), and students ages 50 and older (*Mdn* =1.50). Pourghaznein et al. (2015) found that while students maintain the weakest preference for lecture based instruction, students did perceive lecture to be the most effective means of instruction when delivering complex content laden instruction.

Interactive discussions were the fourth ranked teaching strategy in this study (11.5%). One potential rationale for the lower ranking given to discussion may be a fear of public speaking. Shah and Salim (2014) found that many introverted or less experienced students prefer smaller group settings versus the larger class discussion due to a fear of humiliation or being wrong. The preferences for discussions in this study demonstrated by non-traditional

(*Mdn* =3.00), female students (*Mdn* =3.00), ages 23-30 (*Mdn* =3.00) were consistent with Shah and Salim's (2014) claims. The inconsistencies arose with the freshman students' (*Mdn* =3.00) rank. However, interactive discussions are often used as a means to supplement more dominant instruction methods such as debriefing after a clinical rotation or a simulation experience and thus many students may not be familiar with interactive discussions as a primary teaching strategy.

Case studies were ranked as the fifth teaching preference (6.5%) by BSN students in this study. Case studies offer students an opportunity to engage in practical problem solving scenarios either in a solitary or collaborative group setting. Previous studies have discovered that if used effectively, realistic case studies were successful in increasing nursing students' critical thinking capacity and allowing students to carry problem solving abilities into the patient care setting (Brandon and All, 2010; Forsgren, 2014; Kaddoura, 2011; Kamath & Vdayakiran, 2015; Raurrell-Torreda, 2015). Participants with the strongest preferences for case studies were females (*Mdn* =3.00), seniors (*Mdn* =3.00), and traditional students (*Mdn* =3.00) ages 41-50 (*Mdn* =3.00). The preferences in this study for case studies, by seniors and students ages 41-50, was consistent with the personal, professional, and academic experiences that these groups of students bring to the learning environment (Knowles et al, 2011).

Finally, concept mapping was ranked by participants of this study as the least preferred teaching strategy (4.5%). These findings were consistent with Chiou's (2008) reports that concept maps are often confusing to students and if not explained properly serve very little purpose because students do not see the value in the exercise. Despite being the least preferred teaching strategy, concept maps were ranked the highest in this study by traditional (*Mdn* =5.00), sophomore level (*Mdn* =5.00), females (*Mdn* =5.00), ages 17-22 (*Mdn* =5.00). Despite the

success seen by some educators with the use of concept mapping (Harrison and Gibbons, 2013; Moattari et al., 2014; Samawi et al., 2014), this study supported the request of Atay and Karabacak (2012) that more research related to students' perceptions of concept mapping be completed.

Learning Styles. Participants in this study were presented with four common learning styles, visual, auditory, read/write, and kinesthetic (Fleming, 2016) and were asked to identify their dominant learning style. Where more than one learning style was dominant, participants were asked to rank their learning styles 1 (best) to 4 (least). Previous research has indicated that the majority of adult learners are multimodal learners, in the sense that they identify with more than one dominant learning style (AlKhasawneh, 2013; Nuzhat et al., 2013). All participants ($N = 355$) in this study identified as multimodal learners and ranked their dominant learning styles one through four. Forty-nine percent of participants ($n = 174$) were kinesthetically multimodal, 28.5% ($n = 101$) were visually multimodal, 14.6% ($n = 52$) were read/write multimodal, and 7.9% ($n = 28$) were auditory multimodal learners. Many educators conduct learning styles inventories at the start of each semester and tailor their instruction based on the dominant learning styles of students. While experts (Li et al., 2014) encouraged the exploration of students' learning styles, without a distinct correlation between dominant learning styles and preferred teaching strategies, educators cannot be certain that the needs of adult learners are being met.

