

THE EFFECT OF COMMUNITY OF INQUIRY IN THE DEVELOPMENT OF EVIDENCED-BASED NURSING COMPETENCIES FOR THE RN-BSN PROGRAMS

by

Melissa D. Scott

November, 2017

Director of Dissertation: Ann Schreier, RN, BSN, MSN, PhD

Major Department: Nursing

Due to the increasing complexity of patient care, highly educated nurses are needed to improve the quality of care and promote positive patient outcomes through Evidenced-Based Practice (EBP). In order to meet Institute of Medicine mandates, online RN-BSN degree completion programs have been developed to make returning to school feasible. Effectively developing a Community of Inquiry (COI) in these online courses assists with meeting learner outcomes which is essential for EBP competency.

The purpose of this study was to determine if creating a COI impacted the student's perception of EBP competency after completing a Nursing Research course in RN-BSN programs. This study also compared the outcome of those in an accelerated 7 week course to those enrolled in a traditional 14 week course

A quantitative, descriptive correlational and comparative design was used for this study. Instruments used were the Revised Community of Inquiry tool, the Academic Center for Evidenced Based Practice-Evidence Based Practice Readiness Survey, the Evidenced Based Practice Implementation Scale, and a demographic tool. Data was collected from December

2016- July 2017 using a purposive sample of 34 students who completed an online nursing research course.

Results of this study found a positive perception of the COI which was more effectively created in the 14 week group. Creating the COI positively correlated with EBP readiness with no impact on EBP knowledge or implementation. EBP knowledge was higher in the 7 week group and readiness was higher in the 14 week group. There were no differences in implementation practices. Nurses with more years of experiences scored higher on EBP knowledge however, those with less experiences scored higher on EBP implementation practices.

Creating a COI has a positive impact on EBP knowledge and readiness. However, in comparison to knowledge and readiness, implementation is low. Future research should focus on methods that can best assist the learner to translate EBP knowledge and readiness to practice at the bedside and on assignments that best meet learner outcomes in the online learning environment. Preparation of nurses to engage in EBP is essential to address the complex needs in our healthcare environment.

THE EFFECT OF COMMUNITY OF INQUIRY IN THE DEVELOPMENT OF EVIDENCED-
BASED NURSING COMPETENCIES FOR THE RN-BSN PROGRAMS

A Dissertation

Presented to the Faculty of the Department of College of Nursing

East Carolina University

In Partial Fulfillment of the Requirements for the Degree

Doctor of Philosophy in Nursing

by

Melissa D. Scott PhD(c), RN, BSN, MSN

December, 2017

© Melissa D. Scott, 2017

THE EFFECT OF COMMUNITY OF INQUIRY IN THE DEVELOPMENT OF EVIDENCE
BASED NURSING COMPETENCIES FOR RN-BSN PROGRAMS

by

Melissa D. Scott

APPROVED BY:

DIRECTOR OF
DISSERTATION:

Ann Schreier, PhD, RN

COMMITTEE MEMBER:

Carol Winters, PhD, RN

COMMITTEE MEMBER:

Melvin Swanson, PhD

COMMITTEE MEMBER:

Abbie Brown, PhD

CHAIR OF THE DEPARTMENT
OF GRADUATE NURSING SCIENCE:

Elaine S. Scott, PhD, RN, NE-BC

DEAN OF THE
GRADUATE SCHOOL:

Paul J. Gemperline, PhD

ACKNOWLEDGEMENTS

I would like to extend my sincerest thanks to my committee members, Dr. Carol Winters, Dr. Abbie Brown, and Dr. Melvin Swanson. Their guidance, encouragement, and expertise made the completion of my journey possible. To Dr. Ann Schreier, my committee chair, there is no way to truly express the deep appreciation I have for the time, effort, and guidance you have shown me throughout the entire process. Even through my most challenging times, you were able to help me create a plan that always drove me towards success. All of my future research endeavors will be built on the foundation that you have provided during the dissertation journey.

To my colleagues at University of North Carolina-Wilmington and my PhD cohort at ECU, thank you all for your unwavering support. I would like to especially thank Dr. YeounSoo Kim-Godwin and Dr. Elizabeth Gazza for mentoring me and always giving thoughtful and constructive advice. I would like to thank Lisa Theriault for all of her time, effort and assistance. I would also like to thank my students for encouraging me and showing ongoing interest in my research.

To my parents, I am so privileged to have had this opportunity. If it were not for your continuous support and dedication to my success, this would not have been possible. To my sister Lauren, you have shown me that even in the most challenging times, the support of loved ones can get you through. To my niece Alexis, thank you for always wanting to organize my papers and effortlessly making me smile when I didn't think I could. To all my extended family and friends, my deepest gratitude for your understanding and encouragement throughout my journey to dissertation.

TABLE OF CONTENTS

LIST OF TABLES	vii
CHAPTER 1: INTRODUCTION	1
Significance and Background	2
Theoretical Perspectives	3
Purpose and Scope	5
Research Questions	6
Assumptions	7
Definition of Terms	7
Summary	8
CHAPTER 2: LITERATURE REVIEW	10
Significance and Background	10
Evidenced-Based Practice Competency	13
Collaborative Learning Assignments Online	16
Theoretical Frameworks	18
Summary	20
CHAPTER 3: METHODOLOGY	22
Methods	22
Population	23
Sample and Sampling Procedures	24
Instrumentation	25
Data Collection	27
CHAPTER 4: RESULTS	29
Demographic Characteristics of Participants	30
Research Question 1	31

Research Question 2.....	35
Research Question 3.....	38
Summary	40
CHAPTER 5: SUMMARY, DISCUSSION, AND IMPLICATIONS	41
Summary	41
Discussion of Study Findings	43
Relationship between creating a COI and EBP competency	44
Difference between 7 and 14 week course as it impacts COI and EBP competency.....	47
Conclusions.....	50
Concluding Remarks.....	52
REFERENCES	54
APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL	61
APPENDIX B: LETTERS OF APPROVAL.....	62
APPENDIX C: QSEN COMPETENCIES FOR PRE-LICENSURE NURSING STUDENTS	65
EVIDENCE-BASED PRACTICE (EBP).....	65
APPENDIX D: REVISED COMMUNITY OF INQUIRY INSTRUMENT	66
APPENDIX E: ACE-ERI EVIDENCE BASED PRACTICE KNOWLEDGE TEST	68
APPENDIX F: ACE-ERI READINESS INVENTORY.....	71
APPENDIX G: EBP IMPLEMENTATION SCALE	74
APPENDIX H: PARTICIPANT INVITATION LETTER.....	76

LIST OF TABLES

1.	Demographic Characteristics of Participants.....	31
2.	Revised Community of Inquiry Measures.....	32
3.	Correlation of COI and EBP Knowledge, Readiness, and Implementation.....	34
4.	RCOI, EBP Knowledge, Readiness, and Implementation Perceptions by Course Length.....	36
5.	Impact of Course Length on COI, EBP Readiness, EBP Implementation.....	38
6.	Effect of Years' Experience on EBP Knowledge, Readiness, and Implementation.....	40

CHAPTER 1: INTRODUCTION

Quality health care demands highly skilled nursing professionals competent in caring for patients with dynamic, complex healthcare issues through implementation of evidence-based practice (EBP) (Kersey, 2012). EBP is a systematic approach to answering clinical questions based on an analysis of the best available clinical research and competencies for this are now part of all BSN and MSN curricula (Beyea & Slattery, 2013). Most hospitals, especially Magnet hospitals or hospitals working toward Magnet status, now require nurses have at least a bachelor's degree. This has impelled nurses with diplomas or associate degrees in nursing (ADNs), who likely have had minimal instruction in research skills or EBP competency, to return to higher education to earn an RN-BSN (Hawkins & Shell, 2012). However, it is not feasible for most nurses working a full time job to return to the traditional classroom setting. To make earning a degree convenient and accessible, hundreds of institutions have developed flexible RN-BSN programs that take place solely in the online learning environment (Smyth, Houghton, Cooney, & Casey, 2012).

Online RN-BSN programs have increased access to higher education, but due to the nature of online learning, there are barriers to success that include technology, low interaction with faculty and peers, group work, and personal concerns (Clark, Ahten, & Werth, 2012). Ensuring nurses in an online RN-BSN acquire the necessary EBP competencies requires curricular strategies that mirror the practice of EBP itself that is, collaboration, interaction, and critical thinking. One means of accomplishing this through creating a community of inquiry (COI) (Kahu, Stephens, Leach & Zepke, 2013).

Significance and Background

Due to the complexity of patient care and the changing healthcare environment, the nursing profession needs highly educated practice professionals in order to improve the quality of the nursing workforce and to promote positive patient outcomes (AACN, 2015). The IOM set the goal of having 80% of all nursing staff baccalaureate prepared by the year 2020 (IOM, 2010). A survey administered by AACN found that 79.6 % of healthcare employers require or highly desire nurses with a baccalaureate degree (AACN, 2015). This requires that nurses with less than a bachelor's of nursing in science (BSN) enroll in a program and complete the degree.

Over the last two decades there has been a transition to online learning for nurses when furthering their education. Enrollment in RN-BSN programs increased for the twelfth year in a row, up 10.4% from 2013-2014 (AACN, 2015). These programs have increased access to higher education but due to the nature of the design, have created barriers to success for students in many aspects including technology, lack of interaction with faculty and peers, group work, and personal issues (Clark, Ahten, & Werth, 2012). As the demand for nurses to complete the baccalaureate degree increases, assignments should focus on creating a community of inquiry that will assist the learner in meeting outcomes (Kahu, Stephens, Leach & Zepke, 2013).

The Future of Nursing report released by the IOM in 2010 recommended that competency in nursing should include community and public health, leadership, systems improvement and change, research, and health policy. An important concept in healthcare directly related to research is EBP. The necessity for EBP has been well documented and included in competencies for traditional and nontraditional baccalaureate nursing programs. The Quality and Safety Education for Nurses (QSEN) aimed improve the quality and safety of care

delivered by nurses (QSEN, 2014). These competencies help to ensure nurses are receiving the appropriate education to assist in providing safe, quality care (QSEN, 2014).

Nursing is a collaborative profession. In order to provide the best outcomes, nurses must work with each other and other members of the healthcare teams for solutions including evidence based projects and practice. Online education programs can include discussion boards, blogs, group writing, or group projects (collaborative learning assignments) which require a high level of collaboration therefore mimicking the practice environment as it applies to providing evidenced-based care. There are several approaches to meeting the learner outcomes in these online courses however, in order to do so it is necessary to create an environment online that supports the learner engaged in distance education. In order for the learner to be successful, there must be an environment where the learners feel supported through interaction with each other, individual effort, and faculty feedback. These are all components of the revised community of inquiry (RCOI) model of online learning.

Theoretical Perspectives

Three theoretical perspectives supported this research: social constructivism, adult learning theory, and the revised community of inquiry.

Social constructivism advises that social interaction in the learning environment contributes to the intellectual and cognitive development of a learner. According to Vygotsky (1978), learning occurs best through communication between learners rather than individual efforts. Although Vygotsky's work focuses on primary education, it is specific to collaborative learning and can be applied to adult learners in RN-BSN programs. The stimulus in zone of proximal development (ZPD) changes from a teacher-centered concept to a student-centered

concept in adult education. The focus is on the way a learning community supports learning (Bockaire, 2002). Vygotsky's work has also contributed to approaches to adult learning.

Knowles' adult learning theory (ALT) focuses on teaching methods and considerations for adult learners. There are several assumptions ALT makes about adult learners. These are taken into consideration when planning teaching methods and learning activities for nurses enrolled in RN-BSN programs. The personal and professional experiences of individuals enrolled in online programs must be considered and learning activities should vary to meet the needs of all types of adult learners.

Garrison, Anderson, and Archer (2000) stated there are three critical components in online learning: cognitive presence, social presence, and teaching presence. These comprise the community of inquiry model (COI). However recently the COI has been re-conceptualized to include learning presence (Shea, Hayes, Uzuner-Smith, Gozza-Cohen, Vickers and Bidjerano, 2014). The model now referred to as the Revised Community of Inquiry (RCOI) guided this study.

Cognitive presence is defined as "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison et al, 2000 p. 89). For cognitive presence to have a positive effect on a learning environment, commitment, participation, and collaborative work must be present, encouraged, and sustained by faculty and students. Cognitive presence also assists in the development of critical thinking, a program outcome of higher level education.

Another element of the RCOI model is social presence. This requires engagement of online faculty and students by interjecting themselves, so they are perceived as *real people* (Garrison et al., 2000). This engagement has been described as a "direct contributor to the

success of the educational experience” (Garrison et al., 2000, p.89). This has been further studied and the conclusion drawn that the degree to which a student experiences connectedness to others is the social presence in an online environment (Mayne & Wu, 2011).

Additionally, teaching presence is a component of COI. The more often an instructor engages, the more likely students will engage as well. This is critical for discussions and discourse (Garrison et al.,2000). It has been noted, however, that assignments and interactions should be carefully limited or managed to allow learners time to reflect and critically analyze course content.

The original COI did not include a construct for behaviors and attitudes students would demonstrate in a collaborative online environment (Hayes, Smith, & Shea, 2015). A fourth construct termed *learner presence* was subsequently added. Online learning is, for the most part, self-directed and should be examined as a contributor to a community of inquiry and student success (Shea et al., 2012). The construct of learner presence is largely composed of the self- and co-regulatory processes of learning (Kim, Kim, Khera, & Getman, 2014). It examines the motivations of a student to complete individual and collaborative assignments. The addition of learner presence to the model created the *revised community of inquiry* (RCOI) model that guided this research.

