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Implementation of The Essential Competencies for Evidence-Based Practice in Baccalaureate Nursing Education

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THE IMPLEMENTATION OF THE ESSENTIAL COMPETENCIES FOR EVIDENCE-BASED PRACTICE IN BACCALAUREATE NURSING EDUCATION

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Abstract

Integrating evidence-based practice into healthcare education has been a recommendation for the past 16 years. Despite this, barriers still exist with the utilization of evidence-based practice. The purpose of this study was to describe the current state of EBP scholarship in the curriculum of baccalaureate pre-licensure nursing programs. *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship. The research question stated: how is evidence-based practice scholarship addressed within baccalaureate pre-licensure nursing programs? The research design was guided by Rogers' diffusion of innovations theoretical framework and the star model of knowledge transformation ©. The study was a non-experimental descriptive design, and a convenience sample of n=96 surveys from program leaders was evaluated. The findings from this study fill an identified gap in nursing literature and show that EBP is addressed within baccalaureate pre-licensure nursing programs, described by the leaders in the programs.

Keywords: evidence-based practice competencies, baccalaureate pre-licensure nursing programs

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Chapter 1

The Problem and Domain of Inquiry

In 2003, the Institute of Medicine (IOM) published *Health Professions Education: A Bridge to Quality.* This report recommended that "all health professionals should be educated to deliver patient-centered care as members of the interdisciplinary team, emphasizing evidence-based practice (EBP), quality improvement approaches, and informatics" (IOM, 2003, p. 3). This directive followed a 2001 report which indicated the poor state of U.S. health care and identified EBP as a core measure to improve the quality of healthcare (IOM, 2001).

All healthcare professions including nursing have encountered challenges introducing and incorporating the EBP recommendation into curricula. In 2004, the national consensus on competencies for EBP in nursing was established and *Essential Competencies for Evidence-Based Practice in Nursing* was developed (Stevens, 2009). The competencies were developed to help guide educational programs at the basic, intermediate, and doctoral level within nursing education (Stevens, 2013). The list was extended in 2009 to include competencies at the associate degree level (Stevens, 2009). In 2008, the American Association of Colleges of Nursing (AACN) indicated that EBP must be threaded through a program of study. The National League for Nursing (2016) indicated the need to evaluate "the impact of evidence generation and translation on learner preparation and clinical practice." (p. 1).

According to Nieswiadomy (2011), Cochrane was the first to establish EBP. In 1972, Cochrane described the lack of solid evidence within health care and the effects that caused (Nieswiadomy, 2011). His work affected the development of what we now know as EBP. In the early 1980s, the Conduct and Utilization of Research in Nursing project was created to develop a model for utilizing knowledge-based research within the clinical practice setting (Horsley, Crane, Crabtree, & Wood, 1983). Following this, Stetler (1985) developed the Stetler research utilization model to apply research findings down to the clinician level.

During this time, the Agency for Healthcare Research and Quality (AHRQ) was developing EBP guidelines, a process which continued through the 1990s and up to the present (Brown, 2011). In 1986, the National Center for Nursing Research was established with the goal of building scientific evidence for clinical practice. The center was renamed the National Institute of Nursing Research in 1993 (National Institute of Nursing Research, 2017). Models and definitions for EBP have continued to be developed and have become a competency for healthcare professionals (IOM, 2001, 2003).

An early definition of EBP included conscientiously utilizing the best current evidence to make decisions concerning care of patients (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). EBP has also been defined as the utilization of the best evidence when making decisions for groups, communities, patients, and systems (Schaffer, Sandau, & Diedrick, 2013). Quality and Safety Education for Nurses Institute (QSEN Institute, 2017) identified EBP as a core competency for pre-licensure nursing students. According to QSEN, EBP integrates clinical expertise with the best current

evidence, client preference, and values to deliver optimal care. Nurses utilize EBP in clinical practice to make the most up-to-date decisions which improves patient outcomes and quality of care (Underhill, Roper, Siefert, Boucher, & Berry, 2015).

Problem Statement

Although the IOM (2001, 2003) advocated for EBP and the AACN (2008) incorporated it, there have still been barriers to the use of EBP (Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012; Rojjanasrirat & Rice, 2017). The literature reveals that newly licensed registered nurses have lacked basic attitudes and skills necessary to implement EBP (Jackson, 2016; Spector et al., 2015). Wonder et al. (2017) reported that further research is needed to evaluate programs and teaching strategies and to gain an understanding of what nurses know about EBP.

Regulating bodies, professional organizations, and accrediting agencies have recommended the incorporation of EBP into nursing education (AACN, 2008; IOM, 2001, 2003; National Council of State Boards of Nursing, 2017a; National League for Nursing, 2016; QSEN, 2017). The problem is that, despite the expectation to integrate EBP competencies into nursing education, new graduate nurses lack the ability to incorporate EBP into their professional practice (Jackson, 2016; Spector et al., 2015; Sullivan, Hirst, & Cronenwett, 2009). Further research on the integration of EBP scholarship in baccalaureate nursing curriculum is needed.

Purpose of the Study

The purpose of this study was to describe the current state of EBP scholarship in the curriculum of baccalaureate pre-licensure nursing programs. *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state

of EBP scholarship. The study's findings have the potential to enhance faculty recognition of the necessary education on EBP which would support graduating nurses' EBP skills, attitudes, and competencies.

Research Questions and Hypotheses

The research question for the study asked how EBP scholarship was addressed within baccalaureate pre-licensure nursing programs. The specific question stated: How is EBP scholarship addressed within baccalaureate pre-licensure nursing programs? The null hypothesis was that EBP scholarship is not addressed within baccalaureate pre-licensure nursing programs.

Significance of the Study

This study contributed to understanding the current state of how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The research question stated: how is EBP scholarship addressed within baccalaureate pre-licensure nursing programs? *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship. The study's findings have clear implications for nursing education, nursing practice, nursing research, and nursing policy.

Nursing Education

The IOM (2001) brought to light the importance of education for the healthcare professional. The IOM (2003) indicated that educational programs were inadequately preparing healthcare professionals to provide the safest and highest quality of care possible. The IOM (2003) reported that educational programs needed an overhaul and

that curriculum revision was indicated, with a focus on EBP and quality improvement. Five essential competencies were indicated, and EBP was included among them.

Stevens and a panel of experts developed EBP competencies for educating students in 2005 (Stevens, 2009). The AACN (2008) integrated EBP into the standards for professional nursing practice at the baccalaureate level: Standard III was dedicated to EBP and the integration of EBP into baccalaureate nursing education. The Commission on Collegiate Nursing Education (CCNE) utilized the AACN (2008) as a standard for accreditation and has incorporated EBP into its accreditation standards. The IOM (2011) indicated a need for nursing education systems to improve and promote seamless academic progression and further discussed EBP as an essential competency for nurses to deliver high quality care.

The QSEN project was developed to help prepare future nurses with the knowledge, skills, and attitudes to continually improve safety and quality within their healthcare systems (QSEN, 2017). QSEN developed six competencies based on the IOM's (2003) healthcare professional competencies. QSEN identified EBP as a core competency within nursing practice.

According to Melnyk et al. (2016), nurses prepared with skills in EBP will contribute to the transformation of healthcare delivery. Discovering if the competencies are addressed within baccalaureate pre-licensure nursing programs is significant to nursing education because there has been an EBP recommendation; employers have indicated that newly graduated nurses demonstrate limited preparedness for EBP; and additional EBP preparation is needed within nurse residency curricula (IOM, 2003; Spector et al., 2015; Sullivan et al., 2009).

Nursing Practice

Nurses are the primary healthcare providers expected to incorporate EBP (Jackson, 2016). EBP competencies are essential for providing high-quality health care (Young, Rohwer, Volmink, & Clarke, 2014). Melnyk, Gallagher-Ford, Long, and Fineout-Oveholt (2014) developed EBP competencies for practicing registered nurses and advanced practice nurses. To fully adopt EBP into widespread practice, it must be fully accepted by microsystems, leaders, policy makers, and individual care providers (Stevens, 2013). Barriers to the utilization of EBP in nursing practice still exist and include the following: inadequate skills and knowledge in EBP; environments and cultures that do not support EBP; misconceptions concerning EBP; outdated policies and politics; limited resources and tools; resistance from leaders, colleagues, and nurse managers; lack of EBP mentors; and academic programs that emphasize research rather than an EBP care approach (Melnyk & Fineout-Overholt, 2015; Melnyk, Fineout-Overholt, et al., 2012; Melnyk et al., 2016; Melnyk, Grossman, et al., 2012).

Nursing Research

Sixteen years have passed since the IOM recommendation that nurses and other healthcare professionals needed to have EBP competencies (IOM, 2001, 2003). Since then, nursing research has focused on the assessment of educational interventions to improve EBP understanding (Andre, Aune, & Braend, 2016; Davidson & Candy, 2016; Leach, Hofmeyer, & Bobridge, 2016; Melnyk, 2013; Ruzafa-Martinez, López-Iborra, Armero Barranco, & Ramos-Morcillo, 2016; Scurlock-Evans, Upton, Rouse, & Upton, 2017). Research has also demonstrated the effectiveness of EBP to enhance healthcare outcomes, reduce cost, improve safety and quality of health care, and decrease variations

in care (McGintry & Anderson, 2008; Melnyk & Fineout-Overholt, 2015; Melnyk, Fineout-Overholt, et al., 2012). There has been a focused effort on accelerating EBP research findings into practice as many successful interventions and treatments have not been standards of care because of the lag in translating research findings into the clinical setting (Melnyk, Gallagher-Ford, & Fineout-Overholt, 2017).

Mounting research has demonstrated the effectiveness of EBP in undergraduate education (Davidson & Candy, 2016; Heye & Stevens, 2009; Ruzafa-Martinez et al., 2016; Scurlock-Evans et al., 2017). However, graduating nurses have still been lacking the skills, attitudes, and competencies necessary to engage in EBP. Nurse residency programs have attempted to fill this skills gap (Blackman & Giles, 2017; Jackson, 2016; Spector et al., 2015).