This study included an exploration of relationships between learning styles and preferred teaching strategies. Significant relationships at least at the $p < .05$ were discovered between visually dominant learning styles and the use of PowerPoint®, between auditory dominant learning styles and lecture and simulation, between read/write dominant learning styles and lecture, PowerPoint®, simulation, and discussion, and finally between kinesthetically dominant

learning styles and lecture, PowerPoint[®], case studies, and simulation. These findings largely supported the use of a learning styles inventory to determine the most appropriate teaching strategies to meet the andragogical needs of nursing students (Knowles et al., 2011).

Limitations

This study was limited to BSN students from the National Student Nurses' Association's (NSNA) total estimated 60,000 members. A non-probability purposive sampling technique was used to gather participants who met the inclusion criteria (Pearce et al., 2014). A total of 448 NSNA members responded to the survey invitation but the study sample was limited to a total $N=355$ who met the inclusion criteria and answered the survey in its entirety. The survey was distributed on-line during the month of June which is outside of the traditional academic year. Additionally, utilizing only members of a pay-for-membership national organization limited the larger population group from which the sample could be drawn.

The study was further limited by the small number of male participants ($n=27$). The lack of significant differences in teaching preferences between gender groups was likely affected by the large disparity in participant numbers. However, according to the NLN (2014) male students currently represent only 15% of all BSN students which may negatively affect any future research related to gender differences in nursing education. Similarly, among subgroups of age and academic year, large inequalities in participant numbers limited this study.

Finally, the study was potentially limited by the wording of the survey questions. The question related to preferred teaching strategies asked participants to "Please rank from 1-6, your most preferred teaching strategies. (1=most preferred to 6=least preferred)". A number of participants ranked only their most preferred teaching strategy leading to a multitude of missing

data. Future researchers may consider seeking only the participants' most preferred teaching strategy.

Implication of the Results for Practice

The purpose of this quantitative non-experimental study was to investigate the differences in preferred teaching strategies of baccalaureate degree nursing students based on age, gender, academic year, and traditional/non-traditional status. The goal of the study was to provide nursing educators with evidence-based teaching guidelines that will improve learning outcomes and create safe and effective nursing professionals. The small sample ($N=355$) forced practice recommendations to be made judiciously with generalizations to BSN students only.

The results of this study found simulation to be the most preferred teaching strategy. The results of this study also indicated there was a significant difference in preferred teaching strategies between academic years only. No other subgroups of BSN students demonstrated a significant difference in preferred teaching strategies. This study supported Knowles's et al. (2011) theory of andragogy stating that adult learners prefer reality based instruction that bridges the gap between theory and practice. This study also supported the recommendations that educators could effectively employ a multitude of teaching strategies (lecture, PowerPoint®, case studies, simulation, concept mapping, or discussions) and still meet the learning needs of students. This study supported the findings of Henry (2014) in stating that like other health science students, nursing students' teaching preferences may be more closely related to the material being taught rather than personal likes and dislikes.

Additionally, the study included an investigation of any existing relationships between preferred teaching strategies and students' self-identified learning styles. The results of this

study indicated that the majority of students are multimodal learners, a finding that supports the research conducted by Frantz and Mthembu (2014), Prithishkumar and Michael (2014), and Whillier et al., (2014). The study results also found significant relationships between BSN students' self-identified learning styles and preferred teaching strategies. Based on these findings, the recommendations for practice are that rather than seeking each student's individual teaching strategy preferences, educators can conduct well established learning styles inventories and proceed in the development of correlated teaching strategies that have been validated by this study. Due to the documented correlations between BSN students' learning styles and preferred teaching strategies, educators can have confidence that the chosen teaching strategies will meet the learning needs and preferences of adult learners. Additionally, when time or resources do not allow for the surveying of students' learning styles or teaching preferences, the results of this study have indicated that utilizing a variety of teaching strategies in the learning environment will appeal to multimodal learners regardless of their primary dominant learning style.