Purpose and Scope

The purpose of this descriptive, correlational study was to determine if creating a community of inquiry impacted student perception of evidenced-based practice competency after completing an online nursing research course in a RN-BSN program. There are hundreds of universities that offer this degree option, therefore the population studied was narrowed to online nursing research courses in RN-BSN programs at two universities in Eastern North Carolina.

One program offered the nursing research course in an accelerated 7-week format, the other program offered the nursing research course in a traditional 14-week format.

Research Questions

RQ1: What is the relationship between creating a COI and self-perception of EBP knowledge, readiness and implementation of RN-BSN students who have completed a Nursing Research course in the online learning environment?

1. What is the self-reported perception of the COI in the OLE?
2. What is the relationship among factors in the RCOI framework and the student's perception of knowledge, readiness and implementation practices?
3. Do those who score higher on the EBP knowledge assessment report a more positive perception of readiness and implementation?
4. Are there correlations between learner demographics, perceptions of the COI and achieving EBP competency?

RQ2: Is there a difference between the 7 week and 14 week Nursing Research courses in regards to creating a COI, EBP knowledge, EBP readiness, and EBP implementation?

5. How does the length of the course (7 and 14 weeks) impact the creation of COI?
6. What is the difference in the students' EBP knowledge, readiness, and implementation between those completing a 14 week course and those completing the 7 week course?

RQ3: How does age, gender, ethnicity, number of years as a nurse and type of program impact EBP readiness and implementation?

7. How does age, gender, ethnicity, number of years as a nurse, and type of program impact EBP readiness?

8. How does age, gender, ethnicity, number of years as and nurse and type of program impact EBP implementation?

Assumptions

This research was guided by several general assumptions about EBP and the RCOI model. These assumptions were:

1. EBP competencies guide content in nursing research courses in RN-BSN programs.
2. EBP concepts and principles are taught in a RN-BSN curriculum.
3. Creating an effective COI will increase learner ability to achieve competency in EBP.
4. A 14-week course will more effectively develop a COI than a 7-week course.

Definition of Terms

In the theory development, terms are defined to provide a summary of how a specific term is used in describing phenomena (Meleis, 2012). The following terms are used throughout this research and are defined here for the reader.

Collaborative Learning is defined as the educational approach to teaching and learning that involves teams of nursing students working together.

Community of Inquiry is defined as teacher presence, social presence, cognitive presence, and learner presence as measured by the COI instrument.

Evidence based implementation is operationally defined as reported EBP implementation measured by the EBPIS.

Evidence Based Practice is defined as integration of clinical expertise, patient values, and best research evidence for patient care.

Evidenced based competency is operationally defined as the degree to which a student has met learner outcomes for a course and the ability to use knowledge to participate in EBP.

Evidenced based knowledge is operationally defined as the amount of perceived knowledge of the student report using the ACE-ERI.

Evidenced based readiness is operationally defined as the degree to which a student reports readiness to use EBP and measured by the ACE-ERI.

Learner Outcomes are operationally defined as those outcomes identified by each course as having to be met to meet requirements for passing the nursing research course.

Online course is defined as instruction delivered entirely via networked computers. Students are not in a common physical space with instructor or each other.

QSEN competencies are quality and safety competencies developed by the QSEN (Quality and Safety Education for Nurses) Institute. These competencies are based on the IOM competencies and specifically address evidence-based practice.

RN-BSN program is defined as online programs of baccalaureate nursing education for those who are registered nurses with a diploma or associate degree.

Summary

Online RN-BSN programs have given many nurses the opportunity to earn an advanced degrees. Online programs allow nursing students to engage in learning and collaborate with colleagues to achieve success (Smyth et al., 2012). Developing an effective community of inquiry may positively affect a collaborative process and assist a learner to meet outcomes for evidence-based practice. This research assessed the effectiveness of a creating a COI to facilitate EBP learning in online nursing research courses at two universities.

This dissertation is organized into five chapters, references, and appendices. Chapter 2 provides a review of literature related to the RN-BSN programs, EBP, theoretical frameworks and identifies the need for further exploration on related topics. Chapter 3 describes the

methodology. It details the research design, instrumentation, data collection and analysis procedures. Chapter 4 reports the data analysis and findings. Finally, the summary, conclusions, implications, and recommendations appear in Chapter 5.

CHAPTER 2: LITERATURE REVIEW

Significance and Background

Due to the complexity of patient care and the changing healthcare environment, the nursing profession needs highly educated practice professionals in order to improve the quality of the nursing workforce and to promote positive patient outcomes (AACN, 2015). The *Future of Nursing* report released by the Institute of Medicine in 2010 recognized this and noted that nurses should be competent in community and public health, leadership, systems improvement and change, research, and health policy. An important concept in healthcare directly related to research is EBP (Spurlock & Wonder, 2015). The necessity for EBP has been well documented and included in competencies for traditional and nontraditional baccalaureate nursing programs (QSEN, 2014). Therefore, for the purposes of this dissertation, the literature review focuses on the community of inquiry (teacher presence, social presence, cognitive presence, and learner presence) and student's perception of evidenced based practice competency are impacted after completing a nursing research course in RN-BSN programs in the online learning environment.

There are 747 RN to Baccalaureate (RN-BSN) programs offered in the United States (AACN, 2017). Each program provides educational components that increase knowledge and prepare graduates to practice in complex healthcare situations (AACN, 2015). Nontraditional programs include those offered solely in the online learning environment (OLE). Largely, these programs serve nurses who have earned their diploma or associate degree in nursing (ADN) and are returning to school to complete the baccalaureate degree. Factors impacting the decision to return to further their degree can be intrinsic or extrinsic. The results from a qualitative descriptive study implies that the nurses' decisions for continuing his/her education was based on a desire to move into leadership, improve ability to provide holistic care or further engage in

research and EBP (Osterman, Asselin, & Cullen, 2009). Currently only 55% of nurses hold a BSN or higher level of education (AACN, 2015). Many patient care facilities are attempting to meet the goal of having 80% of their nursing staff baccalaureate prepared by the year 2020 as set by the Institute of Medicine (IOM, 2010). This requires that nurses with less than a BSN enroll in a program and complete the four year degree. Regardless of the motivators, enrollment in online learning programs has increased significantly over the last several years (Kruger-Ross & Waters, 2013).

In an attempt to make nursing education programs more convenient and accessible, institutions have developed programs offered solely in the OLE to assist nurses with continuing their education and obtaining a baccalaureate degree (Smyth, Houghton, Cooney, & Casey, 2012). As with most adult learners, these nurses bring with them life and professional experiences that shape and guide their thoughts about returning to school for a higher degree (Kubsch, Hansen & Huyser-Eatwell, 2008). Personal barriers and other commitments create difficulties in finding a balance between things such as family, work and school. One study found that it can be challenging for the students to decipher whether or not the time is right to begin the academic journey (Megginson, 2008).

These programs have increased access to higher education but due to the nature of the design, continue to create challenges for some students (Clark, Ahten, & Werth, 2012). In reviewing the literature, multiple themes emerged as challenges to the online learner. Technology, lack of interaction with faculty and peers, group work, and personal issues were all described as challenges, barriers, and in some cases, primary reason for leaving the academic program. Solutions must be sought and implemented to overcome those challenges so learners

have the best opportunity to be successful and deemed competent to provide high quality, evidenced based care.

As the number of students enrolled in online nursing programs increase, special attention should be paid to ensure each program is including courses that meet the competencies described by Quality and Safety Education for Nurses (QSEN). The competencies are separated into two categories which address the knowledge, skills and attitudes (KSA) for pre-licensure and graduate level degrees. RN-BSN programs provide the content for pre-licensure education not explicitly included in diploma or ADN programs. The purpose of these competencies is to ensure the professional development of nurses to improve the quality and safety of the care provided to diverse patient populations with varying levels of complexity and acuity (QSEN, 2014). Included in the curriculum for RN-BSN programs are courses that provide instruction on the concepts of evidenced based practice. These courses should be designed to prepare the nurse to include best current evidence with clinical expertise and patient/family preferences and values for delivery of health care (QSEN, 2014). The teaching and learning methods included in courses that address evidenced based practice should be designed so that the learner is able to take new knowledge and effectively integrate concepts into nursing practice.

The leading question for this review was: Does creating a community of inquiry in an online nursing research course assist in achieving competency in evidenced-based practice? Constructs searched were *collaborative learning*, *group work*, *online nursing education*, *distance education*, and *collaborative assignments online*. Each construct was searched separately to yield optimal results. The Cumulative Index to Nursing and Allied Health (CINAHL), Education Resources Information Center (ERIC), PubMed, ProQuest and reference lists from articles were used in this search.

The search was not limited to nursing literature, which resulted in over 1,000 articles of varying relevance to collaborative assignment in online nursing courses. Only articles published 2004 - 2016 were included in the review. From 754 articles and three dissertations, 63 documents were chosen based on content and classification as research. A final 16 articles and three dissertations were chosen for specificity and applicability to the topic. Also included were secondary resources for historical perspective and articles that provided valuable information about search topics.

Of articles reviewed, 58% ($n=11$) used a qualitative methodology; 16% ($n=3$) used a mixed methods design. Quantitative studies comprised 26% ($n=5$) of the articles reviewed, all used measurements tools that had been validated. Sample sizes ranged from 11 -1,500 with a majority of studies having fewer than 100 participants. Data were analyzed using thematic analysis. Descriptive statistics and factor analysis using Statistical Package for Social Sciences was used for some of the studies and others used analysis methods for web-based evaluations and surveys. The review is organized in subsections of EBP competency, collaborative learning assignments, and theoretical frameworks.

Evidenced-Based Practice Competency

The origin of EBP is linked to a Scottish physician, Cochrane, who in 1971 wrote a book highly critical of the current evidence behind many medical treatments. Cochrane's book spurred rigorous evaluation of interventions and lead to the creation of the Cochrane Database of Systematic Reviews (Shah & Chung, 2009). From this foundation a systematic 7-step process was created to assist clinicians and researchers to engage in EBP. The EBP process cultivates a spirit of inquiry by asking questions in a PICO format, searching for best available evidence, critically appraising evidence, integrating findings with clinical practice, considering patient

values, evaluating outcomes, and disseminating results (Melnyk, Fineout-Overholt, Stillwell, & Willimanson, 2010). Another model is the star model of knowledge transformation which includes discovery research, evidence summary, translation to guidelines, practice integration and outcomes (Stevens, 2012).

In patient care, EBP requires a team to identify a clinical problem, examine evidence, review and appraise findings, and implement a practice change in a clinical situation, keeping in mind patient values and wishes (Beyea & Slattery, 2013). While there are many resources to assist nurses in gathering evidence, they must first learn the systematic process through formal instruction. The importance of EBP cannot be underestimated and is required competency in undergraduate and graduate nursing curricula.

Achieving competency to engage in EBP is multifactorial. Several of the reviewed articles examined these factors using tools that measured knowledge, readiness, and implementation practices of baccalaureate nursing students. The study findings are not specific to the OLE but may still be applicable to measure EBP competency in RN-BSN programs students.

In a descriptive, cross sectional dissertation study conducted by Llaus (2011), students in a BSN program described their knowledge, readiness, and implementation practice for EBP. There were 174 participants who were enrolled either part-time or full-time in a face-to-face BSN program; no RN-BSN students were included. Llaus' findings suggested students developed a foundation of EBP knowledge, and had above average self confidence in EBP, but low implementation practice. Teaching strategies used were not identified in this study. Llasu, Angosta, and Clark (2014) reported low implementation practices for EBP and as a result, stated

revisions to teaching strategies should be considered to clarify concepts and improve EBP engagement practices.

Spurlock and Wonder (2015) studied 200 participants enrolled in either traditional BSN programs (57%) or in an accelerated program (43%). The Evidenced-Based Practice Knowledge Assessment in Nursing (EKAN) was used to evaluate knowledge and competencies based on QSEN. Spurlock and Wonder found differences between the scores for EBP knowledge for students who had or had not completed the research course. They noted a positive, but not significant relationship between measures of EBP belief and EBP knowledge. No RN-BSN students were included and the instrument used, as noted by the authors cannot be distributed electronically, limiting its usefulness to the present study.

EBP competency requires critical thinking and reasoning skills, therefore, nursing educators use teaching and learning methods that enhance clinical decision making (Finotto, Carpanoni, Turrone, Camellini, & Mecugni, 2013). Strategies to teach EBP foster the successful achievement of learner outcomes. Using mixed methods, McCurry and Martins (2010) surveyed 72 junior year nursing students to evaluate the effectiveness of innovative teaching strategies versus traditional teaching strategies. The instrument was a course evaluation using Likert scale items and a separate tool that included qualitative items. Students were most satisfied with the innovative assignments that included group work and group interactions (McCurry & Martins, 2010). It should be noted that this study was done in a face-to-face learning environment; however, the findings shed light on strategies that may work best to teach EBP, irrespective of delivery mode.

The ability of nurses to competently engage in EBP is important to the outcomes of patients. Teaching and learning strategies must effectively guide nursing students to acquire the

knowledge, skills, and attitudes necessary to implement EBP. Assessing student level of competency to engage in EBP is essential to understand the needs of online RN-BSN students.