Many recent studies have focused on understanding EBP uptake, safety, timeliness of health care, and increased effectiveness (Stevens, 2013). Few studies have evaluated whether EBP education is adequate; instead, studies have focused on the educational intervention rather than evaluating if EBP scholarship is even addressed within nursing curricula. Without appropriate data on the state of EBP scholarship within nursing curricula, nurse educators at the undergraduate level have been ill equipped to address the learning needs of students. Further research is needed to fill this gap and assess if the EBP scholarship is addressed within baccalaureate pre-licensure programs, to help identify why graduating nurses have been lacking the skills, attitudes, and competencies necessary to engage in EBP.

Public Policy

Numbering more than three million, nursing professionals make up the largest segment of the nation's healthcare workforce (IOM, 2011). High-quality health care depends upon EBP competencies (Young et al., 2014). The public demands nurses who can deliver safe, high-quality, patient-centered care (IOM, 2011).

To meet this public demand, public policy initiatives have included EBP. The quadruple aim in healthcare is one example. The quadruple aim in healthcare focuses on improving patient experiences of care, reducing per capita cost of health care, improving the health of populations, and improving staff satisfaction (Berwick, Nolan, & Whittington, 2008; Bodenheimer & Sinsky, 2014). It includes EBP as a key component.

The National Council of State Boards of Nursing (NCSBN, 2017a) identified EBP education as a key component to nursing education. Spector (2010) urged regulators to critically focus on EBP as a strategy for policy and decision making. The Center for Regulatory Excellence was established by the NCSBN to provide funding and educational opportunities to establish EBP programs which would advance nursing science and policy (NCSBN, 2017b). Nursing programs have reported EBP curricula within self-study documents, but, to date, no studies have evaluated EBP curricula as a whole. The findings from this study add to the evidence of EBP within pre-licensure nursing programs and enhance the understanding of EBP.

Philosophical Underpinnings

Post positivism, often referred to as the scientific method (Creswell, 2014), was the selected approach for this study. Post positivism is widely utilized within nursing (Weaver & Olson, 2006). According to Crotty (2010), post positivism began with Popper.

Popper challenged traditional positivism, which called for researchers to test a hypothesis by confirming it and argued that researchers should instead test a hypothesis by attempting to reject it (Crotty, 2010). Post positivism was further influenced by Kuhn, who questioned researcher bias and proposed that researchers are not without a personal paradigm and that research is a human affair (Crotty, 2010). Finally, Feyerabend questioned the role that reason has within science, calling the process of science chaotic, and proposing that chaos helps theories develop. According to Crotty (2010), post positivism holds the following six main assumptions: research cannot be perfect; knowledge is influenced by data; data come from participants; the researcher utilizes data to describe relationships; it is not possible to find absolute truth; and hypothesis rejection is the focus of research.

Theoretical Framework

This study utilized Rogers's (2003) diffusion of innovations model. It also utilizes Stevens's (2012b) star model of knowledge transformation ©. Together these models served as the theoretical framework for the study.

Rogers's Diffusion of Innovations

The diffusion of innovations model has been utilized by many disciplines to examine the adoption of innovations (Sahin, 2006). The model examines the rejection or acceptance of new knowledge or technology by an organization or group over time (Rogers, 2003). Rogers (2003) defined diffusion of innovations as "the process in which an innovation is communicated through certain channels over time among members of a social system" (p. 5).

The framework includes four assumptions: (a) there are four main elements, an innovation, communication channels, time, and a social system; (b) the innovation-decision process, made up of the knowledge, the persuasion stage, the decision stage, the implementation stage, and the confirmation stage; (c) the rate of adoption and relative advantage; and (d) attributes of innovations, which are compatibility, complexity, trialability, and observability (Rogers, 2003). Sanson-Fisher (2004) suggested that the utilization of Rogers's diffusion of innovations model might provide an understanding as why some practices changes are adopted but others are not and help aid attempts to effectively adopt EBP changes.

Theoretical Assumptions of the Diffusion of Innovations Model

The four main elements of the model are innovation, communication channels, time, and a social system. These main elements are each divided into several processes. The elements and processes work together as the innovation moves through the diffusion process (Rogers, 2003).

Innovation. The innovation is a concept, objective, or practice that participants consider to be new. This does not necessarily mean it is a new practice, just that it is new to the participants. The adoption of the innovation is influenced by the characteristics and properties of the innovation (Rogers, 2003). The adoption rate of an innovation is greatly affected by relative advantage and is the first attribute of an innovation. The relative advantage is measured by participants and is how the participants perceive the innovation as being more beneficial, better, or of higher quality than processes currently in use (Rogers, 2003).

The second attribute of an innovation is the compatibility of the innovation. This is defined as how participants view the innovation relative to past experiences, the needs of the participants, and existing values. An innovation that is consistent with social norms and values will be adopted at a higher rate than one that is in opposition to norms and values. Innovations that are incompatible with the current social norms and values will often require adoption of a new value system, which is a reasonably slow process. Compatibility is coupled to the issue of complexity. Complexity is the degree to which participants view an innovation as difficult to understand and use. The more complex an innovation is the lower the rate of adoption will be. Some innovations are understood by participants easily while others are more complex and not understood as easily (Rogers, 2003).

Trialability and observability are the final two attributes of an innovation as identified by Rogers (2003). These attributes are closely related because they allow the participants to examine the innovation prior to adoption. Trialability is the degree to which participants can experiment with the innovation on a limited basis. Observability is the degree to which the innovation results can be viewed by others. Adoption rates are higher when participants can see and examine results of the innovation (Rogers, 2003).

Communication Channels. Communication channels are how information concerning the innovation travels to participants. There are two forms, mass media and interpersonal. Mass media channels transmit information via one-way communication to participants. Interpersonal media channels involve exchanges between one or more participants in a two-way process. As individuals within the social system adopt the innovation, the rate of

influence on participants who have not adopted the innovation increases. Rogers (2003) referred to this cumulative influence as the *diffusion effect*.

Time. Time is a significant element within the study of diffusion, which treats it as a variable. It is an element of the innovation-decision process, which is based on the characteristics of the participants who have adopted the innovation and the rate of adoption by those participants (Rogers, 2003).

Rogers (2003) recognized the innovation-decision making process as a five-step process by which participants either adopt or reject the innovation. During the innovation-decision process, participants gain awareness of the innovation, create opinions of the innovation, reject or adopt the innovation, implement the innovation if it is adopted, and continue to reaffirm the implementation of the innovation though interactive communication (Rogers, 2003). The five sequential stages within the innovation-decision process are knowledge, persuasion, decision, implementation, and confirmation.

The knowledge stage is the process by which participants learn of an innovation and begin to understand it. This stage depends on prior conditions including innovativeness, prior practice, social norms, problems, and perceived needs. The decision-making unit is influenced by personality variables, participant's socioeconomic characteristics, and communication behavior (Rogers, 2003).

The persuasion stage is the process in which participants form positive or negative attitudes towards the innovation. The rate of adoption influences this stage. The rate of adoption includes the following components: compatibility, complexity, trialability, observability, and relative advantage.

The decision stage is the process by which participants engage in activities which lead to either adoption or rejection of the innovation. This is based on the attitudes formed by the participants during the persuasion stage. Innovations that are not adopted fall into two categories: (a) active rejection or (b) passive rejection. Active rejection involves participants trying an innovation, considering adopting it, but making the decision to reject it. Passive rejection involves participants not considering adopting an innovation at all (Rogers, 2003).

If participants adopt an innovation, then the implementation stage begins. During the implementation stage, participants begin to use the innovation. Reinvention can occur during this stage and is the process by which the participants alter an innovation. The more participants reinvent an innovation the more rapidly it will become institutionalized.

The final stage is the confirmation stage. During this stage the innovation is evaluated for reinforcement. The innovation can be reversed if there are conflicting messages about the innovative-decision process (Rogers, 2003).

The Social System. The social system is defined as a group of interrelated units with a shared common objective. Diffusion of innovations occurs within the social system. There are three key components to the nature of the social system: the type of innovation-decision process, the effects of the change agent, and the effects of the system and the system's norms on the diffusion process. Each of the key components affects the diffusion of an innovation within the social system (Rogers, 2003).

The social norms within a social system are the established behavioral patterns that members see as acceptable behavior. The norms of a social system can delay the

adoption of an innovation. The system effects are the influence of a system's structure on the behaviors of the system's members (Rogers, 2003).

The change agent is an individual or entity that influences the innovation-decision process in a direction that it desires. Change agents identify or develop needs to change and then promote awareness among participants within the social system to change. Change agents can also hinder the adoption process (Rogers, 2003).

The innovation-decision process occurs within the confines of the social system. There are three distinct types of innovation decisions: authority, collective, and optional. Authority innovation decisions are made by those who have the authority to enforce adoption and compliance of the innovation. Collective innovation decisions are made by the participants as the result of a collective decision to adopt the innovation. Optional innovation decisions are made by participants on an individual basis and not made by others within the social system (Rogers, 2003).

Participants in social systems vary in characteristics and innovativeness. These differences help to explain the time it takes for an innovation to be adopted. Rogers (2003) recognized five categories of adopters: (a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards. Each of these categories of adopters are influenced by both external sources and influence (Rogers, 2003).

Innovators are willing to participate with the new idea. These participants are gatekeepers who bring innovation from outside the system to the inside. Other members within the social system may have low levels of respect for the innovators because they are seen as having a close relationship to external social systems (Rogers, 2003).

The early adopters hold more limited boundaries within the social system and often have leadership roles. The social system views these members favorably, and these members often give advice or information concerning the innovation. Early adopters help to decrease the uncertainty of others within the social system (Rogers, 2003).

The early majority are those who have positive interaction with others in the social system. These participants are not the first to adopt, but they are also not the last to adopt. These participants do not have the same leadership roles as the early adopters, but their relationships are still influential in the innovation-diffusion process (Rogers, 2003).

The late majority often wait until most of their peers have adopted the innovation. These participants are skeptical of the innovation but feel pressure to engage with it. The late majority are often influenced by a network of peers (Rogers, 2003).

Laggards are those who hold traditional views and are the most skeptical about an innovation. These participants often cluster together, inhabit the same social category, and do not hold leadership roles. The laggards watch to see if other members of the social system successfully utilize the innovation. Laggards hold the longest innovation-decision period (Rogers, 2003).