Recommendations for Further Research

This quantitative, non-experimental study utilized the NSNA student membership to gather the sample. Future research may benefit from exploring population groups from individual BSN programs throughout the United States. A national sample of BSN students provided the most generalizability of results, but a pay-for-membership organization limited the sample. Researchers may also consider a qualitative or mixed-methods methodology to obtain a better understanding of why students maintain their preferences for specific teaching strategies. The results of this study identified significant differences in only one subgroup, academic year, of BSN students whereas previous research suggested potential differences among all subgroups,

age, gender, and traditional/non-traditional status. Additional research is needed to support best practice recommendations for nursing educators, specifically determining the most effective teaching strategies. Studies investigating effective teaching strategies may explore strategies that promote long-term information retention, transference of knowledge to practice, and/or skill demonstration. With regard to the data collection instrument, future studies may benefit from more direct questioning. Studies may investigate only the students' most preferred teaching strategy versus this study's exploration of the ranked preferences. Future studies could also investigate preferred teaching strategies based on the curriculum. Are there differences in preferred teaching strategies based on the material being taught? Finally, future researchers could explore the comparison of teaching preferences between academic preparations of nursing students, diploma versus associate's versus baccalaureate degree students.

Conclusion

As nurses are faced with more complex challenges in an ever-changing healthcare environment, nursing educators must forge ahead with renewed resolve to prepare nursing students to meet the demands of the healthcare field. The quality and safety of the care provided to patients in the most vulnerable stages of their lives depends on the knowledge and skills that nursing students carry through to bedside practice. Meeting the andragogical needs of adult learners requires a commitment from nursing educators to explore the learning preferences of students and engage students in practical, reality based educational activities that bridge the gap between theory and practice (Knowles et al., 2011; Su & Osisek, 2011). The results of this study exploring BSN students preferred teaching strategies based on age, gender, academic year, and traditional/non-traditional status and correlations to self-identified learning styles indicated that

nursing educators could successfully implement simulation based teaching strategies with all subgroups of BSN students and still successfully meet the needs of all learners. The significant relationships between learning styles and teaching preferences discovered in this study supported the use of learning styles inventories to guide the development of the learning environment. Through the implementation of evidence based teaching strategies and a partnership between nursing educators and nursing students, the world of nursing academia can be transformed to foster the knowledge and skills students need to meet the mounting challenges of today's healthcare industry.

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APPENDIX A. STATEMENT OF ORIGINAL WORK

Academic Honesty Policy

Capella University's Academic Honesty Policy (3.01.01) holds learners accountable for the integrity of work they submit, which includes but is not limited to discussion postings, assignments, comprehensive exams, and the dissertation or capstone project.

Established in the Policy are the expectations for original work, rationale for the policy, definition of terms that pertain to academic honesty and original work, and disciplinary consequences of academic dishonesty. Also stated in the Policy is the expectation that learners will follow APA rules for citing another person's ideas or works.

The following standards for original work and definition of *plagiarism* are discussed in the Policy:

Learners are expected to be the sole authors of their work and to acknowledge the authorship of others' work through proper citation and reference. Use of another person's ideas, including another learner's, without proper reference or citation constitutes plagiarism and academic dishonesty and is prohibited conduct. (p. 1)

Plagiarism is one example of academic dishonesty. Plagiarism is presenting someone else's ideas or work as your own. Plagiarism also includes copying verbatim or rephrasing ideas without properly acknowledging the source by author, date, and publication medium. (p. 2)

Capella University's Research Misconduct Policy (3.03.06) holds learners accountable for research integrity. What constitutes research misconduct is discussed in the Policy:

Research misconduct includes but is not limited to falsification, fabrication, plagiarism, misappropriation, or other practices that seriously deviate from those that are commonly accepted within the academic community for proposing, conducting, or reviewing research, or in reporting research results. (p. 1)

Learners failing to abide by these policies are subject to consequences, including but not limited to dismissal or revocation of the degree.

Statement of Original Work and Signature

I have read, understood, and abided by Capella University's Academic Honesty Policy ([3.01.01](#)) and Research Misconduct Policy ([3.03.06](#)), including the Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the *APA Publication Manual*.

Type in
learner name
and date

Kaela L Appleman 10/24/16

Type in
mentor name
and school

Dr. Camille Payne, Capella University