Collaborative Learning Assignments Online

Collaborative learning and *group work* are terms used synonymously in the literature. For this study, collaborative learning is used for consistency in terminology. Collaborative learning is defined as two or more people working together to learn content (Dillenbourg, 1999). *Collaborative learning* has also been referred to as a term that identifies a variety of educational approaches that require joint intellectual contributions to a project or assignment (Laal & Laal, 2012). This method of instruction facilitates students learning from one another if each group member participates effectively. It is also thought that when learners work together to reach a goal, they are less likely to competitively compare themselves and work instead for the greater good of the group (McKeachie & Svinicki, 2011).

A qualitative study by Breen (2013) used transcript analysis to scrutinize collaboration in a RN-BSN program. Data were collected over 2 weeks in asynchronous discussions. Breen identified motivational benefits of working on problems with peers, active exchange of information, identification of new perspectives, conceptual change, and intellectual convergence as positive attributes of collaborative learning. When collaboration occurs, and an assignment assists a student to meet learner outcomes, CLAs enhance knowledge and increase competency by creating a real life experience that relates directly to the content (Hurst & Thomas, 2010). A study analyzing student perceptions of the effectiveness of collaborative tools conducted by Westbrook (2012) found successful implementation of tools, such as socialization activities to develop an online identity, discussion board participation, and group assignments allow learners to gain knowledge and meet outcomes working together. Sowan and Jenkins (2013) used course

evaluations to examine effective teaching design in a hybrid undergraduate nursing research course. Participants were enrolled in a 4-year BSN program that was a hybrid of face-to-face and online instruction. Students reported that the online discussion boards allowed them to learn from one another. Sowan and Jenkins concluded that the interaction generated through collaborative assignments helped students to successfully complete work and meet learner outcomes.

Collaborative assignments in an online environment require coordination across nursing specialties, work environments, and even time zones (Hurst & Thomas, 2010). As with any collaborative assignment, working with individuals who one may, or may not know, can present unique challenges that affect success. Each learner enters a group with varied concerns and challenges that must be dealt with and overcome to be an effective member of a group. For collaborative assignments to be successful learners must be active participants in each step of an assignment (Conrad & Donaldson, 2011).

In some instances, students reported CLAs were cumbersome and did not foster learning or positive experiences with distance education. Students ($n=183$) enrolled in institutions of higher learning in Kenya were surveyed to assess the effectiveness of online collaboration (Murro, Waiganjo, Oboko, & Kihoro, 2015) and findings revealed nine key challenges. The primary challenge was low participation of group members in CLAs. In a qualitative study by Melrose (2006) group members reported resentment when having to carry the workload of others who did not do their share of an assignment, but were conflicted when deciding if they should “pick up the slack” to have a well-done project. Participants suggested one way to improve group work would be to provide a private and confidential way to report students who do not do their part, so the concern can be addressed promptly (Melrose, 2006). Capdeferro and Romero

(2012) used a 30-item survey to assess level and source of frustration in online learners. Participants ($n=40$) reported a moderate level of frustration. Challenges identified were the varying personal objectives of group members, intolerance of others' ideas, low faculty interaction, and commitment imbalance. Unequal levels of commitment can lead to mistrust between group members. Trust is essential and if not developed in a team, can hinder progress and keep a team from functioning at its highest level (Lawley, 2006). From these studies it can be concluded that collaborative work online, if not well designed or managed, can be an obstacle to meeting learner outcomes. Continued efforts are needed to develop best practices to foster a positive online learning experience and student success.

Despite the challenges reported by students regarding collaborative assignments, it can be an essential method of online instruction. In online RN-BSN programs, it is important to recognize collaborative assignments teach content and teamwork, a required component of nursing care and EBP. Improving collaboration in an online course can further reinforce the integration of nurses into interprofessional teams undertaking evidenced-based projects.

Theoretical Frameworks

Three theoretical frameworks inform this research: Constructivism and andragogy both address online learning, and each has obvious application to nurses enrolled in an online RN-BSN program. The primary theoretical framework upon which this study is based is the revised community of inquiry (RCOI).

Collaborative learning is derived from social constructivism that posits social interaction in a learning environment contributes to an individual's cognitive development. Learners are active in their development and build upon their foundation of knowledge by interacting with others and life experiences (Johnson, 2003). The point is made that learning occurs best through

communication between learners rather than simply completing an assignment through individual efforts (Vygotsky, 1978). In a recent pilot study, findings suggested that students who completed an assignment individually had lower learning effectiveness as opposed to students who collaborated to complete an assignment (Kim-Godwin & Martinez, 2016).

Knowles (1990) defined *andragogy* as the art and science of teaching adults and this has been instrumental in guiding content and teaching strategies for adult learners, especially in an online environment. The theory of adult learning assumes learners: (a) have a need to know, (b) are self-directed, (c) have an abundance of life experience, (d) must be ready to learn, and (e) partake in purposeful learning (Cox, 2015).

Constructivism, with its emphasis on collaboration and andragogy's emphasis on the needs of an adult learner are well-suited to inform and enhance the application of a revised community of inquiry to research.

The community of inquiry model was originally developed by Garrison et al. (2000) as a tool to guide the effective use of "computer-mediated communication" (p.87), which now refers to *online or distance education*. Garrison et al. identified are three critical components to online educational activities: teaching presence (characterized by the defining, initiating, and focusing of discussion), social presence (characterized by collaboration), and cognitive presence (characterized by exploration and integration). Recently however, Shea et al. (2014) added a fourth presence, *learner presence*, (characterized as self-regulation and motivation) to the model which they believe makes it richer and more robust. The four-presence model, is referred to as the *revised community of inquiry* (RCOI),

Using the ROCI, Kim-Godwin and Martinez (2016) conducted a pilot study to explore student perceptions of teaching, social, cognitive, and learner presences in an online course.

Sixty-seven RN-BSN students were surveyed. Kim-Godwin and Martinez found group size did not effective learner outcomes, but that the inclusion of group assignments promoted teaching, social, cognitive, and learner presences. The RCOI has been used in other studies that have examined online nursing program demonstrating its overall utility and appropriateness to assess the effect online collaborative assignments to achieve competency and engage in evidenced-based care.

Summary

This literature review focused on RN-BSN online programs, EBP competency, collaborative assignments, and the theoretical frameworks applicable to this study. Results outlined the importance of EBP competency and how it might best be facilitated it through an effective COI using multiple teaching methods including CLAs. However, there is specific little information on a using a COI in an online RN-BSN nursing research courses and whether it will facilitate acquisition of EBP competency or meet learner outcomes.

The evidence presented supports that an effective community of inquiry is essential to the student's learning and success in online courses. Completion of a course and learner outcomes should be examples of student success; however, the COI does not focus on quantifiable learner outcomes, but rather on student perception of how well a COI was created. Considering that nursing education focuses on specific competencies such as EBP, it needs to be established whether a COI enhances learner outcomes and the attainment of EBP competency.

Online RN-BSN programs have given many nurses the opportunity to enroll and successfully complete baccalaureate degrees. These programs allow nursing students to engage in online learning and collaborate with other colleagues during the process in order to achieve success (Smyth et al 2012). Faculty coordinating and facilitating these programs must be aware

of the challenges students related to collaborative learning assignments and identify strategies for assisting students to successfully complete their programs (Gazza & Hunker, 2014).

Although there is a considerable information known about evidence-based practice teaching methods, knowledge assessment, and curriculum related to EBP, there remains a gap in the literature regarding how to best design and implement collaborative assignments in an online environment to encourage EBP competency. Further research is necessary to determine how a COI improves learner outcomes. As more nurses enroll in online programs to obtain a baccalaureate degree, it is essential they be provided assignments in nursing research courses to ensure learner outcomes are met. Further exploration is needed to evaluate whether creating community of inquiry and using CLA in nursing research courses assist nurses to gain the necessary competency to engage in and use EBP to improve patient care and outcomes.

CHAPTER 3: METHODOLOGY

This chapter details the research method, including study design, population and sample, sampling procedure, instrumentation, data collection, and analysis. The purpose of this study was to determine the degree to which an online community of inquiry affected student perception of evidenced-based practice competency after a nursing research course and whether there were differences observed based on length of course (7 weeks versus 14 weeks).

Methods

A quantitative, descriptive, correlational, and comparative design was used for this research. The research examined the relationships between the COI and evidenced based practice competencies achieved by nursing students enrolled in an online nursing research course. COI was evaluated using the RCOI survey. EBP competency was evaluated using several tools that assess EBP knowledge, readiness, and implementation practices of RN-BSN students. A comparison also was made between those students enrolled in the 14 week course and the 7 week course to see if the length of programming, types of assignments, and faculty experience impacts the student perceptions of the COI or success with achieving EBP competencies.

Research QuestionsRQ1: What is the relationship between creating a COI and self-perception of EBP knowledge, readiness and implementation of RN-BSN students who have completed a Nursing Research course in the online learning environment?

1. What is the self-reported perception of the COI in the OLE?
2. What is the relationship among factors in the RCOI framework and the student's perception of knowledge, readiness and implementation practices?

3. Do those who score higher on the EBP knowledge assessment report a more positive perception of readiness and implementation?
4. Are their correlations between learner demographics, perceptions of the COI and achieving EBP competency?

RQ2: Is there a difference between the 7 week and 14 week Nursing Research courses in regards to creating a COI, EBP knowledge, EBP readiness, and EBP implementation?

5. How does the length of the course (7 and 14 weeks) impact the creation of COI ?
6. What is the difference in the students' EBP knowledge, readiness, and implementation between those completing a 14 week course and those completing the 7 week course?

RQ3: How does age, gender, ethnicity, number of years as a nurse and type of program impact EBP readiness and implementation?

7. How does age, gender, ethnicity, number of years as a nurse, and type of program impact EBP readiness?
8. How does age, gender, ethnicity, number of years as and nurse and type of program impact EBP implementation?

Population

The target population in this study was nursing students enrolled in one of two online RN-BSN programs. Specifically, the focus was on students who completed a nursing research course that included the QSEN competencies for EBP. Because there are over 600 universities that offer this type of research course, the sample was limited to an accessible population at two public universities in North Carolina offering online RN-BSN programs. Both programs are accredited by the Commission on Collegiate Nursing Education, members of the National

League for Nursing, American Association of Colleges of Nursing, and the Southern Council of Collegiate Education for Nursing. Average enrollment in the nursing research course at College A is 35 students per semester with a program graduation rate of 95 % for Spring Semester 2016. For College B, average enrollment in the nursing research course is 25 students with a program graduation rate of 92 % for Spring Semester 2016. The mission of the universities are similar and both focus on improving healthcare outcomes.

Sample and Sampling Procedures

Purposive sampling was used to recruit participants for this study. This nonprobability method allows the researcher to seek participants with certain characteristics that are applicable to the study questions and purpose (Polit & Beck, 2012). Further, inclusion criteria served to create homogeneity of the sample to increase the generalizability to the population being studied (Polit & Beck, 2012).

Specific inclusion criteria were: a student must be enrolled in or graduated from an online RN-BSN program in the last 6 months. Secondly, a student must have successfully completed a nursing research course. Lastly, participants are providing care in an environment where there is opportunity to participate in evidence based research and practice. The first two inclusion criteria serve to ensure that a minimal amount of time has passed since completion of the program or course. The ability of the student to recall information regarding the online learning environment, content of the course, and evidence based concepts may decrease over extended periods of time. Their recollection of the experience is an important aspect of this study and limiting the time since completion to six months could help them recall as much as about the online experience as possible. The opportunity to engage in evidence based practice or research

assists the participants to evaluate their ability to translate knowledge gained through coursework into practice which is one of the measurements of the study.

After Institutional Review Board (IRB) approval was granted, students were contacted via their university email account. This email included an invitation letter with a secure link to the survey. They were offered the opportunity to participate in the study and it was explained that information gained would be used to improve the online learning environment, content of the course, and assignments required during the course for future students. Consent for the study was assumed if a student completed a survey. Responses were anonymous.

An essential part to a successful study is ensuring that there are enough participants to yield results that can be applied to a larger population. For this study, the estimated sample size was 200. Persuading subjects to participate is one of the major tasks involved in the research process (Polit & Beck, 2012). Incentives can be used to assist in recruitment because it can have a substantial impact on the number of participants who agree to be involved in the study (Edwards et. al., 2009). To encourage participation, an incentive in the form of a \$50 gift card was included. Four gift cards were awarded through a random drawing of participants after completion of the survey. At the end of the study a random drawing was conducted and those participants chosen were notified. The total number of participants invited was 316 (14-week $n = 75$; 7-week $n = 241$).

Instrumentation

The revised community of inquiry tool (RCOI), Steven's Academic Center for Evidenced Based Practice-Evidence Based Practice Readiness Survey (ACE-ERI), and the Evidenced Based Practice Implementation Scale (EBPI) were the instruments chosen. Permission to use

instruments was granted from authors. The instruments were chosen as they directly measured EBP competencies as defined by QSEN and assessed the COIs created in the courses.

Revised community of inquiry instrument. The revised community of inquiry (RCOI) instrument measures student perceptions on four constructs that determine the effectiveness a community of inquiry in an OLE. The RCOI tool is a revised version of the original tool that includes fourth construct of learner presence to measure the behaviors and attitudes of students. The original COI instrument had 34 items comprised of 13 items for teaching presence, 9 items for social presence, and 12 items for cognitive presence. Responses are Likert-type scales from *strongly agree* to *strongly disagree*. Initial instrument testing was conducted at four institutions with 287 participants and found to be a valid and reliable method of measurement for all three subscales with Cronbach's alpha of .95 for teaching presence, .92 for cognitive presence and .93 for social presence. In developing the fourth subscale for the RCOI instrument, Hayes et al. (2015) used 12 Likert Scale items from the Motivated Strategies for Learning Questionnaire. Eight items using a 7-point Likert scale from 1 (*not true of me at all*) to 7 (*very true of me*) measured self-efficacy (.95) and 4 measured effort regulation (.75). There was a large sample ($n=2,418$) from 42 universities. After statistical analysis, Hayes et al. concluded adding the dimensions of self-efficacy and effort regulation to the RCOI instrument better explained components of online learning.