The study utilized this model to understand the acceptance or rejection of EBP scholarship with baccalaureate pre-licensure nursing programs. The innovation being studied was EBP scholarship. The researcher noted the social system in which the innovation was taking place was undergraduate pre-licensure nursing programs accredited by the CCNE.

Star Model of Knowledge Transformation ©

The star model of knowledge transformation © was developed based on a need to overcome the obstacles associated with implementing the latest knowledge in health care (Stevens, 2012b). Two obstacles were identified: the volume and complexity of the knowledge and literature and the many forms of knowledge (Stevens, 2012b). According to Stevens (2012b), the model serves to help with understanding the characteristics of knowledge that are specific to EBP. The model itself simply explains the complex relationships between distinct types of knowledge as it moves from discovery into practice (Stevens, 2012b). The model moves various forms of knowledge through a sequence, depicted as a five-pointed star. The points on the star are as follows: (a) discovery research, (b) evidence summary, (c) translation to guidelines, (d) practice integration, and (e) process and outcome evaluation (Stevens, 2012b).

Theoretical Assumptions of the Star Model

Knowledge transformation is the process of moving primary findings of research through various stages and forms which make an impact on EBP and healthcare outcomes (Stevens, 2012b). According to Stevens (2012b), it makes eight primary assumptions. First, primary research results must be transformed into knowledge before they can be used in clinical decision making. Second, knowledge comes from many sources and includes experience, research evidence, trial and error, theoretical principles, and authority. Third, knowledge discovered through a systematic process that controls for bias is the most generalizable and most stable. Fourth, evidence is classified by a hierarchy of strength. The strength of the evidence depends upon the rigor and scientific design of the environment in which the evidence was produced. Rigor is valued because

higher rigor indicates a cause-and-effect relationship. Fifth, various forms of knowledge move through the systematic steps to create another form of knowledge. Sixth, the ultimate utilization of EBP is within health care. Seventh, the form in which knowledge exists determines its ability to be applied within the clinical setting for decision making: EBP guidelines are to be used in clinical decision making rather than results from a primary study. Eighth, knowledge follows a transformation process. This process begins with a single statement that states the current science. The current state of science is then translated into a clinical recommendation, which also includes the application of client preferences, clinical expertise and theoretical principles. Recommendations are to be integrated through organizational effort and individual effort. Evaluation of the targeted outcomes is necessary (Stevens, 2012b).

Star Model Stages

The star model has five stages. These are discovery research, evidence summary, translation to guidelines, practice integration, and process and outcomes evaluation (Stevens, 2012b). Each of the stages is defined below.

Point 1: Discovery of research. This point is the stage in which knowledge is generated. Traditional research methods and scientific inquiry are utilized during this stage to generate new knowledge. Results are typically from a single study, frequently referred to as a primary study. These studies often have distinctive designs such as descriptive, causal, correlational, randomized control trial, or qualitative. This stage builds on research related to clinical actions (Stevens, 2012b).

Point 2: Evidence summary. This is a very large and crucial step which synthesizes all known information on a topic into a single statement (Stevens, 2012b).

The statement embodies the current state of science on a given subject. It is also a process of knowledge generation that occurs as the knowledge is summarized (Stevens, 2012b). The process of evaluating all knowledge on a given topic into an evidence summary allows for careful examination of bias and limits the potential for chance effects within the conclusions. There are many terms for evidence summary including evidence synthesis, systematic review, literature review, state of the science review, and meta-analysis (Stevens, 2012b). This process of evidence summary separates EBP from previous research utilization (Stevens, 2012b).

Point 3: Translation to guidelines. Translation to guidelines involves moving evidence summaries in two specific stages (Stevens, 2012b), the translation of evidence into practice recommendations and the integration of the guidelines into practice. These guidelines are created for both the clinician and client (Stevens, 2012b). The guidelines provide relevant, useful, and summarized information that considers cost, time, and current care standards. These summaries are typically called clinical practice guidelines. The goal is for clinical practice guidelines to be embedded into clinical pathways, protocols, care standards, and algorithms (Stevens, 2012b).

Point 4: Practice integration. Practice integration focuses on implementing the most up-to-date knowledge and the most recent innovations (Stevens, 2012b). This process involves change in individual and organizational practices, which happens through formal and informal channels. The rate of adoption is a major component of this stage (Stevens, 2012b).

Point 5: Process and outcomes evaluation. This is the last stage in the knowledge transformation process (Stevens, 2012b). Evaluation is made of the impact of

EBP on patient satisfaction, efficiency, efficacy, and outcomes as well as health status impact. An economic analysis is also performed. (Stevens, 2012b).

The study utilized this model and focused on star point four practice integration. This was utilized to discover how EBP scholarship is integrated within baccalaureate pre-licensure nursing programs. Additionally, each of the *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) fits onto one of the five star points. The model and the competencies complement each other.

Definition of Terms

It is necessary to define the terminology used within this study. Defining the terms adds clarity and increases understanding of the phenomenon of interest. The definition of terms for the study includes the constructs, theoretical definitions, and operational definitions.

The Constructs

Baccalaureate pre-licensure nursing programs and *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008) were used as the constructs for the study. Baccalaureate pre-licensure nursing programs have been shaped and guided by the CCNE, which is the AACN's accrediting body (AACN, 2008). The AACN's (2008) *The Essentials of Baccalaureate Education for Professional Nursing Practice* was the guiding document for the baccalaureate pre-licensure nursing programs within this study. *Essential Competencies for Evidence-Based Practice in Nursing* was developed by Stevens (2009) to guide the utilization EBP content and skills within nursing education programs and create a baseline for competencies in professional practice.

Theoretical definitions

There are two theoretical definitions within this study. First is baccalaureate pre-licensure nursing programs. The second theoretical definition includes the *Essential Competencies for EBP in Nursing* (Stevens, 2009).

Baccalaureate Pre-licensure Nursing Programs. According to Rogers (2003), diffusion of innovations takes place within a social system. The study utilized baccalaureate pre-licensure nursing programs accredited by the CCNE as the social systems in which innovation occurred. The structure of the social system influences the innovation (Rogers, 2003). AACN's (2008) *The Essentials of Baccalaureate Education for Professional Nursing Practice* was considered the structure for the social system within the proposed study.

Essential Competencies for Evidence-Based Practice in Nursing. Stevens's (2009) *Essential Competencies for Evidence-Based Practice in Nursing* is a guide to the inclusion of EBP content and skills in nursing education programs that then provide a basis for competencies in professional clinical practice. Stevens's (2009) competencies were utilized within this study to measure EBP scholarship. EBP scholarship represents the innovation in the star model of knowledge transformation © with reference to Point 4, practice integration. Additionally, the competencies complement the star model as Stevens developed both.

Operational definitions

There are two operational definitions essential to this study. First, is the *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009). The second operational definition is baccalaureate pre-licensure nursing programs.

Essential Competencies for Evidence-Based Practice in Nursing. *Essential competencies for EBP in nursing* were operationally defined as the twenty essential competencies at the baccalaureate level (Stevens, 2009). These formed the basis of a survey to measure the participating programs' views on where EBP scholarship is addressed within the baccalaureate pre-licensure programs that are accredited by the CCNE. The programs assessed how many semesters the nursing courses are taught from a choice of 1-6. The program was asked to identify in which semester each competency is introduced, again from a choice of 1-6.

Baccalaureate Pre-licensure Nursing Program. The surveyed programs self-identified as either traditional or accelerated baccalaureate pre-licensure nursing programs. A traditional program typically takes between four to five years to complete. Accelerated programs are typically for second degree seeking students and typically take between 11-18 months to complete (CCNE, 2017). The programs within the study were all accredited by the CCNE and followed the CCNE accreditation standards.

Chapter Summary

EBP has been identified by government agencies, accrediting bodies, and professional organizations as an essential element within nursing and nursing education. There is a gap in the nursing literature regarding EBP scholarship and its incorporation within baccalaureate pre-licensure nursing programs.

This study examined how EBP scholarship has been addressed within pre-licensure baccalaureate programs. Using a postpositivist lens, Rogers's (2003) diffusion of innovations model and the star model of knowledge transformation © (Stevens, 2012b) were used as the study's theoretical foundations. The null hypothesis stated that

EBP scholarship is not addressed within baccalaureate pre-licensure programs. The *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure if and when EBP scholarship is addressed within these programs. The study's findings have the potential to enhance faculty recognition of the necessary education on EBP to support and improve graduating nurses' EBP skills, attitudes, and competencies.

The next chapter will present a review of literature that motivated this study. Diffusion of innovations and the star model of knowledge transformation © will be explored to identify their usefulness in studying EBP scholarship in baccalaureate pre-licensure programs. The review of literature will also demonstrate the value of EBP in these programs.

Chapter Two

Literature Review

The recommendation for healthcare professionals to use EBP was issued nearly 16 years ago (IOM, 2001, 2003). Professional nursing organizations and accrediting bodies have stated that EBP be included within baccalaureate pre-licensure nursing programs (AACN, 2008; CCNE, 2017; National League for Nursing, 2016). Yet EBP has met barriers preventing its utilization (Melnyk, Fineout-Overholt, et al., 2012; Rojjanasrirat & Rice, 2017).

The problem has been that despite the expectation to integrate EBP competencies into nursing education, new graduate nurses have lacked the ability to incorporate EBP into their professional practice (Jackson, 2016, Spector et al., 2015; Sullivan et al., 2009). Further research on the integration of EBP scholarship in baccalaureate nursing curricula is needed.

The purpose of this study was to describe the present state of EBP scholarship in the curricula of baccalaureate pre-licensure nursing programs. *The Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship. The study's findings have the potential to enhance faculty recognition of the necessary education on EBP which supports graduating nurses' EBP skills, attitudes, and competencies. The literature review involved several search engines, including PubMed, ERIC, the Cumulative Index to Nursing and Allied Health Literature, and Medline. The major search terms used were Rogers diffusion of

innovations, the star model of knowledge transformation ©, knowledge transformation, essential competencies for EBP in nursing, EBP curriculum, baccalaureate nursing education, evidence-based practice, and competencies. No limitation was set on the dates of the articles to ensure that a comprehensive list was captured which included original works.