Academic Center for Evidenced-based Practice: Evidenced-based practice readiness inventory (ACE-ERI). The QSEN competencies for EBP were developed to ensure practicing nurses have the knowledge skills and attitude to provide care to patients in complex health care situations. The ACE-ERI measurement tool assesses the readiness of student nurses and clinicians to provide that type of care (Stevens, Puga, & Low, 2012). Different versions are

available and include basic, intermediate, or advanced versions of the tool. For the purposes of this study, the basic items were used as they address the knowledge level of a nursing student. There are 20 items included on the instrument that assess confidence and they are scored from 1 (*very little*) to 6 (*great deal*). The EBP knowledge assessment has 15 multiple choice questions. The higher the score on the EBP, the greater the knowledge. The instrument was tested for reliability and validity and a panel of EBP experts determined the content validity of the tool is in 90% agreement with the competency statement and is further supported by discriminate functional analysis (Llatus et al., 2014). Chronbach's alpha was greater than .90 on all subscales. Results from the study indicated a significantly high validity (Stevens et al., 2012).

Evidence-based Practice Implementation Scale (EBPI).The EBPI determines the extent to which EBP is implemented (Melnik et al., 2008). This 18-item survey uses a Likert scale. Participants identify how often they engage in EBP and includes answers from *never* to *daily* in regard to the frequency of implementing EBP Instrument testing was conducted at continuing education workshops for practicing nurses ($N=394$). After analysis of the data, the authors reported a Cronbach's alpha of $>.90$. It was noted the higher the level of education, the more likely EBP was to be implemented in patient care (Melnik et al., 2008).

An additional element of the survey was a demographic section to capture gender, ethnicity, and age. It also gathered information regarding the type of nursing program attended and years' experience.

Data Collection

After IRB approval, data collection for this study took place December 2016 - July 2017, after final grades for the courses had been reported. Participants were recruited through email invitation sent to their university email. The email invitation described the process and purpose

of this study and included a secure link to the survey. Respondents were informed that participation was voluntary and would in no way affect the grade earned in the course. Consent was implied if the participant completed survey.

Qualtrics survey software was used to send the email and link to the survey to students. The system was set to deliver an initial invitation, a reminder in 3 days, and a final reminder/invitation in 7 days. In the 14-week course, the first round of survey invitations was sent through the Qualtrics system. To increase participation, a second round of surveys was sent out through the program director. In the 7-week course, the email was sent through the Qualtrics system. The number of participants invited was 316 (14-week $n = 75$; 7-week $n = 241$).

Data Management and Analysis

Once the survey was closed, data were downloaded and saved from Qualtrics. Variable names were assigned were created based on survey questions. This data file was uploaded to Statistical Package for Social Sciences 24.0 (SPSS). After review of the data, records with missing data were eliminated from analysis.

Descriptive statistics were used to analyze the demographic characteristics of the respondents and to assess the perceived learning experience (total score on RCOI). Bivariate and multivariate (correlations, ANOVA, independent samples t-test) were used to examine the relationships between RCOI, demographic variables, and perceptions of evidenced-based competency (knowledge, readiness and implementation). The results from the data analysis are presented in Chapter 4.

CHAPTER 4: RESULTS

The purpose of this quantitative study was to determine if a community of inquiry (teaching presence, social presence, cognitive presence, and learner presence) impacts student perception of evidenced-based practice competency after an online nursing research course. This chapter describes the participant demographics, procedures and findings. The survey findings in this chapter are reported based on the research questions presented in Chapter 1. Reported first is the relationship between a COI and self-perception of EBP competency (knowledge, readiness, and implementation) of RN-BSN students who completed an online nursing research course. The next section reports differences between the traditional (14- week) and accelerated (7-week) Nursing Research courses in regard to creating a COI, EBP knowledge, EBP readiness, and EBP implementation. Lastly reported is the effect of demographics on EBP readiness and implementation.

Participants in this study were enrolled and completed an online Nursing Research course in an RN-BSN program. Two universities in Eastern North Carolina were the sites for data collection. One university offered an accelerated format for a Nursing Research course that in a 7-week accelerated format, the other university offered a Nursing Research course in a 14-week format. Both courses were delivered in the online learning environment with no face-to-face component. The survey invitation was sent through email and completed online. There was no face-to-face interaction during this study.

Instrumentation validity and reliability were measured for each of the surveys. Subscales for the RCOI were found to have Cronbach's alpha of .96 for teaching presence, .95 for cognitive presence .91 for social presence, .98 for self-efficacy, and .81 for effort regulation.

Chronbach's alpha for total COI was .88 and total LP was .94. The EBP Implementation scale Chronbach's alpha was .91 and the EBP Readiness scale was .97

Demographic Characteristics of Participants.

The participant demographics from this study were analyzed using descriptive statistics. There were 34 participants (14-week $n = 8$, -week $n = 26$). An overwhelming majority of the sample was female 94% ($n=32$). A majority of participants reported their race as White, 94% ($n=32$), Black or African American ($n=1$), or other ($n=1$). Age ranged 21-63 years ($M=35.64$).

A majority of respondents, 85% ($n=29$) reported their initial nursing degree was an ADN; 12% ($n=4$) reported their initial degree as a Diploma in Nursing. A majority of respondents also reported the nursing research course taken was in the 7-week accelerated format, 77% ($n=26$). The percentage enrolled in the 14-week course was 23.5% ($n=8$). Lastly years' experience was 0-2 years (30%), 3-5 years (30%), 6-9 years (15%) and 10 or more (26%). For the purposes of analysis years of experience was grouped and measured as 0-5 years (59%) and 6 or more years (41%).

Table 1

Demographics Characteristics of Participants (N = 34)

Characteristic	<i>n</i>	%
Gender		
Male	2	6
Female	32	94
Race		
White	32	94
Black or African American	1	3
Other	1	3
Degree before RN-BSN		
Diploma	4	12
Associate Degree	29	85
Other	1	3
Length of Research Course		
Accelerated 7 weeks	26	77.24
Traditional 14 weeks	8	
Years of Nursing Experience		
0-2	10	30
3-5	10	30
6-9	5	15
10 or more	9	26

Findings of the Research Questions**Research Question 1**

The first research question and its sub-problems assessed student perceptions of the COI, and determined if there were relationships between creating a COI and self-perceptions of EBP knowledge, readiness and implementation students who completed an online Nursing Research course.

Perceptions of COI. The self-reported perception of COI in the OLE was explored using descriptive statistics. The RCOI measured items for teaching presence, social presence, cognitive presence using a Likert type scale of strongly agree to strongly disagree, Learner presence (self-

efficacy and effort regulation) using Likert-type scale of not very true of me to very true of me. Participants generally gave a high rating to their experiences in the community of inquiry on the individual items of teaching presence ($M=1.93$), social presence ($M=1.96$) and cognitive presence ($M=1.85$). Items for learner presence were self-efficacy and effort regulation. Participants reported high self-efficacy ($M=6$) and reported a lower score on effort regulation ($M=3$).

Table 2

Revised Community of Inquiry Measures

RCOI factors	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
COI Teaching	1.93	.87	1	4
COI Social	1.96	.72	1	4
COI Cognitive	1.85	.64	1	3
Self-Efficacy	5.63	1.5	2	7
Effort Regulation	3.01	.27	3	4
Total COI	2.65	.45	1	4
Total LP	5.10	1.0	2	6

RCOI and EBP knowledge, readiness, and implementation. Relationships between RCOI presences were analyzed using Pearson-Moment Correlation Coefficients. There was a strong positive correlation between COI teaching presence and COI social presence ($r = .67$); COI teaching presence and COI cognitive presence ($r = .74$); COI teaching presence and total COI ($r = .79$). These indicate a high level of COI teaching presence was associated with high levels of COI social presence, cognitive presence, and self-efficacy, as well as having a large effect size ($r \geq .50$). There was a strong positive correlation between COI social presence and COI cognitive presence ($r = .81$); COI social presence and total COI mean ($r = .74$), where high levels of COI social presence were associated with high levels of COI cognitive presence and the total COI, as well as a large effect size ($r \geq .50$). There was also a strong positive correlation

between COI cognitive presence and total COI ($r = .83$.) There was a strong negative correlation and a large effect size ($r \geq .50$) between EBP readiness and COI teaching presence ($r = -.53$), COI social presence ($r = -.61$), COI cognitive presence ($r = .64$) and total COI ($r = -.55$). A moderate negative correlation and medium effect size ($r \geq .30$) between self-efficacy and COI teaching presence ($r = -.43$); self-efficacy and social presence ($r = .41$); self-efficacy and COI cognitive presence ($r = -.34$) were noted. The negative correlations can be explained by the difference in scales and indicate that there was a moderate level of self-efficacy associated with other factors in the COI. See Table 3.

Table 3

Correlations of COI and EBP Knowledge, Readiness, and Implementation (N=34)

Measure	1	2	3	4	5	6	7	8	9	10	11
1. COI teaching	-										
2. COI social	.67***	-									
3. COI cognition	.74***	.81**	-								
4. LP Self-Efficacy	-.43*	-.41*	-.34*	-							
5. LP Regulation	.03	-.05	-.21	-.04	-						
6. LP Total Mean	-.35	-.32	-.22	.98	-.11	-					
7. COI Total Mean	.79***	.74**	.83**	.07	-.05	.17	-				
8. Total Knowledge	-.16	-.05	-.24	.30	-.06	.25	-.03	-			
9. Percent Knowledge	-.16	-.05	-.24	.30	-.06	.25	-.03	-	-		
10. Readiness Mean	-.53**	-.61***	-.64***	.29	.12	.16	-.55**	.22	.22	-	
11. Implementation Mean	-.13	-.09	-.23	-.16	.24	-.25	-.26	.14	.14	.28	-

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Knowledge assessment and perceptions of readiness and implementation. Research Question 1 also asked if participants who scored higher on the EBP knowledge assessment scored higher on EBP readiness and implementation. Data analysis found no significant correlations between these factors. The correlation between EBP knowledge and readiness was .22 ($p = .20$); between EBP knowledge and implementation the correlation was .14 ($p = .43$). Exploring correlations between learner demographics, perceptions of COI and EBP competency also helps to provide answers the first research question; however, the small sample size and lack of variability prohibited meaningful analysis by gender, race, or type of program. Other factors in the demographics such as years of experience will be explored in RQ3.

Research Question 2

The second research question asked if there was differences in perception of COI, EBP knowledge, EBP readiness, and EBP implementation between students who took the 7-week and students who took the 14-week online nursing research course.

The self-reported perception of COI and EBP knowledge, readiness, and implementation in an online environment was explored using descriptive statistics for the 7-week and 14-week courses. Items for teaching presence, social presence, cognitive presence, and learner presence (self-efficacy and effort regulation) were measured using the RCOI survey. EBP competency was explored by using an 18-item knowledge assessment. EBP readiness and implementation practices were explored using a survey.

Student perceptions: 7-week course. Students in the 7-week course gave a high rating to their experience in the community of inquiry on the items of teaching presence ($M=2.14$), social presence ($M=2.14$) and cognitive presence ($M=1.99$) and COI Total ($M=2.77$). Items for learner presence included self-efficacy and effort regulation. Participants reported high self-efficacy

($M=5.53$) and reported a lower score on effort regulation ($M=3$) with learner presence total reported as ($M=5.07$) Also reported was EBP knowledge ($M=56.7$), EBP readiness ($M=3.83$) and EBP implementation ($M=2.04$) (see Table 4).

Student perceptions: 14-week course. Students enrolled in the 14-week course, gave a high rating to their experience in the community of inquiry on the individual items of teaching presence ($M=1.24$), social presence ($M=1.39$) and cognitive presence ($M=1.38$) and COI Total ($M=2.28$). Items for learner presence included self-efficacy and effort regulation. Participants reported high self-efficacy ($M=5.95$) and reported a lower score on effort regulation ($M=3.03$) with learner presence total reported as ($M=5.21$) Also reported was EBP knowledge ($M=51.67$), EBP readiness ($M=4.29$) and EBP implementation ($M=2.18$) (see Table 4).

Table 4

RCOI, EBP Knowledge, Readiness, and Implementation Perceptions by Course Length

Factors	7 weeks ($N=26$)		14 weeks ($N=8$)	
	M	SD	M	SD
COI teaching	2.14	.87	1.24	.37
COI social	2.14	.69	1.39	.51
COI cognitive	1.99	.62	1.38	.46
LP Self-Efficacy	5.53	1.4	5.95	1.8
LP Effort	3.01	.28	3.03	.25
Total COI	2.65	.45	2.28	.45
Total LP	5.10	1.0	5.21	1.5
Knowledge	57	16.	51	17.
Readiness	3.83	.69	4.29	.49
Implementation	2.04	.62	2.18	.89

Differences by course length. An independent samples t-test conducted to explore the effect of length of course on creation of COI and EBP competency (knowledge, readiness, implementation) as measured by the RCOI (TP,SP,CP,LP). Participants were divided into two

groups by length of course (7 or 14 weeks). There was a difference between the two groups for teacher presence, social presence, cognitive presence, and COI total. Results of a non-parametric Mann-Whitney U found statistical differences between teaching presence, social presence, cognitive presence, and the COI total. The differences are statistically significant with a small effect size. This suggests the 14-week course created a more effective COI. However, there were no statistically significant findings suggesting a difference in EBP Knowledge, EBP readiness, or EBP implementation practices between students in the courses (see Table 5).