Articles were limited to be peer-reviewed and in the English language. Articles were grouped by concepts and depth of descriptions. The review that follows provides extensive knowledge on EBP nursing education including a brief overview of the historical background of EBP and four definitions of EBP. However, it is limited to the *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) and baccalaureate pre-licensure nursing programs.

Rogers Diffusion of Innovations

As introduced in Chapter 1, Rogers (2003) proposed a diffusion of innovations model in which new knowledge or technology is either accepted or rejected by a group or organization over time. The diffusion of an innovation is the process that an innovation undergoes as it moves through the communication channels between members within a social system (Rogers, 2003). The framework includes four different assumptions.

First, an innovation incudes four elements: an innovation, communication channels, time, and a social system. Second, the innovation-decision process is made up of five stages: the knowledge stage, the persuasion stage, the decision stage, the implementation stage, and the confirmation stage. Third, the rate of adoption and rate of relative advantage of an innovation are connected and related. Fourth, there are four attributes of innovations: compatibility, complexity, trialability, and observability

(Rogers, 2003). This model has been widely utilized within the field of nursing education because it examines how innovations are adopted or rejected (Sahin, 2006).

Diffusion of Innovations in Nursing Education

Diffusion of innovations has been a widely utilized framework to understand how innovative processes within nursing education are adapted. The literature included studies that have taken the lens of Rogers's model and applied it to specific areas within nursing education. The following paragraphs will address these studies. The studies focused on three specific areas: technology and teaching practices, EBP, and curriculum.

Technology and Teaching Practices. Several articles focused on the adoption of new technology or practices into nursing curricula, such as integration of mobile devices into nursing curricula, student perceptions of electronic health records, pediatric psychiatric simulation, and nurse academics' adoption of simulation into teaching practices (Doyle, Garrett, & Currie 2014; Gallos, Daskalakis, Katharaki, Liaskos, & Mantas, 2011; McGarry, Cashin, Fowler, 2011; Miller & Bull, 2013). Doyle et al. (2014) and Doyle and Budz (2016) both focused specifically on the model as a framework for the integration of mobile devices into baccalaureate nursing education to help prepare students for technology and clinical practice.

Evidence-based practice. Research has focused on using Rogers's (2003) model and EBP nursing education. One study examined the potential to predict the adoption of EBP based on Rogers's model (Pashaeypoor, Ashktorab, Rassouli, & Alavi-Majd, 2016, 2017). Pashaeypoor et al. (2016) utilized Rogers's model to analyze nursing student experiences of EBP education. The researchers concluded that utilizing Rogers' model as a strategy for EBP education leads to improvements in EBP learning. Schmidt and Brown

(2007) used Rogers's model to create a teaching strategy to promote and teach EBP within a senior-level introductory research course using an innovation-decision process.

Curriculum. Literature has focused on utilizing Rogers's (2003) model to integrate new concepts into nursing curricula. This has included nursing concepts for genetics and genomics (Horner, Abel, Taylor, & Sands, 2004; Jenkins & Calzone, 2007). Literature has also focused on new teaching strategies for curricula and the revision of curricula based on AACN (2008; see Kumm & Fletcher, 2012; Phillips & Vinten, 2010).

Diffusion of Innovations in Nursing Practice

The literature demonstrated that Rogers's (2003) model was being utilized within nursing practice. Research was focused in two areas. The adoption of new technology or practices and EBP adoption.

Evidence-Based Practice. Research has demonstrated that Rogers's (2003) model is widely utilized within nursing research associated with EBP in the clinical setting. Taylor-Piliae (1998) argued that the application of Rogers's model can help to explain and create an understanding as to why research findings are slow to transition into clinical nursing practice. Gale and Schaffer (2009) utilized the model to explain how organizational strategies can be useful to help guide changes in practice. Dufault et al. (2010) utilized the model to explain the translation of a nurse-to-nurse shift-handoff protocol based on an EBP protocol. Hanrahan et al. (2015) examined old practices or habits that are considered routine even though EBP suggests the contrary. The authors utilized the model to explain and analyze these practices.

Technology and New Practices. Rogers's (2003) model has been utilized to demonstrate the effective implementation of new practices in a clinical setting. Fabry (2015) utilized

the model to effectively implement hourly rounding. Bourgault et al. (2014) examined the adoption of new feeding tube practices by critical care nurses. The researchers utilized Rogers's model to guide and focus primarily on the concepts that influence how healthcare practices are adopted. Lee (2004) utilized the model to examine and analyze how nurses perceive computerized care plan systems. Lee utilized Rogers's model to describe how nurses perceive new technology in daily practice. The author concluded that use of the model was appropriate. Yet the author also reported that because the study was conducted in only three respiratory intensive care units in Taiwan, the findings may not be generalizable to other nursing care environments (Lee, 2004).

Star Model of Knowledge Transformation

As introduced in Chapter 1, the star model of knowledge transformation © was created by Stevens (2012b) as a simple model for moving multiple forms of complex knowledge into practice systematically. The model includes eight main assumptions.

According to Stevens (2012b), the first assumption is that primary research results must be transformed into knowledge before they can be used in clinical decision making. Second, knowledge comes from many sources including experience, research evidence, trial and error, theoretical principles, and authority. Third, knowledge discovered through a systematic process that controls for bias is the most generalizable and most stable. Fourth, evidence is classified by a hierarchy of strength. The strength of the evidence depends upon the rigor and scientific design of the environment in which the evidence was produced. Rigor is valued as higher rigor indicates a cause-and-effect relationship. Fifth, the various forms of knowledge move through the systematic steps to create another form of knowledge. Sixth, the ultimate utilization of EBP is within health care.

Seventh, the form in which knowledge exists determines its ability to be applied within the clinical setting for decision making: EBP guidelines are to be used in clinical decision making rather than results from a primary study. Eighth, knowledge follows a transformation process. This process begins with a single statement that states the current science. The current state of science is then translated into a clinical recommendation, applying client preferences, clinical expertise, and theoretical principles. Recommendations are to be integrated through organizational effort and individual effort, and evaluation of the targeted outcomes is needed (Stevens, 2012b). The star model has been utilized primarily in clinical settings and nursing education.

Nursing Education

Heye and Stevens (2009) utilized the star model to teach EBP during a research course at one baccalaureate nursing school. The development of the nursing course integrated the star model which was used as the framework for how knowledge moves from various forms into clinical practice. Each of the five points was discussed. Heye and Stevens utilized the model because it clearly explained how knowledge moved from primary research to evidence and showed how important EBP is in making clinical decisions. The model was also a tool utilized by students to categorize and recognize forms of evidence within the literature (Heye & Stevens, 2009).

Farra, Miller, and Hodgson (2015) used the star model as a framework in their study which examined virtual reality disaster training and translation of that training into practice. The model provided a guide for moving evidence into practice (Farra et al., 2015). Contrastingly, Bonis, Taft, and Wendler (2007) used the star model in their study which examined strategies to improve and promote success on the National Council

Licensure Examination (NCLEX-RN) through an EBP approach. Orta et al. (2016) examined knowledge and competencies of nursing faculty regarding EBP. The star model of knowledge transformation © was utilized with the ACE-ERI, a self-rating scale of knowledge in EBP.

Clinical Practice

The star model has been used in various research studies that apply to clinical practice. Kring (2008) used the model as the framework for a study that evaluated the clinical nurse specialist practice domains and EBP competencies. The model was used as a framework to conceptualize how primary knowledge or research findings must transform within the EBP environment. Abbott, Dremsa, Stewart, Mark, and Swift (2006) used the star model in a study that evaluated the adoption of ventilator-associated-pneumonia clinical practice guidelines. Abbott et al. used the model as the basis by which new clinical practice guidelines were implemented in practice.

Mahon, Yarcheski, Yarcheski, and Hanks (2007) used the star model as a guide to understand how the findings from the study could be applied to nursing practice. The star model was also used within an integrative review that described the state of readiness for EBP among Finnish nurses and the effectiveness of educational interventions to strengthen EBP readiness (Saunders, Stevens, & Vehviläinen-Julkune, 2016; Saunders & Vehvilaine-Julkunen, 2016; Saunders, Vehviläinen-Julkunen, & Stevens, 2016). These three studies are discussed in greater depth below.

The Historical Background of Evidence-Based Practice

EBP was first established within the discipline of medicine through the work of Cochrane, who is frequently referred to as the father of EBP. Cochrane was an

epidemiologist and medical researcher. In 1972, he published a book that suggested there was a lack of solid evidence within health care (Cochrane, 1972; Nieswiadomy, 2011). His book advocated for the utilization of randomized controlled trials with the goal of making medicine more efficient and effective (Cochrane, 1972). His work is most commonly known through the Cochrane Library. Today the Cochrane Library holds a collection of six high quality databases. These databases are independent and used to help make informed healthcare decisions (Cochrane Library, 2018).

EBP has gained momentum within the profession of nursing. The Western Interstate Commission for Higher Education was the first EBP project that was nurse based. The project utilized research within the clinical setting (Krueger, 1978). In 1978 research for the profession of nursing was in its infancy, but nurses were interested in conducting research that was relevant to clinicians. The Western Interstate Commission for Higher Education project was a 6-year endeavor. The results were less favorable than anticipated. It was difficult to find interventions that were useful in practice (Dearholt & Dang, 2012). However, this study introduced a new focus on EBP for the profession of nursing.

In 1985 the Conduct and Utilization of Research in Nursing (CURN) project tested a model that used research-based knowledge within the clinical setting (Horsley et al., 1983). This project was commonly referred to as the CURN project. This project noted that for research to be used, the changes that occur must be organizational, planned, and integrated into a system (Horsley et al., 1983).

Following the CURN project, Stetler (1985) developed a new model. The Stetler model (1985) focused on allowing the practitioner to make changes in practice that were

research based. There are six phases within the model which include preparation, validation, comparative evaluation, decision making, translation and application, and evaluation. This model places great emphasis on decision making and critical thinking (Stetler, 1985).

In 1986, the U.S. Department of Health and Human Services announced the establishment of the National Center for Nursing Research, which later became the National Institute of Nursing Research. This agency was tasked with building scientific evidence for clinical practice (National Institute of Nursing Research, 2017). At around this time the Agency for Healthcare Research and Quality also began to develop guidelines and policies rooted in EBP (Brown, 2011). Sackett et al. (1996) developed a widely used definition of EBP which is discussed below.

Rosswurm and Larrabee (1999) had as a goal the creation of a model that would allow nurses or other healthcare professionals to follow a systematic process for EBP changes. The model was based on six steps. First, assess the need for a practice change. Second, link the problem to interventions and outcomes. Third, synthesize the best available evidence. Fourth, design the practice change. Fifth, implement and evaluate the change in practice. Sixth, integrate and maintain the change made to practice. When the authors published this model, they noted the momentum of support for EBP and its utilization to enhance clinical judgment and create improvements for patient care (Rosswurm & Larrabee, 1999).

The Iowa Model Collaborative (2017) revised the Iowa model of EBP, which they originally developed in 2001. The revisions were based on the changes in the current state of health care. The Iowa model has been widely used within nursing practice. It

serves as a framework for the implementation of EBP. The model provides a step-by-step approach for identification of a problem, creation of a research question, creation of a research team, gathering of relevant literature, design and piloting of a practice change, evaluation of the practice change, integration of the change, and dissemination of the results. The model and its revisions allow clinicians at the bedside to develop questions and follow a systematic approach for the development and implementation of EBP (Iowa Model Collaborative, 2017).

As the EBP continued to gain ground, the IOM (2001, 2003) issued recommendations that EBP become an expected competency for all healthcare professionals. The star model of knowledge transformation © followed (Stevens, 2013). The star model provided an approach to translating evidence into practice and was designed to be comprehensive but also simple to understand (Stevens, 2013).

The star model is depicted as a five-pointed star which helps to explain how knowledge moves and translates into practice. The first point is discovery of research. This stage describes how new knowledge is discovered through scientific inquiry and traditional research methods.

The second point is evidence summary. During this stage, all the available evidence on a topic is compiled to create a single statement. The third point is translation to guidelines. These are often referred to as evidence-based clinical practice guidelines. They combine expert recommendations and evidence-based findings. The fourth point is practice integration. During this phase current practice is made to align with the best evidence. The fifth point is process and outcome evaluation. This is the final stage and requires evaluation of how the practice change has affected patient outcomes,

satisfaction, efficacy, and efficiency, as well as an economic analysis (Stevens, 2012a; 2013). The star model considers the complexity of knowledge and creates a clear process for the integration of EBP knowledge into practice (Stevens, 2012a).

Fineout-Overholt, Levin, and Melnyk (2004) developed the Advancing Research and Clinical Practice Through Close Collaboration (ARCC) model. A central aspect of this model is its use of an EBP mentor and multiple strategies to advance EBP in healthcare organizations. The EBP mentor can be an advanced practice nurse with in-depth understanding of EBP knowledge and skills who facilitates EBP improvements.

Fineout-Overholt, Melnyk, and Schultz (2005) stated six goals for the ARCC model. First, promotion of EBP at the local and national level through advanced practice and staff nurses. Second, establishment of EBP mentors who can help facilitate EBP within healthcare organizations. Third, use of well-designed studies to facilitate and advance EBP in the clinical environment. Fourth, holding of an annual national EBP conference. Fifth, completion of studies that evaluate the ARCC model. Sixth, completion of studies that evaluate strategies used for EBP implementation (Fineout-Overholt et al., 2004). Several healthcare agencies have implemented the ARCC model (Fineout-Overholt et al., 2005).

Kitson et al. (2008) introduced the Promoting Action on Research Implementation in Health Services framework. This framework was designed to help researchers as they framed knowledge translation and or research into practice (Kitson et al., 2008). The framework concerns interactions between three elements considered key to knowledge translation. These elements are evidence, context, and facilitation. For successful implementation the quality of the evidence is just as important as the setting or context

and how the evidence is introduced. The authors believed that the framework would be a useful tool although they admitted that it was untested (Kitson et al., 2008).

A nursing EBP model and guidelines were developed in 2008 by Johns Hopkins in partnership with Sigma Theta Tau International (Dearholt & Dang, 2012). The model was updated in 2017. The model originally focused on the three foundations of professional nursing practice: education, research, and practice. The main change in the revised model was the conceptual model itself. The revised model and guidelines included a 19-step process which is broken into three distinct phases. The three phases are practice question, evidence, and translation, or PET (Johns Hopkins Medicine, 2017).

Definitions of EBP in the Literature

One of the most widely utilized definitions of EBP within the literature is by Sackett, Rosenberg, Gray, Haynes, and Richardson (1996) who define EBP as the "conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external evidence from systematic research" (p. 71).

Stetler et al. (1998) defined EBP nursing as practice that "de-emphasizes ritual, isolated and unsystematic clinical experiences, undergrounded opinions and traditions as a basis for nursing practices" (para. 18). Stevens (2001) described EBP as a complete, systematic process in which newly developed knowledge moves through evidence-based processes that are carefully planned to summarize, translate, implement, and evaluate clinical practices. Mantzoukas (2007) described EBP as a decision-making framework which works in a very precise and objective manner. Additional, definitions of EBP have

focused on the process as a systematic framework to solve problems to provide the best, most consistent care to patients by incorporating patient preferences and clinician expertise (Gerrish & Clayton, 2004; Goode & Piedalue, 1999; Levin & Feldman, 2006; Malloch & Porter-O'Grady, 2009; Melnyk & Fineout-Overholt, 2015; Pravikoff, Tanner & Pierce, 2005).

EBP and Baccalaureate Pre-licensure Nursing Education

Baccalaureate pre-licensure nursing education has had multiple goals. One of them has been to leave students with established EBP competencies (AACN, 2008; Schmidt & Brown, 2007). Stevens (2009) developed EBP competencies for all levels of nursing education. Stevens (2009) identified 20 competencies at the baccalaureate level. As first mentioned in Chapter 1, the QSEN project was developed to help prepare future nurses with the knowledge, skills, and attitudes to continually improve safety and quality within their healthcare systems (QSEN, 2017). QSEN (2017) reported on six core competencies developed through the QSEN project; one of these is EBP.

Despite these initiatives, nurses, both as a profession and as educators, have been slow to accept the EBP paradigm shift, and several factors have contributed to this. Reasons include lack of EBP knowledge and skills, lack of administrative mentorship and support, inadequate critical appraisal and search skills, and lack of organizational support (Levin & Feldman, 2006; Melnyk, Gallager-Ford, et al., 2017; Pravikoff et al., 2005). Many programs have focused on the traditional approach to teaching rather than on utilizing research. This educational method does not provide context for research methods or clinical relevance (Burns & Foley, 2005; Fineout-Overholt & Johnston, 2006). Martin (2007) suggested that if EBP among registered nurses in the United States

was going to improve, it had to start with basic nursing education programs. Programs must teach EBP so that students can learn it and value it.

Singleton and Levin (2008) argued that faculty who want to educate students on EBP must give up the "talking head approach, roll up their sleeves, give students a strategy they know works" (p. 383). Singleton and Levin further suggested that faculty must have experience with EBP and knowledge. While many faculty have held positive views of EBP many have had only moderate levels of knowledge related to EBP (Mehrdad, Joolaee, Joulaee, & Bahrani 2012).

Summary

After careful examination, the literature review has identified themes associated with EBP and baccalaureate pre-licensure nursing education. Five themes were identified by the researcher. These themes include: EBP competencies, EBP curriculum, EBP and nursing faculty, teaching strategies for EBP, and students and EBP.

Evidence-Based Practice Competencies

Newhouse**,** Dearholt, Poe, Pugh, and White (2007) noted the importance of EBP competencies for healthcare providers. The authors described how the Johns Hopkins nursing EBP model was incorporated into the undergraduate and graduate curriculum at Johns Hopkins School of Nursing (Newhouse et al., 2007). The model was piloted with the undergraduate and graduate programs which required curricular revisions and faculty training. Based on the feedback from the implementation period (2004-2006), the model was revised. The model provided for clinical decision making based on the best scientific evidence and the best practical evidence (Newhouse et al., 2007). As previously

discussed within this chapter, the model has recently been revised (Johns Hopkins Medicine, 2017).

Stevens developed the star model in 2004. The model is a guide to knowledge transformation for EBP (Stevens, 2013). Stevens (2012a) used the star model as a framework to identify the competencies needed to utilize EBP skills within the clinical environment. Stevens developed a framework of essential competencies for EBP in nursing in 2004 and revised them in 2008 (Stevens, 2009). The competencies were developed to guide nursing curricula at the associate, baccalaureate, master's, and doctoral level (Stevens, 2009). The competencies were deliberately very detailed to help guide curriculum revision during a time when wide variations and understanding of EBP existed (Stevens, 2009).

Saunders, Stevens, and Vehviläinen-Julkunen (2016) used the Stevens EBP Readiness Inventory to assess for nurses' readiness for EBP at Finnish university hospitals. The inventory was based on Stevens (2009) and utilized the star model of knowledge transformation ©. The EBP knowledge test included 15 multiple choice questions which evaluated specifics of using EBP. The questionnaire measured questions that were answered correctly, and the score could range from 0-15. The results indicated that the nurses' mean knowledge of EBP was 7.5 with a standard deviation of 2.0. There was a direct association between mean self-efficacy scores and the level of correct responses to EBP knowledge with a Pearson correlation coefficient of .221. Those with a higher self-efficacy score were also more likely to respond correctly on the EBP knowledge (Saunders, Stevens, et al., 2016).

The nurses' responses indicated that 47% had no experience with EBP. The responses also indicated that 39% of the nurses rated themselves at the beginning level, and 12% rated themselves at the intermediate level. Only 2% reported themselves to be at the advanced level for EBP (Saunders, Stevens, et al., 2016). One of the findings indicated that it is important for nurse educators to support and advance student self-efficacy in EBP and to teach students how to deploy EBP into daily practice (Saunders, Stevens, et al., 2016).