Table 5

Impact of Course Length on COI, EBP Knowledge, EBP Readiness, EBP Implementation

Variable	7 Weeks		14 Weeks		<i>t</i>	<i>p</i>	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
COI Teaching	2.14	.870	1.27	.37	2.82	.08	.199
COI Social	2.14	.691	1.39	.51	2.84	.08	.199
COI Cognitive	1.99	.618	1.38	.46	2.60	.04	.175
LP Self Efficacy	5.53	1.36	5.95	1.8	0.71	.40	.016
LP Effort	3.01	.278	3.03	.25	0.20	.85	.001
COI total	2.65	.453	2.28	.45	2.92	.006	.210
LP Total	5.10	1.03	5.21	1.5	0.34	.73	.004
EBP Knowledge	57	15.7	51	17	0.78	.44	.019
EBP Readiness	3.83	.693	4.29	.49	1.74	.09	.087
EBP Implementation	2.04	.615	2.18	.89	0.52	.61	.008

Research Question 3

The final research question was to assess relationship between age, gender, race, years' experience as a nurse and type of program and EBP knowledge, readiness, and implementation. The small sample size ($n=34$) had such little variability that the planned analyses could not be done. There was, however, enough variability in years' experience to allow for meaningful analysis.

Years' experience and EBP knowledge, readiness, and implementation. In participants with 0-5 years' experience, the mean for EBP knowledge assessment was 50.67%, the mean for EBP readiness was 3.94, and the mean for EBP implementation was 2.28. For participants with 6 or more years' experience, the mean for EBP knowledge assessment was 62.38%, the mean for EBP readiness was 3.93, and the mean for EBP implementation was 1.78. Participants with 6 or more years' experience scored higher on knowledge assessment, but lower on implementation practices compared to participants with less experience.

A one-way between-groups analysis of variance was conducted to examine years' experience on EBP knowledge, readiness, and implementation. Participants were divided into groups by years' experience (0-5 years or 6 years or more). Data analysis found EBP knowledge, $F=5.08$; $p=.031$; $\eta^2=.14$, EBP readiness, $F=.002$; $p=.962$; $\eta^2=.000$, and EBP implementation as $F=5.20$; $p=.029$; $\eta^2=.14$, suggesting a statistically significant difference between groups with a small effect size as it relates to EBP knowledge and implementation (see Table 6). Results of a non-parametric Mann-Whitney U also demonstrated statistical differences in regards to EBP knowledge.

Table 6

Effect of Years' Experience on EBP Knowledge, Readiness, and Implementation

Variable	<i>0-5</i>		<i>6 or more</i>		<i>F(1,32)</i>	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
EBP Knowledge	50.67%	15.202	62.38%	14.466	5.08	.14
EBP Readiness	3.94	.599	3.93	.794	.002	.000
EBP Implementation	2.28	.708	1.78	.517	5.20	14

Summary

This chapter presented the statistical findings by research question. RCOI, EBP knowledge, readiness, and implementation data were collected from participants who took either a 7-week or 14-week online nursing research course. Methods to analyze data were descriptive statistics, ANOVA, and non-parametric tests to establish significance. The data reveal several statistically significant differences between groups, as well as differences based on years' experience. These will be further discussed in Chapter 5. Also discussed in Chapter 5 are other findings that are important to consider. Limitations, implications for nursing and future research recommendations are also presented.

CHAPTER 5: SUMMARY, DISCUSSION, AND IMPLICATIONS

This chapter presents a summary of the study along with important conclusions drawn from the data presented in Chapter 4. Limitations of the study are presented along with a discussion of the implications for action and recommendations for further research.

Summary

The current healthcare environment is increasing the demand for highly skilled nursing professionals able to deal with dynamic, complex healthcare issues through implementation of evidence-based practice (Kersey, 2012). Because of this, nurses are being required to obtain at least a bachelor's degree in nursing (BSN). Nurses who are currently practicing and have an associate's degree or diploma have been mandated to complete a BSN for hospitals to obtain or maintain Magnet designation, (Hawkins & Shell, 2012). The opportunity to return to school to further a nursing degree can be challenging as most students are working full time, have families, and many other life situations that may hinder their ability to proceed. To make nursing education programs more convenient and accessible, hundreds of institutions have developed flexible programs that take place solely in an online learning environment (OLE). Due to the growth in online offerings for RN-BSN programs, it is essential to ensure curricula provide content that focuses on research and evidence-based practice (EBP).

The Institute of Medicine (IOM) mandated nurses be prepared to join interdisciplinary teams that engage in the development of best practices (2010). To participate in evidenced-based projects and care, nurses must be formally educated on the concepts of EBP. As a result, EBP competencies were developed and integrated as a requirement of all baccalaureate and graduate level nursing programs (QSEN, 2014).

The goal of the QSEN project is to improve the quality and safety of care delivered by nurses. Guided by the IOM mandates, the competencies were created for graduate and undergraduate nursing degrees (see Appendix C for competencies). This study explored undergraduate RN-BSN online nursing programs. Most of these programs serve nurses who have earned a diploma or associate degree in nursing (ADN) and are returning to school to complete the baccalaureate degree. Included in the curriculum are courses that are designed to meet learner outcomes for EBP competencies. There are several approaches to meeting the learner outcomes in these online courses however, to do so it is necessary to create an environment online that supports the learner engaged in distance education. For a learner to be successful, there must be an environment where the learners is supported through interaction with each other, individual effort, and faculty feedback. These are all components of the Revised Community of Inquiry (RCOI) model of online learning.

The purpose of this descriptive, and correlational study was to determine if a Community of Inquiry (teacher presence, social presence, cognitive presence, and learner presence) affects student perception of evidenced-based practice competency after completing an online Nursing Research course. This study also compared the outcome of participants enrolled in a traditional 14-week course to participants enrolled in an accelerated 7-week course. The research questions for this study were as follows:

RQ1: What is the relationship between creating a COI and self-perception of EBP competency (knowledge, readiness, and implementation) of RN-BSN students who have completed a Nursing Research course in the online learning environment?

RQ2: Is there a difference between the 7-week and 14-week Nursing Research courses in regard to creating a COI, EBP knowledge, EBP readiness, and EBP implementation?

RQ3: How does age, gender, ethnicity, number of years as a nurse and type of program impact EBP knowledge, readiness, and implementation?

A non-experimental approach was used to conduct this study. The sample included subjects from two universities in Eastern NC with similar goals and objectives for both the nursing program as a whole as well as the Nursing Research Course. Purposive sampling was used to recruit participants. Of the 316 students invited 34 completed the survey. Participants had completed either a 7- week or 14-week Nursing Research course in an online learning environment. The RCOI survey, EBP readiness scale, EBP implementation scale (all Likert or Likert-type scales) and EBP knowledge assessment were used as instruments in the study. The surveys were administered electronically from December 2016 - July 2017 via Qualtrics. Once data collection was complete, analysis was conducted using descriptive and correlational statistics using the computer program SPSS.

Discussion of Study Findings

Discussion of study findings are presented in order of the research questions. Demographics will be presented followed by discussion and interpretation of the research questions. Evaluation of findings will also be compared to findings from the existing and current body of literature.

Demographic Information

Participants were asked multiple questions to gather demographic information such as gender, ethnicity, age, and years of experience. A majority, 94%, of the sample was females. This is consistent with the reported demographic information for nurses across the United States and in NC where the study was conducted. Race was self-reported as 94% White, which is comparable to the samples in other studies. Participant age ranged from 21 -63 years. Average

age was 36 years old, which is much lower than national nursing population where over half of all nurse are over 50 years old. The average age of the sample in this study may be attributable to the increased number of younger nurses are going back to school to meet the mandates of hospitals requiring a BSN degree to maintain employment status. Years of experience was measured as 0-2, 3-5, 6-9, and 10 or more. For the purpose of data analysis however, years' experience was categorized as 0-5 and 6 or more because of the small number of participants and low variability. The number "0" was included because it is possible that there were nurses who completed the initial nursing degree, started working, and immediately enrolled in an RN-BSN program. Nurses with 0-5 years of experience were the majority at 58.8% and participants with 6 or more years' experience were 41.1% of the sample.

This study also captured data on the initial degree earned before entering a RN-BSN program. A majority of respondents, 85.3% reported their initial nursing degree was an Associate Degree and 11.8% reported earning a Diploma in Nursing. The NLN reported that there were 647 ADN programs and only 67 Diploma programs (2014). This explained why the majority of the participants reported the initial degree earned as ADN. A majority of the respondents reported the Nursing Research course taken was in the 7-week accelerated design, 76.5% and those enrolled in the traditional 14-week course was 23.5%. Because the 7-week course was offered more times during the data collection period, there were more participants from the 7-week group ($n=241$) than in the 14-week group ($n=75$).

Relationship between creating a COI and EBP competency

RQ1 began with exploring the self-reported perception of the COI using descriptive statistics. The total COI measures the constructs of teaching, social, and cognitive presence in the OLE. Participants reported the total measurement of the COI in terms of "neither agree nor disagree"

as average ($M=2.65$, $SD=.453$). However, within the items for each construct separately, there are more positive findings. Teaching presence was noted to be rated above average and the highest of the three constructs ($M=1.93$, $SD=.722$) which indicates faculty engaged, and remained engaged in the course through communication via the electronic platform, email, or possibly person to person conversations. This results in a positive impact on interactive engagement from the student perspective as well (Zhan et al, 2016). The initial framework and tool were revised to add learner presence. This measured the participant's perception of self-efficacy and effort regulation within the OLE. Self-efficacy was reported above average ($M=5.63$) and effort regulation was reported as below average ($M=3.01$). A strong positive correlation was found between teaching and social presence as well as teaching and cognitive presence. There were also large positive correlations between individual factors in the COI and the total COI. Higher levels of teaching, social, and cognitive presence were associated with a higher overall perception of the total COI. This finding is consistent with Shea and Bejernado (2010) who found perception of high levels of these constructs represented an effective community of inquiry. The RCOI also explores the newest constructs added to the framework of learner presence (self-efficacy and effort regulation). There was a small negative correlation between self-efficacy, teaching presence, social presence, and cognitive presence. The negative correlation can be explained by the difference in the Likert-type Scales for the constructs. Teaching, social, and cognitive presence were measured as strongly agree to strongly disagree. Self-efficacy and effort regulation were measured as not very true of me to very true of me. As the scales are opposite where measurement is concerned, a negative correlation resulted. No significant correlations were found between effort regulation, teaching presence, social presence, cognitive presence, and self-efficacy. This differs from results of previous studies in that there

was a significant correlation between the constructs in the COI and effort regulation. However, in the previous studies the participants were both in blended courses which included a face to face and online component. This study explores participants enrolled only in the OLE. Since there was no face to face component, it may have been more difficult to self-regulate effort in the course in terms of disengaging in the course work because of boredom, dislike of course activities, level of difficulty in grasping content. Online courses require a high level of self-discipline because the students can remain mostly anonymous and sense that they are less accountable for work and engagement.

The relationship between factors in the COI and EBP competency (EBP knowledge, EBP readiness, and EBP implementation) were explored using correlational statistics. Unlike previous studies utilizing the RCOI, this purpose of this study is to inquire whether creating a community of inquiry impacts learning outcomes. The learning outcome focused on is EBP competency at the bedside. There was a large negative correlation between EBP readiness COI teaching presence, social presence, cognitive presence, and Total COI. This suggests that participants who perceived that the community of inquiry was effectively created also perceived readiness to engage in EBP at the bedside. However, there were no significant findings to support that creating an effective COI improves EBP knowledge or implementation practices. As previously stated, the negative correlation can be accounted for by the differences in instrumentation.

Lastly, a component of RQ1 was to determine if participants who scored higher on the EBP knowledge assessment also scored higher on EBP readiness and implementation. Analysis found no significant correlations between these factors. This suggests the level of EBP knowledge has no effect on EBP readiness or EBP implementation.

In summary, factors within the COI positive correlate suggesting that when there are higher levels of each factor, there is a higher overall positive perception of the COI. However, effort regulation is not affected by other factors in the COI, which differ from findings of previous studies. Those participants who reported a positive perception of the COI also reported higher levels of EBP readiness. EBP knowledge and EBP implementation were not impacted by effectively creating a COI and EBP knowledge had no correlation to readiness or implementation.

Difference between 7 and 14 week course as it impacts COI and EBP competency

The self-reported perception of COI and EBP knowledge, readiness and implementation in the OLE was explored using descriptive statistics for the 7-week and 14-week courses. Items for teaching, social, cognitive and learner presence (self-efficacy and effort regulation) were measured using the Revised Community of Inquiry survey. EBP competency was explored using the ACE-ERI Knowledge Test, ACE-ERI Basic version to assess readiness and EBPI scaled to explore implementation practices.

The 7 and 14-week groups both reported the Total COI as average ($M=2.65$, $M=2.28$). However, the 14-week group reported higher scores than the 7-week course on the individual factors of teaching, social, and cognitive presence. Total learner presence was reported above average in both the 7 and 14-week groups ($M=5.10$, $M=5.21$). The 14-week group reported higher than the 7-week course on the individual factor of self-efficacy. There was no difference in the factor of effort regulation between the two groups.

The findings regarding EBP competency (knowledge, readiness, and implementation) differ slightly between the two groups. In the 7-week course EBP knowledge was reported as higher than those in the 14-week course. However, readiness was reported higher in the 14-week

group than the 7-week group. There was little difference in implementation practices between the groups.

A one-way between groups analysis of variance was performed to further explore the differences in the two groups. Findings confirmed that there were small statistically significant differences in creating an effective COI with the 14-week course reporting higher effectiveness than the 7 week course. There were no statistically significant differences reported in terms of EBP competency (knowledge, readiness, and implementation).

There are several possible explanations for these differences. In the 14-week group, there was twice the length of time to develop an effective community of inquiry. There were also fewer students in each class (25) as compared to the 7-week course (30). Differences in the way the content of the course and the assignments required could also be a factor.

Impacts of demographics on EBP competency

There was insufficient distribution of gender, race, and type of program resulting from a limited sample size and lack of variability. However, there was sufficient variability in years of experience to explore how it impacted EBP knowledge, readiness and implementation. The self-reported perception EBP knowledge, readiness and implementation in the OLE was explored using descriptive statistics for each group.

In the group with 0-5 years of experience the average score on the knowledge assessment was 50.67%. This is lower than the 6 or more years of experience group as they scored on average 62.38%. EBP readiness was above average and nearly the same for both groups. EBP implementation differed however. In the 0-5 group, implementation scored higher than the 6 or more group but both groups scored below average in this category.

A one-way between groups analysis of variance was conducted to explore the impact of years of nursing experience on EBP knowledge, readiness and implementation and confirmed findings of the descriptive statistics. There is a statistically significant difference between the groups with a small effect size in regard to EBP knowledge and implementation. The 0-5 group scored lower on EBP knowledge but reported engaging in EBP implementation more frequently than the 6 or more group.

Limitations

The major limitation of this study was small sample size. If the sample size is too small, it may impact the ability of the researcher to fully support a hypothesis even when the hypothesis may be correct (Polit & Beck, 2012). The estimated needed number of participants was 200. Invitations were sent to 316 nursing students enrolled in RN-BSN courses in the OLE. A total of 55 people responded and after respondents with missing data were eliminated, there were a final 34 participants from this study. There were several factors that potentially impacted the low response rate. First there was a delay in IRB approval. Submission to IRB was over a holiday period and this resulted in a prolonged wait time for approval. Second, once approval was obtained, it was well into the holiday season when participants may not have been checking their academic email as frequently or at all. Invitations to participate were sent only via email which considering the initiation time of the study, created difficulty in the recruitment process. Third, the length of the survey was problematic. Participants who did not finish answered approximately half of the survey questions. Lastly, we must consider the study population as a whole. It consisted of nurses who have already earned one degree, are working on a second degree, and are likely working full or part time jobs in healthcare. It should also be considered that the age range of participants was 21 to 63 years ($M=35.64$) and they are likely raising

families and possibly providing care for parents. Time management and work/life balance was found to be one of the major challenges for this population and participation in research would not seem to have been a priority (Goldhammer, 2014).

The descriptive, correlational design of this study was another limitation. This type of design is non-experimental and serves to describe relationships that may exist between variables rather than to understand a cause for the relationships (Polit & Beck, 2012). It also requires the researchers to use sampling procedures, such as purposive samples as with this study, which may result in selection bias.

Although using emailed self-report survey instruments are a convenient, inexpensive, and do have value as a method for data collection, it is considered a limitation. Participants may be hesitant to access survey and are not invested in completing surveys from unfamiliar researchers. Participants are not face to face with the researcher and may answer questions the way they think they are supposed to answer. There are issues with how the reader will interpret the question and response bias. In addition, multiple instruments were used in this study and the scales for some of the questions were reversed which could have caused the participant to unintentionally choose an answer that did not represent their true perceptions.

Conclusions

Creating an effective COI is possible in RN-BSN Nursing research courses in the OLE. A positive perception of the COI positively impacts the learners' perception of readiness to engage in EBP. Longer courses are more effectively able to create a COI and enhance the perception of EBP readiness. Surprisingly, the length of online courses do not impact EBP implementation practices in the clinical setting. Years of experience can impact EBP knowledge, and EBP implementation practices. Although a learner with more years' experience

may score higher on EBP knowledge, it does not necessarily mean that person will be engaged in EBP at the bedside at a higher rate than someone with less experience.

Implications

EBP is an important component of baccalaureate nursing education (Moch, Cronje, & Branson, 2010). RN-BSN Nursing research courses in the OLE must continue to focus on content that adequately prepares the learner to have the knowledge and skill to engage in EBP in the clinical setting (QSEN, 2014). This does not mean the nurse should simply understand concepts, but should be able to evaluate practice, collaborate with other healthcare professionals, and find research based solutions to practice problems. Faculty should consider reviewing current assignments in the Nursing Research courses and revising to best meet the learner outcomes for EBP. One consideration would be to include collaborative assignments as these have been demonstrated to motivate a learner to have an active exchange of ideas that identify new perspectives and conceptual understand of the content (Breen, 2013). This elevated level of engagement may promote the translation of EBP knowledge into skill as evidenced by increased readiness and improved implementation practices. Another consideration would be the addition of a teaching assistant with a working knowledge of nursing research and EBP that could further facilitate questions regarding content in the course.

Successfully educating on EBP in the RN-BSN Nursing research course allows the nurse to have a better understanding of concepts in the clinical setting. Having the knowledge and skill to participate in EBP helps the nurse to provide safe, high quality care that improves patient outcomes. The implications of this are far reaching. Not only in the aspect of patient wellness across the continuum but in terms of the positive organizational and financial impacts that can occur when complex patient situations occur and are managed according to evidence and

research. It should also be noted nursing education programs provide a foundation of knowledge for EBP. Hospitals and other clinical settings should continue to provide professional development opportunities to ensure nurses remain knowledgeable about the process of EBP and its importance in quality care and patient outcomes.

Recommendations for Further Research

One of the major limitations in this study was small sample size. It is recommended that this study be replicated using a larger sample size. Also recommended is that the study be broadened to include nursing programs from all regions of the United States. Public and private institutions should be invited to increase the generalizability of findings to a larger population. However, both traditional and accelerated programs should still be included to facilitate an adequate comparison between the two groups in terms of how length of the course impacts creating a COI and how that the COI impact EBP competency. EBP implementation remains low despite positive perceptions of knowledge and readiness. Further research as to the reasons for low implementation should also be considered. Another recommendation would be to create an experimental study using different assignments to teach content for EBP. This may help faculty with course design in creating optimal assignments to assist a nurse to translate knowledge to skill at the bedside. A final recommendation would be to reduce the number of survey items to increase the completion rate of participants. This could be done by developing an instrument inclusive of constructs of the RCOI and EBP competency.

Concluding Remarks

Evidenced-based practice is an integral component of providing high quality care to diverse groups of patients in the clinical setting. Online nursing research courses in RN-BSN programs should employ successful methods to create effective communities of inquiry to

facilitate translation of EBP knowledge to EBP competency at the bedside. As faculty in an online RN-BSN Nursing Research course, the findings here suggest that engagement and interaction are imperative as they relate to creating a community of inquiry to teach content nurses will use in direct patient care. It also suggests faculty should be relentless in the pursuit to evaluate, revise, and implement evidenced-based changes in courses to assist the nurse in achieving learner outcomes. Preparation of nurses to engage in assessing need, collaborate with other healthcare professionals to identify practice issues, designing studies to explore the issues, and implementing change as a result of the findings is essential to address the complex needs of health care. This leads to research based care derived from evidence that promotes positive patient outcomes through effective nursing education.

REFERENCES

- American Association of Colleges of Nursing (2015). Press Release: *New AACN Data Confirm Enrollment Surge in Schools of Nursing*. Retrieved from <http://www.aacn.nche.edu/faculty/news/2015/enrollment>
- American Association of Colleges of Nursing (2015). Fact Sheet: *The impact of education on nursing practice*. Retrieved from <http://www.aacn.nche.edu/media-relations/EdImpact.pdf>
- American Association of Colleges of Nursing (2017). Degree completion programs for registered nurses: RN to master's degree and baccalaureate programs [Factsheet]. Retrieved from <http://www.aacnnursing.org/Portals/42/News/Factsheets/Degree-Completion-Factsheet.pdf>
- Beyea, S. & Slattery, M. (2013). Historical perspectives on evidenced based nursing. *Nursing Science Quarterly* 26(2), 152-155. <https://doi.org/10.1177/0894318413477140>
- Bockarie, A. (2002). The potential of Vygotsky's contributions to our understanding of cognitive apprenticeship as a process of development of adult vocational and technical education. *Journal of Career and Technical Education* 19(1), 47-66. Retrieved from <https://ejournals.lib.vt.edu/JCTE/article/view/493>
- Breen, H. (2013). *Examining Harasim's online collaborative learning theory for nursing education* [Unpublished dissertation]. University of Hawaii at Manoa.
- Capdeferro, N. & Romero, M. (2012). Are online learners frustrated with collaborative learning experiences. *International Review of Research in Open and Distance Learning*, 13(2). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/1127/2129>

- Clark, C., Ahten, S., Werth, L. (2012). Cyber-bullying and incivility in an online learning environment: Part 2. *Nurse Educator*, 37(5), 192-197.
<https://doi.org/10.1097/NNE.0b013e318262eb2b>
- Conrad, R. & Donaldson, J. (2011). *Engaging the online learner: activities and resources for creative instruction*. San Francisco: Josey-Bass.
- Cox, E. (2015). Coaching and adult learning: Theory and practice. *New Approaches for Adult Learning and Continuing Education*, 148, 27-38. <https://doi.org/10.1002/ace.20149>
- Dillenbourg, P. (1999). Chapter 1: What do you mean by collaborative learning. In P. Dillenbourg (Ed.). *Collaborative learning: Cognitive and Computational Approaches*, (pp 1-19).
- Edwards, P., Roberts, I., Clark, M., Diguiseppi, C., Wentz, R., Kwan, I., Cooper, R., Felix, L., Prarap, S. (2009). Methods to increase response to postal and electronic questionnaires. *Cochrane Database of Systematic Reviews*, No. MR0000008.
- Finotto, S., Carpanoni, M., Turrone, E., Camellini, R., & Mecugni, D. (2013). Teaching evidence-based practice: Developing a curriculum model to foster evidenced-based practice in undergraduate student nurses. *Nurse Education in Practice*, 13, 459-465.
<https://doi.org/10.1016/j.nepr.2013.03.021>
- Garrison, R., Anderson, T., & Archer, W. (2000). Critical inquiry in text-based environment: computer conferencing in higher education. *The Internet and Higher Education*, 2 (2-3), 87-105. [https://doi.org/10.1016/S1096-7516\(00\)00016-6](https://doi.org/10.1016/S1096-7516(00)00016-6)
- Gazza, E., & Hunker, D. (2014). Facilitating student retention in online graduate nursing education programs: A review of the literature. *Nurse Education Today*.
<https://doi.org/10.1016/j.nedt.2014.01.010>.

- Hawkins, J. & Shell, A. (2012). Magnet hospitals are attracted to the BSN but what's in it for nurses? *Nursing*, 42(3), 50-52. Retrieved from http://www.nursingcenter.com/pdfjournal?AID=1307122&an=00152193-201203000-00016&Journal_ID=54016&Issue_ID=1306973
- Hayes, S. & Smith, S & Shea, P. (2015). Expanding learning presence to account for direction of regulative intent: Self, co, and shared regulation in online learning. *Online Learning*, 19(3), 15-30. <http://dx.doi.org/10.24059/olj.v19i3.666>
- Hurst, D. & Thomas, J. (2010). Developing team skills and accomplishing team projects online. In T. Anderson (Ed.), *The theory of Online Learning* (2nd ed.). Edmonton: AU Press.
- Institute of Medicine. (2010). *The Future of Nursing: Leading Change, Advancing Health*. Washington DC: National Academies Press.
- Johnson, J. (2003). Dewey and Vygotsky: *A comparison of their views on social constructivism in education*. [Unpublished Dissertation]. Rutgers University.
- Kahu, E., Stephens, C., Leach, L., & Zepke, N. (2013). The engagement of mature distance students. *Higher Education Research & Development*, 32(5), 791-804.
- Kersey, P. (2012). From the hospital to the classroom: Recruiting and supporting new faculty. *Journal of Applied Research in the Community College*, 19(2), 17-28. Retrieved from <http://www.montezumapublishing.com/jarcc1/aboutus.aspx>
- Kim, M., Kim, S., Khera, O., & Getman, (2014). The experience of three flipped classrooms in an urban university: an exploration of design principles. *Internet and Higher Education*, 22(2014), 37-50.