Few studies were available that examined nursing students and EBP competencies. Ashktorab, Pashaeypoor, Rassouli, and Alavi-Majd (2015) evaluated students' self-reported knowledge, attitudes, and intention to implement EBP. The study took place in Tehran, Iran, and was a cross-sectional study of 170 undergraduate nursing and midwifery students. The authors used the Rubin and Parrish questionnaire to evaluate the students' knowledge, attitudes, and intentions to implement EBP. The findings indicated that nursing students have high mean scores on knowledge, attitudes, and intentions to implement EBP. The results indicated that the nursing curriculum was not meeting its goal of educating students with the EBP skills necessary to function in practice (Ashktorab et al., 2015).

Dawley, Bloch, Suplee, McKeever, and Scherzer (2010) examined the pedagogical approaches to teaching EBP and foster EBP competencies to undergraduate baccalaureate nursing students. This qualitative study involved a review of 198 students' narrative data from an evidence-based clinical journal assignment. The clinical journal required students to generate a relevant clinical question and follow up with a literature search to answer the question. The data revealed that students did not have an adequate

understanding of how to search databases and generate research questions (Dawley et al., 2010).

Boyd, Baliko, Herman, and Polyakova-Norwood (2012) examined the redesign of a graduate-level research course for EBP competencies. The course required critique of a written article. Students were not able to complete well-written and thorough critiques. The revisions included emphasis on translating research and incorporating EBP leadership. Once the revision of the course was completed, students reported favorable comments on the revised course.

Boyd et al. (2012) reported that they had assumed students entering the course would already have the knowledge and skills necessary to read and understand research reports. The researchers determined that students needed additional assistance in this area and built a course to reflect the gaps in EBP knowledge and competency (Boyd et al., 2012). Though this study did not focus on the undergraduate nursing student, it brought to light the fact that even graduate students are not fully prepared to examine and critique research articles, which brought into question the preparation students had at the undergraduate level.

Evidence-Based Practice and the Nursing Curriculum

EBP in the nursing curriculum was widely researched within the literature. Ciliska (2006) reported that often undergraduate programs have an EBP course that is stand-alone and there is no connection between EBP expectations, skills, and knowledge and clinical practice.

Many authors focused on the development of curricular models to promote EBP within the curriculum. Bloom, Olinzock, Radjenovic, and Trice (2013) presented a

curricular redesign that promoted a higher emphasis on EBP within the curriculum. The redesign involved the development of three research courses taught in back-to-back semesters to lay the foundation for clinical practice and graduate studies related to EBP. The courses were based on the seven steps of the EBP process and were congruent with consensus statements of the AACN (2008) and Stevens (2009) regarding EBP in baccalaureate nursing education.

Moch and Cronje (2010) conducted action research and developed a model that fosters a connection between nursing students and practicing staff nurses to promote EBP. The model was a positive academic-practice partnership that allowed for systemic opportunities throughout the students' curriculum.

While these two studies focused on models within the curriculum, Finotto, Carpanoni, Turroni, Camellini, and Mecugni (2013) focused on newly graduated nurses' perceptions of EBP skills learned in a 3-year EBP lab. The authors used a descriptive correlational design and collected data via convenience sample from 300 newly graduated nurses in Reggio Emilia, Italy. The data were collected via survey with a 10-point Likert scale.

Finotto et al. (2013) found that skills learned in the EBP lab were meaningful and useful for students. Contrary to other studies, their results indicated that educators had a clear idea of the difference between research and EBP and were able to direct the students to use evidence to support their work. Overall, students understood that EBP is an essential skill for the practicing nurse, and the EBP lab did promote the skills related to the EBP process (Finotto et al., 2013).

Evidence-Based Practice and Nursing Faculty

Nursing faculty have been tasked with educating nursing students in the competencies necessary to practice EBP. Several studies have examined nurse educators' knowledge and attitudes on EBP. Mehrdad et al. (2012) surveyed 70 nursing faculty members (82.9% female) at two major universities in in Tehran, Iran. Interestingly, 87.1% reported that they were not teaching EBP, and 51.6% indicated that they had never received formal EBP continuing education (Mehrdad et al., 2012). Mehrdad et al. (2012) reported that 47.1% of participants had knowledge of EBP and that the most significant relationship was between teaching experience and level of knowledge with education. Mehrdad et al. also reported that 88.6% of participants had a general positive attitude toward EBP.

Orta et al. (2016) conducted a study to address the gap in EBP knowledge and competencies in nursing faculty at the college level. The researchers used Stevens's (2012b) star model of knowledge transformation © and the EBP Readiness Inventory to determine the effectiveness of an educational intervention (Orta et al., 2016). This inventory consists of 20 items with a six-point scale to determine the self-confidence of the EBP competencies.

The descriptive study evaluated an online resource center and an online tutorial. The sample was one of convenience and consisted of 18 baccalaureate nursing faculty (Orta et al., 2016). The educational intervention consisted of an online tutorial and a pre-post intervention survey design. Participants took the pre-survey online prior to a 2-hour training module, and at the end of the module the post-survey was administered. Participants reported their experience and self-knowledge of EBP before the intervention.

Orta et al. reported that 44% of participants indicated they were at the beginning level, 33% at the intermediate level, 17% at the advanced level, and 6% did not respond. Orta et al. reported that the post-survey scores ($M = 4.96$) were significantly higher than pre-survey scores ($M = 4.53$, $p = .28$).

Orta et al. (2016) reported that when comparing the pre- and post-survey responses, the data indicated no significant change in EBP knowledge ($p = .572$). There was a statistical increase in faculty EBP competency ($p = .28$). The authors suggested that the results might indicate that faculty are complacent, reluctant to change, and lack motivations to engage in EBP. Overall, the results indicated that educational preparation for faculty is important to increase the faculty's readiness for EBP (Orta et al., 2016).

Stichler, Fields, Kim, and Brown (2011) conducted a cross-sectional exploratory study that evaluated faculty attitudes, knowledge, and perceived barriers when teaching EBP. The study sampled 125 faculty at one private and one public school of nursing, both of which educated at the baccalaureate and master's level (Stichler et al., 2011). Participants held both master's and doctoral degrees. Contrary to their assumptions, Stichler et al. found that participants with a doctoral degree had a less positive attitude towards EBP than those with a master's degree. The authors speculated that the findings could be attributed to doctoral faculty teaching more theoretical aspects of curriculum and master's faculty teaching more students within the clinical setting (Stichler et al., 2011).

Overall, Stichler at al. (2011) reported that master's faculty have higher mean scores related to the practice of EBP when compared to doctoral faculty. The implication

was that it is important to understand faculty attitudes, knowledge, and practice of EBP when working towards transforming the culture of teaching EBP (Stichler et al., 2011).

Many nursing faculty have incorporated EBP and its components within personal teaching philosophy statements (Felicilda-Reynaldo & Utley, 2015). Nursing faculty may not have integrated EBP into their teaching practices despite their support of the topic. Reasons for this may include highly demanding jobs, lack of knowledge, difficulty managing time, and lack of skills (Gutierrez, Candela, & Carver, 2012; Stichler et al., 2011). Additionally, many nursing faculty have focused on teaching research methods rather than EBP in the clinical environment (Levin & Feldman, 2012; Melnyk, Fineout-Overholt, Feinstein, Sadler, & Green-Hernandez, 2008).

Melnyk et al. (2008), in a descriptive study, surveyed 79 nurse practitioner educators who were members of the Association of Faculties of Pediatric Nurse Practitioner and the National Organization of Nurse Practitioner Faculties. Melnyk et al. sought to understand the participants' self-reported beliefs on the benefit of EBP, knowledge of EBP, and integration of EBP into academic curricula. The authors used a survey consisting of 51 questions (Melnyk et al., 2008).

Melnyk et al. (2008) reported that the data regarding the beliefs and knowledge about EBP indicated an overall high level of EBP knowledge. The participants indicated that their clinical practice was largely evidence based, yet the participants also largely indicated that they taught themselves EBP. Only one out of 79 participants indicated that knowledge of EBP came through formal education. Melnyk et al. (2008) also reported that two thirds of the participants indicated that their school had a mission to teach EBP and held EBP competencies within the curricula. Almost all indicated that they taught

EBP to their students. Only twelve reported that there was a separate course dedicated to EBP, separate from a nursing research course (Melnyk et al., 2008).

According to Melnyk et al. (2008), the top three strategies for teaching EBP were identified as utilizing a single study to support a clinical action, utilizing case studies and clinical logs, and utilizing EBP integrative reviews. The top three barriers for teaching EBP were identified as time and money, a traditional mindset or attitude, and the focus on generation of traditional evidence (Melnyk et al., 2008). Interestingly, Melnyk et al. (2008) reported that their data indicated that the longer a participant had been teaching the less the participant believe EBP improved patient outcomes. Overall, the research indicated that faculty need to become proficient in EBP as this affects the ability to teach and incorporate EBP into education (Melnyk et al., 2008).

Hung, Huang, Tsai, and Chang (2015) reported a lack of EBP training within nursing faculty. Only 55.6% of schools surveyed by the authors reported faculty with EBP certification from either domestic or international institutions. Additionally, only 50% of faculty had a minimum of four hours of training in EBP. This lack of training would translate into difficulty teaching the competencies specific to EBP. More support is needed to teach faculty strategies to support EBP baccalaureate education (Hung et al., 2015; Malik, McKenna, & Griffiths, 2017). The data collected by Malik et al. (2017) were qualitative, and participants reported having limited resources, time, and support to embrace EBP.

Teaching Strategies to Support EBP in Nursing Education

The literature search revealed a large body of evidence related to teaching strategies for EBP in nursing education. Many instructional strategies have been used by

nursing faculty to engage students in EBP. These have included lectures, laboratory work, inquiry-based learning, tutorials, flipped classrooms, and online management systems that support EBP (Malik et al., 2017). Davidson and Candy (2016) identified game-based learning as a positive strategy for EBP within a traditional undergraduate research course which students were highly satisfied with.

Heye and Stevens (2009) implemented an EBP project within a baccalaureate research course and based it on the essential competencies of Stevens (2009). The course evaluations indicated that the students strongly agreed with the teaching project and believed that it was effective at stimulating critical thinking. Additionally, the evaluations indicated that students believed EBP was an important measure to change and improve patient care (Heye & Stevens 2009).