- Kim-Godwin, Y., & Martinez, M. (2016). Student perceptions of group experience in online RN-BSN research course. *Journal of Nursing Education and Practice*, 6(9).
<https://doi.org/10.1016/j.iheduc.2014.04.003>
- Knowles, M. (1990). *The adult learner: A neglected species* (4th ed.). Houston, TX: Gulf Publishing.
- Laal, M., & Laal, M. (2012). Collaborative learning: what is it. *Social and Behavioral Sciences*, 31, 491-495. <https://doi.org/10.1111/jan.12454>
- Llasus, L. (2011). *Graduating BSN students' EBP knowledge, EBP readiness, and EBP implementation* (Doctoral dissertation). Retrieved from
<http://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=2222&context=thesesdissertations>
- Llasus, L., Angosta, A., & Clark, M. (2014). Graduating baccalaureate student's evidenced based practice knowledge, readiness, and implementation. *Journal of Nursing Education*, 53(9), 83-89. <https://doi.org/10.3928/01484834-20140806-05>
- Lawley, D. (2006). Creating trust in virtual teams at Orange: Overcoming barriers to collaboration. *Knowledge Management Review* 9(2), 12-17.
- Mayne, L. A., & Wu, Q. (2011). Creating and measuring social presence in online graduate nursing courses. *Nursing Education Perspectives*, 32(2), 110-4. <http://dx.doi.org/10.5480/1536-5026-32.2.110>
- McCurry, M. & Martins, D. (2010). Teaching undergraduate nursing research: A comparison of traditional and innovative approaches for success with millennial learners. *Journal of Nursing Education*, 49(5), 276-279. <https://doi.org/10.3928/01484834-20091217-02>
- McKeachie, W. & Svinicki, M. (2006). *McKeachie's teaching tips: strategies, research, and theory for college and university teachers*. Boston: Houghton Mifflin Company.

- Melnyk, B., Fineout-Overholt, E., & Mays, M. (2008). The evidence-based practice beliefs and implementation scales: psychometric properties of two new instruments. *Worldviews Evidence-Based Nursing*, 5(4), 208-216. <https://doi.org/10.1111/j.1741-6787.2008.00126.x>
- Melnyk, B., Fineout-Overholt, E., Stillwell, Williamson, K. (2010). Evidenced-based practice: Step by step: the seven steps of evidenced-based practice. *The American Journal of Nursing* 110(1). <https://doi.org/10.1097/01.NAJ.0000366056.06605.d2>
- Melrose, S. (2006). Facilitating help-seeking through student interactions in a WebCT online graduate study program. *Nursing & Health Sciences*, 8(3), 175-178. <https://doi.org/10.1111/j.1442-2018.2006.00277.x>
- Minority Nurse (n.d.). Nursing statistics. Retrieved from <http://minoritynurse.com/nursing-statistics>
- Moch, S., Cronje, R., & Branson, J. (2010). Part 1: Undergraduate nursing evidenced-based practice education: envisioning the role of students. *Journal of Professional Nursing*, 26, 5-13. <https://doi.org/10.1016/j.profnurs.2009.01.015>
- National League for Nursing (2014). *NLN Biennial Survey of Schools of Nursing*. Retrieved from <http://www.nln.org/docs/default-source/newsroom/nursing-education-statistics/number-of-basic-rn-programs-total-and-by-program-type-2005-to-2014.pdf?sfvrsn=0>
- Polit D. & Beck, C. (2012). *Nursing research: generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Quality and Safety Education for Nurses (2014). Competencies. Retrieved from <http://qsen.org/competencies/pre-licensure-ksas/>

- Shah, H. & Chung, K. (2009). Archie Cochrane and his vision for evidenced based medicine. *Plastics and Reconstructive Surgery* 124(3), 982-986.
<https://dx.doi.org/10.1097%2FPRS.0b013e3181b03928>
- Shea, P. & Bidjerano, T. (2010). Learning presence: Towards a theory of self efficacy, self regulation, and the development of communities of inquiry in online and blended learning environments. *Computers & Education*, 55, 1721-1731.
<http://dx.doi.org/10.1016/j.compedu.2010.07.017>
- Shea, P., Hayes, S., Uzuner-Smith, S., Gozza-Cohen, M., Vickers, J., & Bidjerano, T. (2014). Reconceptualizing the community of inquiry framework: An exploratory analysis. *The Internet and Higher Education*, 23, 9-17. <http://dx.doi.org/10.1016/j.iheduc.2014.05.002>
- Smyth, S., Houghton, C., Cooney, A., & Casey, D. (2012). Students' experiences of blended learning across a range of postgraduate programmes. *Nurse Education Today*, 32(4), 464-468. <http://doi.org.jproxy.lib.ecu.edu/10.1016/j.nedt.2011.05.014>
- Spurlock, D., & Wonder, A. (2015). Validity and reliability evidence for a new measure: The evidence-based practice knowledge assessment in nursing. *Journal of Nursing Education* 54(1), 605-613. <https://doi.org/10.3928/01484834-20151016-01>
- Sowan, A. & Jenkins, A. (2013). Use of the seven principles of effective teaching to design and deliver an interactive hybrid nursing research course. *Nursing Education Perspectives*, 34(5), 315-321. <https://doi.org/10.5480/1536-5026-34.5.315>
- Stevens, K., Puga, F., & Low, V. (2012). *The ACE-ERI: An instrument to measure EBP readiness in student and clinical populations*. Retrieved from <http://nursing.uthscsa.edu/onrs/starmodel/institute/su12/documents/ace/8%20The%20ACE-ERI%20%20Instrument%20to%20Benchmark.pdf>

Vygotsky, L. (1978). Interaction between learning and development. In M. Cole, V. John-Stiner, S. Scribner, & E. Souberman (Eds.). *Mind and society* (pp 79- 81). Cambridge, MA: Harvard University Press.

Westbrook, C. (2012). Online collaborative learning in health care education. *European Journal of Open, Distance, and E-learning*. Retrieved from <http://www.eurodl.org/materials/contrib/2012/Westbrook.pdf>

APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board Office
4N-70 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office 252-744-2914 · Fax 252-744-2284 · www.ecu.edu/irb

From: Social/Behavioral IRB
To: [Melissa Barber](#)
CC: [Ann Schreier](#)
Date: 12/20/2016
Re: [UMCIRB 16-001860](#)
Community of Inquiry and Evidence Based Practice

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 12/20/2016 to 12/19/2017. The research study is eligible for review under expedited category # 7. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Name	Description
Barber.Melissa.DissertationIRBsubmission.docx	Study Protocol or Grant Application
Consent	Consent Forms
Instruments	Surveys and Questionnaires

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

APPENDIX B: LETTERS OF APPROVAL

Dear Melissa....

Your request is one of the most professional and informative I have received to date...thank you for such professional courtesy.

I am happy to provide permission to you to use/reproduce the Star Model under the fair-use rule, with the stipulation that credit is cited. If in the future, you are re-publishing the copyrighted material (as in publishing in a journal or book), specific permission is required by the publisher. In that case, there is usually a template letter of permission from the publisher that I will readily sign. Please note that the model has been renamed to “Stevens Star Model of Knowledge Transformation.” I have attached an image that you may use.

Another resource is the Essential EBP Competencies booklet that was developed through ACE...the description of the development is found at http://nursing.uthscsa.edu/onrs/starmodel/ebp_compet.asp. If you're interested in ordering an Essential Competencies booklet, just complete an Essential Competencies order form and mail it back with your \$30 check.

Regarding your specific request about the ERI: Do you have a copy of the ERI to use in your study? What “level” do you want to target? There is a BASIC, INTERMEDIATE, and ADVANCED version. I would suggest that you use the BASIC, with 20 items on a Likert Scale. We will need to determine if you wish to use online survey or paper survey. I will indeed grant permission to you to use in the way you described in your request. A number of clinical agencies and academic institutions have benefitted from using our EBP readiness survey, called the EBP - Readiness Inventory (ERI). The ERI is a self-report instrument based on national consensus EBP competencies (Stevens, 2005 & 2009). The survey is administered electronically and can be used to assess EBP Readiness in both clinician and student populations. Hannele Saunders (Finland) used this in her national survey of EBP readiness as she completes her PhD...publications just coming out: Nurses' readiness for evidence-based practice at Finnish university hospitals: a national survey in Journal of Advanced Nursing (<http://onlinelibrary.wiley.com/doi/10.1111/jan.12963/abstract>); and Effectiveness of an education intervention to strengthen nurses' readiness for evidence-based practice: A single-blind randomized controlled study in Applied Nursing Research ([http://www.appliednursingresearch.org/article/S0897-1897\(16\)30003-9/addons](http://www.appliednursingresearch.org/article/S0897-1897(16)30003-9/addons)).

On another note, I am also involved with the Improvement Science Research Network (ISRN). The ISRN's work is to advance the emerging field of improvement science. Our mission is to advance the scientific foundation for quality improvement, safety and efficiency through transdisciplinary research addressing healthcare systems, patient centeredness, and integration of evidence into practice. It provides a laboratory to greatly enhance feasibility and generalizability of NIH (National Institutes of Health) proposals in improvement science. Additionally, it provides an infrastructure for a national program of research to test quality improvement interventions, such as those conducted by DNP students. The ISRN is comprised of national members, the Network Coordinating Center and a Steering Council. Research Priorities were adopted for the ISRN as the best thinking to date about the direction that should be taken in improvement science. Please visit our ISRN website at www.ISRN.net for further details.

Many from across the nation have discovered that the ISRN projects are a good fit for improvement projects...see our research priorities at <http://isrn.net/research>

Thank you for your description of how you applied the Star in your study...and I would be most appreciative of your suggestions on how to improve/expand the Model.

Thank you for your efforts in improving care and patient outcomes. Best of luck in your career...scientists in “best practices” are very much needed!!!

...to the best of our knowledge

Kathleen R. Stevens, RN, EdD, FAAN

UT System Chancellor's Health Fellow for Healthcare Delivery Science

STTI Episteme Laureate

Professor and Director

Improvement Science Research Network

www.ISRN.net

210.567.3135

University of Texas Health Science Center San Antonio MSC 7949

7703 Floyd Curl Drive

Hi Melissa. Thank you for the permission form. As I review what you will be studying, I wondered if you wanted to use the EBPI-S scale, which is geared toward students. Also, I am sending along the OCRSIEP-S, which is an assessment of the culture from the student perspective - this may be helpful as you consider presence.

If you choose to use the EBPI (not student focused), I have also attached is the online agreement to collect data with this scale via any electronic means. To move forward with the EBPI, simple sign, scan and send back the agreement to me via email. The fee can be paid by check sent to the address on the permission form. The template scale attached is how the scale should look within your survey.

Of course, let me know of any questions along the way.

All the best,

Ellen

Ellen Fineout-Overholt

Transforming Healthcare from the Inside Out

Join Me in Discovering the Wonder in Evidence-based Practice, Leadership and Innovation

ellen.fineout.overholt@gmail.com

Peter

Barber, Melissa Scott <BARBERM05@students.ecu.edu>

Good Morning.

My name is Melissa Barber and I am a Nursing PhD candidate at East Carolina University. For dissertation, I am exploring evidence based practice competency in RN-BSN programs. The purpose of this study is to determine if the degree to which a Community of Inquiry (teacher presence, social presence, cognitive presence, and learner presence) is created impacts the student's perception of evidenced based practice competency after completing a Nursing Research course in RN-BSN programs in the online learning environment. This study will also compare the outcome of those enrolled in a traditional 14 week course to those enrolled in an accelerated 7 week course.

As I reviewed the literature, the RCOI seems to be a more than appropriate tool for part of my survey and I would be delighted to be able to include it. I will also be utilizing the Stevens Star Model of Knowledge Transformation and the Evidence Based Practice Implementation Scales.

My dissertation chair, Dr. Ann Schreier, and I would like to respectfully request permission to use the RCOI instrument.

IRB approval will be obtained this summer. The study will take place during the Fall 2016 semester. We will be studying multiple sections of a 7 week and 14 week nursing research course in RN-BSN programs. The survey will be sent to the students once consent is obtained and after earned scores for the courses are calculated and posted.

Your consideration is greatly appreciated and we will gladly answer any further questions you may have. Thank you and I look forward to your response.