Zhang, Zeng, Chen, and Li (2012) reported significant improvement among students' EBP knowledge, attitudes, beliefs, and behavior levels after an EBP self-directed learning model and an EBP workshop. Meanwhile, Kim, Brown, Fields, and Stichler (2009) found that an interactive teaching strategy focused on EBP increased students' knowledge and use of EBP but did not increase the attitudes or future utilization of EBP.

Kruszewski, Brough, and Killeen (2009) deployed a shared curricular project in an accelerated program. The project was designed to integrate EBP into a scenario focused on the real world. The Killeen and Barnfather (2005) EBP performance criteria were utilized to evaluate students' curricular projects. A score above 5.5 indicates EBP competency on the Killeen scale. Kruszewski et al. reported that the students who participated scored above the expected competency range with a mean score of 8.91 and

a standard deviation of 0.87. Overall, the program demonstrated that the utilization of collaborative teaching strategies can be helpful when teaching students the basics of EBP and how to translate that knowledge into clinical practice (Kruszewski et al., 2009).

Burns and Foley (2005) redeveloped a curriculum to introduce EBP to first year students. These students were in a nursing first year seminar course. The authors reported that, according to student evaluations and an EBP questionnaire, EBP skills were successfully introduced.

Balakas and Sparks (2010) used a service-learning approach to EBP to allow students to apply EBP on real-world concepts within a hybrid course. Course evaluations and outcomes indicated a self-reported increase in EBP understanding. Over 85% of the students who participated noted that the work with a community partner increased the meaning of the experience. Additionally, all students reported that the course outcomes were achieved and that the structure promoted individual learning (Balakas & Sparks, 2010).

Whalen and Zentz (2015) used an EBP project within a senior-level baccalaureate nursing research course to explore the evidence available to students regarding clinical problems. Students were introduced to a worksheet that described how to complete a systematic search process and research log. There were over 250 students in the study and 39 EBP projects were evaluated with an evidence-summary score. Whalen and Zentz reported that students' abilities significantly improved compared to those of previous students.

Aglen (2016) presented a systematic review of pedagogical strategies related to teaching baccalaureate students EBP. The review identified several problems related to

teaching students EBP. The main problem identified was that students have negative attitudes to research topics. Aglen identified two main interventions to help students learn EBP, interventions for information literacy, and interventions to learn about the research process. Aglen (2016) concluded that, although much effort had been placed on EBP, students were still finding it difficult to assess the relevance of EBP for nursing practice.

Dotson et al. (2015), after considering the call for EBP to be integrated into all levels of nursing education, integrated the principles of EBP into a diploma-registered nurse program, across four-semesters of nursing curriculum. Dotson et al. described the implementation of the EBP principles and the utilization of Stevens (2009). The authors presented the EBP-related course outcomes and principles at each of the semester levels and described how the EBP principles were woven into the curriculum to build EBP skills in each semester (Dotson et al., 2015).

Dotson et al. (2015) reported that during the first semester, students were expected to define EBP and EBP theory, utilize librarian literature searches, and apply the literature-search skills to group projects and assignments. The second semester students worked to apply EBP strategies within the clinical and classroom setting, completed an article critique, and completed a group project based on culturally-competent care. The third semester students were expected to utilize EBP within the context of a quality improvement proposal (Dotson et al., 2015). Fourth semester students were expected to apply EBP skills in the context of an interprofessional quality improvement project (Dotson et al., 2015).

Dotson et al. (2015) reported that the graduates of the program had participated in policy changes and revisions, published research projects, and utilized the principles of

EBP within practice. The thorough integration of EBP principles and skills within the nursing curriculum provided graduates with a firm understanding of EBP principles and skills and allowed them to demonstrate the skills within practice (Dotson et al., 2015).

Nursing Students and Evidence-Based Practice

Nursing faculty have been working to meet the standards and competencies associated with EBP. Yet many students are still ill-prepared for EBP. The Nursing Executive Center deployed the New Graduate Nurse Performance Survey in 2007 to more than 53,000 frontline nursing leaders and evaluated 36 identified competencies for newly graduated nurses (Berkow, Virkstis, Stewart, & Conway, 2008). The response rate was 11%. Understanding the principles of EBP was ranked as number 16 within the 36 competencies. The authors categorized understanding the principles of EBP as a clinical skill. Only 40% of leaders agreed or strongly agreed that Bachelor of Science in Nursing graduates were prepared in EBP. Only 29% of leaders agreed that new associate degree graduates were prepared within the area of EBP (Berkow et al., 2008).

Keib, Cailor, Kiersma, and Chen (2017) focused on evaluating students' changes in perceptions of EBP, confidence in EBP, and interest in future research after a research course. Keib et al. used a pre-test-post-test design. Participants, who were baccalaureate students, were enrolled in a combined EBP and research course. This course was a three-credit course and a requirement of the nursing program. The course introduced students to EBP concepts and required an interprofessional EBP project that was completed with pharmacy students and faculty. Students were required to present the project within a poster session. Students who were enrolled in the course were also completing clinical rotations (Keib et al., 2017). Overall, the data indicated an improvement in perceptions

and confidences related to EBP and research which should have increased the likelihood that students would apply the skills and principles in their future practice (Keib et al., 2017).

Llasus, Angosta, and Clark (2014) surveyed a convenience sample of 174 students in 24 different bachelor of science in nursing programs in Utah, Nevada, California, and Arizona. Demographic data were collected along with information about the program, students' knowledge of EBP, students' perceptions of EBP, and the students' perceptions of the knowledge held by instructors (Llasus et al., 2014). Overall, the results indicated that students scored low on their engagement in EBP implementation behaviors and EBP knowledge (Llasus et al., 2014). However, EBP readiness was a mediator between engagement and knowledge in implementation behaviors. The results indicated that nursing faculty should work to increase student's self-confidence by engaging students in EBP implementation (Llasus et al., 2014).

Brown, Kim, Stichler, and Fields (2010) used a cross-sectional survey design to study three areas: (a) problems baccalaureate nursing students have in accessing sources of evidence; (b) student's knowledge, attitudes, and potential for future use of EBP across academic class levels; and (c) variables that predict students' knowledge, attitudes, and future use of EBP (Brown et al., 2010). A convenience sample of 436 students participated from two universities in southern California, one private and one public (Brown et al., 2010).

Brown et al. (2010) reported that when asked about problems associated with accessing evidence, 84.4% of students indicated that the primary source utilized to find evidence was textbooks. The Internet, in particular Google or Google Scholar, was

reported by 77% of participants, and another individual (faculty, nurses, or doctors) was reported by 50.6% of participants. Interestingly, research papers were reported by only 13.6% of participants. Over half of the participants reported that they found too much information when accessing evidence on the Internet, and 47.8% reported they were not able to identify what good information was (Brown et al., 2010). Overall, Brown et al. (2010) concluded that confidence and preparedness from clinical training could be a better determiner of EBP knowledge and future use of EBP than the time students spend in nursing school (Brown et al., 2010).

Similarly, Blackman and Giles (2017) evaluated the ability of graduating students to understand and utilize EBP in relation to clinical practice. Their study had a nonexperimental comparative survey design with a convenience sample of 375 third-year undergraduate nursing students within their final semester. The results indicated that, of the variables studied, a student's ability to apply and understand EBP was related to understanding analysis and synthesis of nursing research (strongest association), ability to communicate research, and whether the student had seen EBP utilized in a clinical setting (weakest association). The authors encouraged an integrative approach for learning EBP as opposed to a single course (Blackman & Giles, 2017).

Bostwick and Linden (2016) focused on the importance of applying EBP during direct-care clinical assignments. The study examined the use of Bostwick's EBP Core Clinical Evaluation Criteria to evaluate students' EBP competence. Bostwick and Linden used a three-round Delphi method to examine the criteria and ensure that they would accurately assess student progress to competency. The criteria were found to be sound,

and the authors suggested that they should be used to assess students' understanding of core EBP competence (Bostwick & Linden, 2016).

Chapter Summary

EBP and baccalaureate pre-licensure nursing students were found to be widely researched topics. Much of the research was focused on the EBP curriculum, competencies for EBP, nursing faculty and EBP, teaching strategies for EBP, and nursing students and EBP. Research has identified that EBP has become embedded within nursing curricula and that nursing faculty have focused on teaching EBP by utilizing a wide variety of teaching strategies (Bloom et al., 2013; Ciliska, 2006; Finotto et al., 2013). Yet the research also showed that nursing students have not developed the confidence and competencies needed for EBP (Ashktorab et al., 2015; Boyd et al., 2012; Dawley et al., 2010). The research made strong cases for EBP educational interventions, EBP curriculum changes, teaching strategies for EBP, and student interventions to increase EBP knowledge and skills (Aglen, 2016; Dotson et al., 2015; Heye & Stevens, 2009; Kim et al., 2009). A clear gap was identified in the research regarding essential competencies for EBP in nursing. No studies have focused on assessing how these competencies are addressed within baccalaureate pre-licensure nursing programs.

Chapter 3

Methods

There is an identified gap in the nursing literature regarding how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The purpose of this study was to describe the current state of EBP scholarship in the curriculum of baccalaureate pre-licensure nursing programs. *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship. The findings of this study may assist nursing faculty with identifying gaps in EBP scholarship and aid in altering nursing curricula to fill the identified gaps.

Research Design

The study was a non-experimental, descriptive design that utilized a convenience sample of leaders in pre-licensure baccalaureate nursing programs. The study sought to gain information that could provide insight on how EBP scholarship is addressed within pre-licensure baccalaureate nursing programs. The study utilized the *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) to measure the state of initial implementation of EBP scholarship.

Concerns about the design include non-random sampling and the independent variable had no manipulation. Therefore, no causal relationships could be drawn (Christensen, Johnson, & Turner, 2011). The design examined if there were any differences in implementation in the *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) in baccalaureate pre-licensure nursing programs. The

study was not restrictive and included both traditional and accelerated programs. This information has provided a description of the current state of EBP scholarship within baccalaureate pre-licensure nursing programs. An attempt to draw a conclusion between the programs has been done post hoc.

Research Assumptions

The proposed study assumed the following statements to be true.