Respectfully,

Melissa Barber RN MSN
PhD Candidate, Nursing
919-606-0700

APPENDIX C: QSEN COMPETENCIES FOR PRE-LICENSURE NURSING STUDENTS

EVIDENCE-BASED PRACTICE (EBP)		
<p>Definition: Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care.</p>		
Knowledge	Skills	Attitudes
<p>Demonstrate knowledge of basic scientific methods and processes</p> <p>Describe EBP to include the components of research evidence, clinical expertise and patient/family values.</p>	<p>Participate effectively in appropriate data collection and other research activities</p> <p>Adhere to Institutional Review Board (IRB) guidelines</p> <p>Base individualized care plan on patient values, clinical expertise and evidence</p>	<p>Appreciate strengths and weaknesses of scientific bases for practice</p> <p>Value the need for ethical conduct of research and quality improvement</p> <p>Value the concept of EBP as integral to determining best clinical practice</p>
<p>Differentiate clinical opinion from research and evidence summaries</p> <p>Describe reliable sources for locating evidence reports and clinical practice guidelines</p>	<p>Read original research and evidence reports related to area of practice</p> <p>Locate evidence reports related to clinical practice topics and guidelines</p>	<p>Appreciate the importance of regularly reading relevant professional journals</p>
<p>Explain the role of evidence in determining best clinical practice</p> <p>Describe how the strength and relevance of available evidence influences the choice of interventions in provision of patient-centered care</p>	<p>Participate in structuring the work environment to facilitate integration of new evidence into standards of practice</p> <p>Question rationale for routine approaches to care that result in less-than-desired outcomes or adverse events</p>	<p>Value the need for continuous improvement in clinical practice based on new knowledge</p>
<p>Discriminate between valid and invalid reasons for modifying evidence-based clinical practice based on clinical expertise or patient/family preferences</p>	<p>Consult with clinical experts before deciding to deviate from evidence-based protocols</p>	<p>Acknowledge own limitations in knowledge and clinical expertise before determining when to deviate from evidence-based best practices</p>

APPENDIX D: REVISED COMMUNITY OF INQUIRY INSTRUMENT

1. The instructor clearly communicated importance course topics.
2. The instructor clearly communicated important course goals.
3. The instructor provided clear instructions on how to participate in course learning activities.
4. The instructor clearly communicated important due dates/time frames for learning activities.
5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
6. The instructor was helpful in guiding the class towards understanding course topics in a way that clarified my thinking.
7. The instructor helped keep course participants engaged and participating in productive dialogue.
8. The instructor helped keep the course participants on task in a way that helped me to learn.
9. The encouraged course participants to explore new concepts in this course.
10. Instructor actions reinforced the development of a sense of community among course participants.
11. My instructor provided useful illustrations that helped make the course content more understandable to me.
12. My instructor presented helpful examples that allowed me to better understand the content of the course.
13. My instructor provided clarifying expectations or other feedback that allowed me to better understand the content of the course.
14. Getting to know other course participants gave me a sense of belonging to the course.
15. I was able to form distinct impressions of some course participants.
16. Online or web-based communication is an excellent medium for social interaction.
17. I felt comfortable conversing through the online medium.
18. I felt comfortable participating in the course discussions.
19. I felt comfortable interacting with other course participants
20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.
21. I felt that my point of view was acknowledged by other course participants.
22. Online discussions help me to develop a sense of collaboration.
23. Problems posed increased my interest in course issues.
24. Course activities piqued my interest in course issues.
25. I felt motivated to explore content related questions.
26. I utilized a variety of information sources to explore problems posed in this course.
27. Brainstorming and finding relevant information helped me resolve content related questions.
28. Online discussions were valuable in helping me appreciate different perspectives.
29. Combining new information helped me answer questions raised in course activities.
30. Learning activities helped me construct explanations/solutions.

31. Reflection on course content and discussions helped me understand fundamental concepts in this class.
32. I can describe ways to test and apply the knowledge created in this course.
33. I have developed solutions to course problems that can be applied in practice
34. I can apply the knowledge created in this course to my work or other non-class related activities.
35. I believe I will receive an excellent grade in this class.
36. I am certain I can understand the most difficult material presented in the reading for this course.
37. I am confident I can learn the basic concepts taught in this class.
38. I am confident I can understand the most complex material presented by the instructor in this course.
39. I am confident I can do an excellent job on the assignments and test in this course.
40. I expect to do well in this class.
41. I am certain I can master the skills being taught in this class.
42. Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.
43. (reverse coding) I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.
44. I work hard to do well in this class even if I don't like what we are doing.
45. (reverse coding) When course work is difficult I give up or only study the easy parts
46. Even when course materials are dull and uninteresting, I manage to keep working until I finish.

APPENDIX E: ACE-ERI EVIDENCE BASED PRACTICE KNOWLEDGE TEST

Academic Center for Evidence-Based Practice
Readiness Inventory
(ACE-ERI)

© ACE 2007

Evidence-Based Practice (EBP) Knowledge Test

Instructions:
Select the **best** answer for each question.

1. In EBP, which of the following is considered the strongest basis for clinical decision-making?

- Experience from routine daily patient care
- Summary of research generated knowledge
- Expert opinion regarding best patient care
- Results from a single research study

2. Systematic reviews are the result of:

- Randomized control design
- Synthesis of all research
- Case study
- Review of literature

3. The stronger level of evidence indicates:

- Greater confidence that the intervention is effective
- Larger sample was used
- Cost of change is too high to integrate
- Recommendation is based on expert opinion

4. The least clinically useful EBP resource on the internet is:

- Agency for Healthcare Research and Quality (AHRQ)
- The Cochrane Library
- National Guideline Clearinghouse
- Journal article on a clinical topic

5. The most rigorous systematic review on congestive heart failure would be found in:

- MedLine
- CINAHL
- The Cochrane Library
- Journal of Cardiology

<p>6. The EBP skill of critical appraisal involves:</p> <ul style="list-style-type: none"> <input type="radio"/> Evaluating systematic reviews and guidelines <input type="radio"/> Knowledge transformation <input type="radio"/> Classifying strength of evidence <input type="radio"/> Expert opinion
<p>7. Which form of knowledge is most useful in the clinician's practice setting?</p> <ul style="list-style-type: none"> <input type="radio"/> Results from single research studies <input type="radio"/> Systematic reviews <input type="radio"/> Evidence-based clinical practice guidelines (CPGs) <input type="radio"/> Patient outcomes
<p>8. Which source of knowledge individualizes care during an evidence-based intervention?</p> <ul style="list-style-type: none"> <input type="radio"/> Clinical expertise to close the scientific gap <input type="radio"/> Patient preferences <input type="radio"/> Critical appraisal <input type="radio"/> Primary research study
<p>9. Evidence-based practice (EBP) is defined as: Integrating,,,</p> <ul style="list-style-type: none"> <input type="radio"/> best research evidence into clinical practice. <input type="radio"/> clinical expertise and research into practice. <input type="radio"/> patient values and critical thinking into practice. <input type="radio"/> best research evidence with clinical expertise and patient values.
<p>10. In addition to overcoming barriers posed by large volumes of research, EBP also overcomes the 2nd barrier of:</p> <ul style="list-style-type: none"> <input type="radio"/> Understanding statistics <input type="radio"/> Missing research <input type="radio"/> Lack of funds <input type="radio"/> Forms of knowledge unsuitable in care
<p>11. According to the ACE Star Model, what is the order of the five stages of knowledge transformation?</p> <ul style="list-style-type: none"> <input type="radio"/> Integration, Evaluation, Summary, Translation, and Discovery <input type="radio"/> Evaluation, Summary, Translation, Integration, and Discovery <input type="radio"/> Discovery, Translation, Integration, Evaluation, and Summary <input type="radio"/> Discovery, Summary, Translation, Integration and Evaluation <input type="radio"/> I am not familiar with the ACE Star Model
<p>12. The most efficient database for locating clinical practice guidelines (CPGs) on hand washing is:</p> <ul style="list-style-type: none"> <input type="radio"/> CINAHL <input type="radio"/> MedLine <input type="radio"/> National Guideline Clearinghouse <input type="radio"/> American Journal of Nursing

13. Translating evidence summaries into clinical practice guidelines (CPGs) may require:

- Asking the patient about preferences
- Increasing the rate of adoption
- Incorporating expert opinion when research is absent
- Searching CINAHL for quality measures

14. Evaluation of impact of evidence-based quality improvement:

- Guides adoption
- Focuses on patient outcomes
- Is not necessary
- Is done only at the national level

15. When an evidence-based clinical practice guideline (CPG) is introduced to the nursing unit, the following can be expected:

- Improvement will be resisted
- Cost benefit will be gained
- Nurses are all early adopters
- Change is readily made

APPENDIX F: ACE-ERI READINESS INVENTORY

Academic Center for Evidence-Based Practice Readiness Inventory (ACE-ERI)

© ACE 2007

I feel confident that I can:					
	Very little				A great deal
1. Define EBP in terms of evidence, expertise, and patient values.	<input type="radio"/>				
2. Critically appraise original research reports for practice implications in context of EBP with assistance and existing standards.	<input type="radio"/>				
3. Use pre-constructed expert search strategies (hedges) to locate primary research in major bibliographic databases.	<input type="radio"/>				
4. Recognize ratings of strength of evidence when reading literature, including web resources.	<input type="radio"/>				
5. Classify clinical knowledge as primary research evidence, evidence summary, or evidence-based guideline.	<input type="radio"/>				
6. Locate systematic reviews and evidence summaries on clinical topics from specific evidence summary databases (e.g., Cochrane Database of Systematic Reviews).	<input type="radio"/>				

7. Identify key criteria in well-developed evidence summary reports using existing critical appraisal checklists.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
8. List advantages of systematic reviews as strong evidential foundation for clinical decision making.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
9. Identify examples of statistics commonly reported in evidence summaries.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
10. Identify the major facets to be critically appraised in clinical practice guidelines (CPGs) with assistance and existing criteria checklists.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
11. Access clinical practice guidelines on various clinical topics using specified databases.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
12. Participate on a team to develop agency-specific evidence-based clinical practice guidelines.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
13. Compare own practice with agency's recommended evidence-based clinical practice guidelines.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
14. Describe ethical principles related to variation in practice and EBP.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
15. Participate in the organizational culture of evidence-based quality improvement in care.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
16. Deliver care using evidence-based clinical practice guidelines.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>

17. Utilize agency-adopted clinical practice guidelines while individualizing care to client preferences and needs.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
18. Assist in integrating practice change based on evidence-based clinical practice guidelines.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
19. Choose evidence-based approaches over routine as base for own clinical decision making.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>
20. Participate in evidence-based quality improvement processes to evaluate outcomes of practice changes.	Very little <input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A great deal <input type="radio"/>

APPENDIX G: EBP IMPLEMENTATION SCALE

EBP Implementation Scale Melnyk & Fineout-Overholt, Copyright, 2003					
Below are 18 questions about evidence-based practice (EBP). Some healthcare providers do some of these things more often than other healthcare providers. There is no certain frequency in which you should be performing these tasks. Please answer each question by circling the number that best describes <u>how often each item has applied to you in the past 8 weeks</u> .					
In the past 8 weeks , I have:					
1. Used evidence to change my clinical practice...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
2. Critically appraised evidence from a research study...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
3. Generated a PICO question about my clinical practice...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
4. Informally discussed evidence from a research study with a colleague...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
5. Collected data on a patient problem...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
6. Shared evidence from a study or studies in the form of a report or presentation to more than 2 colleagues...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
7. Evaluated the outcomes of a practice change...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
8. Shared an EBP guideline with a colleague...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
9. Shared evidence from a research study with a patient/family member...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
10. Shared evidence from a research study with a multi-disciplinary team member...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
11. Read and critically appraised a clinical research study...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
12. Accessed the Cochrane database of systematic reviews...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
13. Accessed the National Guidelines Clearinghouse...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
14. Used an EBP guideline or systematic review to change clinical practice where I work...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
15. Evaluated a care initiative by collecting patient outcome data...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>

16. Shared the outcome data collected with colleagues...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
17. Changed practice based on patient outcome data...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>
18. Promoted the use of EBP to my colleagues...	0 times <input type="radio"/>	1-3 times <input type="radio"/>	4-5 times <input type="radio"/>	6-7 times <input type="radio"/>	> 8 times <input type="radio"/>

APPENDIX H: PARTICIPANT INVITATION LETTER

This is a reminder that your help is needed for this project.

**With the support of
ECU College of Nursing RN-BS Program
and
UNCW School of Nursing RN-BS Program
.....I am requesting your help!**

You recently completed a Nursing Research course in the online learning environment. We need to know if the community created in your online Nursing Research course ensured that you gained knowledge and skill to be competent in providing Evidenced-Based Care.

After completing the survey, participants will be invited to enter into a drawing for one of four \$50 Visa gift cards.

Follow this link to the Survey:

https://ecu.az1.qualtrics.com/SE/?SID=SV_9vOYw6m0Cb2KYw5

Dear Participant,

I am a PhD student at East Carolina University in the College of Nursing. I am asking you to take part in my research study entitled, "Creating an Effective Community of Inquiry in an Online RN-BS Nursing Research Course to Achieve Competency in Evidence Based Practice".

The purpose of this research is to determine if creating an effective learning environment online impacts the student's perception of evidenced based practice competency after completing a Nursing Research course in RN-BSN programs in the online learning environment.

By doing this research, I hope to learn if creating an effective online learning environment in a Nursing Research course impacts Evidence Based Practice Competency in nurses who are providing direct patient care. It also aims to compare these factors in nurses who completed a 7 week program to those who completed a 14 week program. Your participation is completely voluntary.

You are being invited to take part in this research because you have successfully completed either a 7 week or 14 week Nursing Research course in an online RN-BS program. The amount of time it will take you to complete this survey is twenty minutes.

If you agree to take part in this survey, you will be asked questions that relate to your online learning environment. You will also be asked questions related to evidenced based practice knowledge, readiness, and implementation. Other questions are demographic.

Approval for this study has been obtained from and is overseen by the ECU Institutional Review Board. Therefore some of the IRB members or the IRB staff may need to review my research data. However, the information you provide will not be linked to you. Therefore, your responses cannot be traced back to you by anyone, including me. The data you provide will be kept secure once it is in the researcher's possession. However the researcher cannot guarantee security during transmission of the data due to keylogging or other spyware that may exist on the computer you are using.

If you have questions about your rights when taking part in this research, call the Office of Research Integrity & Compliance (ORIC) at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, call the Director of ORIC, at 252-744-1971.

You do not have to take part in this research, and you can stop at any time. You may decline to participate or answer any question. If you decide you are willing to take part in this study, continue on with the survey below. **Participants completing the survey will be invited to enter into a drawing for one of four \$50 visa gift cards at completion of the survey.** You can also choose not to participate in the drawing.

Thank you for taking the time to participate in this important nursing education research that will directly identify and help to improve the online learning experience for those enrolled in RN-BS programs.

Sincerely, Melissa Barber RN MSN, PhD Candidate, Principal Investigator

Follow this link to the Survey:

https://ecu.az1.qualtrics.com/SE/?SID=SV_9vOYw6m0Cb2KYw5