1. The *Essential Competencies for Evidence-Based Practice in Nursing* could be used as a valid and reliable tool to assess the extent to which EBP scholarship is included within baccalaureate pre-licensure nursing education.
2. Baccalaureate nursing program leaders reported honestly. The study did not ask for school identification or any demographic questions that could identify the programs of nursing.
3. The study surveyed leaders in baccalaureate pre-licensure nursing programs that were accredited by the CCNE. CCNE accreditation requires baccalaureate pre-licensure programs of nursing to follow the AACN (2008) *The Essentials of Baccalaureate Education for Professional Nursing Practice*. Therefore, all programs should have Essential III Scholarship of Evidence-Based Practice for integration of EBP scholarship incorporated into program curricula.

Setting

The study took place as an online survey within the United States and Puerto Rico. The study investigator sent the online survey to the chief nurse administrator for the baccalaureate pre-licensure nursing programs accredited by the CCNE in the USA and

Puerto Rico. The chief nurse administrator contact information was obtained from the CCNE public access website.

Sampling Plan

A non-probability sampling technique was used for this study. The non-probability sampling technique used was convenience sampling. This type of sampling was utilized as it samples participants that are most easily accessible.

Sampling Strategy

The population of the study included pre-licensure baccalaureate nursing programs. The study utilized non-probability convenience sampling. This type of sampling procedure seeks participants who are most easily available for the research study and are easily recruited (Christensen, Johnson, & Turner, 2011). Non-probability sampling does not utilize random sampling and has a higher potential for biased sampling (Boswell & Cannon, 2017). The sampling design allowed the researcher to survey all pre-licensure baccalaureate nursing programs accredited by the CCNE. This sampling strategy helped to decrease the possibility of bias by giving an equal chance for all CCNE accredited pre-licensure nursing programs to participate.

Concerns regarding non-probability convenience sampling include criticism of the potential for bias and limited ability to control for this bias. The bias within this style of sampling creates a limited ability to generalize the research findings (Burns & Grove, 2009). However, the study attempted to survey all CCNE accredited pre-licensure nursing programs to increase the representativeness of the population.

Eligibility Criteria

The researcher carefully evaluated inclusion and exclusion criteria. Inclusion criteria included the required characteristics of the respondents who were included within the study. The exclusion criteria included specific characteristics of the respondents who were excluded from the study.

Inclusion criteria. The respondents for the study were eligible if the program was a baccalaureate pre-licensure nursing program accredited by the CCNE. The researcher anticipated that some programs would identify as either traditional or accelerated; both were eligible to respond. The respondents must have been able to read and write English. The respondents must have been able to access the Internet for email to complete the survey.

Exclusion criteria. Exclusion criteria for the proposed study included pre-licensure nursing programs not accredited by the CCNE. Respondents who were not able to read or understand the English language were excluded. Respondents who did not have access to the Internet for email to complete the survey were also excluded.

Determination of Sample Size: Power Analysis

The researcher utilized the G* Power 3.1 software to calculate sample size needed. The sample size was calculated to be a total of at least 27 respondents (*G*Power: Statistical Power Analysis for Windows and Mac, 2016*). The test family was selected as a t-test and the statistical test was selected as the means: difference from constant. The parameters were calculated to be one-tailed test. The one tailed test will give greater power to detect the null hypothesis.

The null hypotheses stated that evidence-based practice scholarship is not addressed within baccalaureate pre-licensure nursing programs. The researcher proposes that a Type I error was possible. Type I errors occur when the null hypothesis is rejected but is in fact true (Plichta & Kelvin, 2013). For the study, a Type I error would note that the evidence-based practice scholarship is included within pre-licensure baccalaureate nursing programs. The level of the power for the study was set at .80 for convenience. A higher power (p = .95) would require additional participants ($n = 45$), which was achieved.

Protection of Human Subjects

According to the U.S. Department of Health and Human Services (HHS), the study qualified for exempt status for surveys (HHS, 2017). The study was considered survey research. Survey research is not considered human subject research. The researcher received approval from the dissertation committee, and the researcher sought and received exempt status from the Institutional Review Board (IRB) at Nova Southeastern University. The researcher followed all instructions and guidelines during the approval process.

The researcher has worked to protect the research participants, maintain research integrity, act ethically, and promote trust (Creswell, 2014). The researcher obtained consent by presenting the appropriate information to the respondents, with willingness to participate noted by completing the survey.

Risk of participation. The respondents did not incur any increased risk of harm while participating within the study. No identifiable data were gathered from the nursing programs, and all data remained anonymous. The demographic data gathered from the

respondents included the state in which the program was located, if the program was considered traditional or accelerated, the number of semesters to complete the program, and if the individual completing the survey was either the dean, chairperson for the baccalaureate undergraduate pre-licensure program, faculty member, or level coordinator. All responses from the respondents remained anonymous.

Benefits of participation. There was no compensation for the respondents within the study. The potential benefit for participation included contributing to nursing research and reducing the knowledge gap associated with EBP scholarship in nursing education. The National League for Nursing 2016-2019 research priorities indicate the need to "build the science of nursing through the discovery and translation of innovative evidence-based strategies" (NLN, 2016, p. 1). Participating in the study was one example of working to meet this priority.

Data storage and collection approach. The data were protected and included the demographic information collected and the results of the *Implementation of the Essential Competencies for Evidence-Based Practice in Nursing* survey. The study data were collected and managed using REDCap (Research Electronic Data Capture). The electronic data capture tools are hosted at Nova Southeastern University. REDCap is a secure, web-based application designed to support data capture for research studies, providing: 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources (Harris et al., 2009).

This software was provided by Nova Southeastern University and is designated to be used for online survey data collection. The data were exported to a statistical software program and were stored on the researcher's private password-secured laptop computer. The data will be stored for three years post study completion, per the Nova Southeastern University's IRB requirements.

The researcher sent the initial recruitment email on Monday March 19, 2018, between the hours of 9:00 a.m. and 2:00 p.m. Eastern Standard Time. Each of the initial recruitment messages was personalized with the name of the dean or program chair as identified by the CCNE database. A second reminder email was sent on Tuesday, March 27, 2018, eight days following the initial recruitment email. The wording of the follow up email was changed, and it was not personalized. This data collection approach was utilized based on research conducted by Sauermann and Roach (2013) which evaluated ways to increase response rates for online surveys. The research indicated that personalization with first and last name increased the response rate by 24%; respondents were less likely to respond if received on the weekend; reminders significantly increased the response rates; and making changes in the wording of the invitation and reminders positively increased the response rate by 36% (Sauermann & Roach, 2013).

Recruitment

To recruit participants, the researcher utilized the CCNE online public database from the AACN website as follows: (https://directory.ccnecommunity.org/reports/rptAccreditedPrograms_New.asp?sort=institution&sProgramType=1). This database lists all CCNE-accredited pre-licensure baccalaureate nursing programs, the chief nurse administrator's name, and email address

(AACN, 2017b). The researcher utilized this database and compiled a list of email addresses. The online survey was sent to each of the chief administrators via email. The message was a recruitment email with a link to the survey, attached PDF copy of the survey, and a copy of the participant letter for anonymous surveys. Thirty-four states and Puerto Rico were represented in the study.

No duplicated entries from the states were identified. Out of the 34 states and Puerto Rico only nine states had one response only and two respondents did not select a state. The researcher evaluated the states the surveys came from and the number of programs in each of the states. There were not states with higher response rates than programs. The researcher also compared each response from states with more than one survey; no responses were identical. The researcher identifies that this indicates leaders from 96 programs out of the 667 programs that were invited to participated yielded a response rate of 14%.

The researcher utilized a recruitment email and the previously discussed attachments to introduce the respondents to the study. The letter explained that the respondent was identified as the chief nursing administrator per the CCNE website. It explained the IRB approval status and the exempt status of the study. It identifies the researcher as the principal investigator and the chair of the dissertation research for the study and provided email addresses should any questions arise. Examples of the recruitment letters are located in Appendix A.

Instrumentation

The instrument was developed by the dissertation investigator by using the *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009). A scale

was applied to determine if and when the competencies were addressed in the nursing programs. All 20 original competencies were included and are listed in Appendix B.

The Essential Competencies for EBP in Nursing. The *Essential Competencies for Evidence-Based Practice in Nursing* were first published in 2005 and were extended to include associate degree programs in 2008 (Stevens, 2009). The competencies were developed by an expert panel within the field of EBP and nursing education. Twenty identified competencies are listed at the pre-licensure baccalaureate level (Stevens, 2009). The researcher attached a scale to the competencies for the study to determine which semester each EBP competency is first introduced within a program. The researcher scored the items from zero to six to allow respondents to indicate the semester that the competency first takes place. The options were first semester, second semester, third semester, fourth semester, fifth semester, sixth semester, or not included. The responses were coded as a 1-6 and not included was coded as zero. The rating scale was 1 = first semester, 2 = second semester, 3 = third semester, 4 = fourth semester, 5 = fifth semester, 6 = sixth semester, and 0 = not included.

The competencies were developed to help guide nursing faculty as they prepare students for EBP (Stevens, 2009). Therefore, by deploying the survey to baccalaureate pre-licensure nursing programs it could be used to reach the target population. The competencies have not been evaluated for validity or reliability as they are formatted as a list of competencies and not a tool that has undergone psychometric testing. The competencies have received national consensus (Stevens, 2009). However, the competencies have content validity, and the researcher has assessed internal reliability

through Cronbach's alpha analysis. The researcher has approval to utilize the competencies. The email correspondence with Dr. Stevens is located in Appendix C.

Validity. Content validity included the measure of all major elements related to the construct. It utilized relevant populations, literature, and content experts (Burns & Grove, 2009). The competencies were developed following a professional and national push for the incorporation of EBP into healthcare education and healthcare practice. A survey, content analysis, expert panel, and roundtable discussions were utilized to verify, identify, and create the EBP competencies consensus statements (Stevens, 2009).

Reliability. The researcher utilized Cronbach's alpha to measure the internal consistency reliability of the survey. This reliability testing measures the internal consistency when measuring a single construct (Christensen et al., 2011). For the study, the single construct is EBP scholarship. It is being measured through *The Essential Competencies for Evidence-Based Practice in Nursing*. The researcher sought to achieve a Cronbach's alpha of at least .70 which indicates that the items are consistently measuring the same construct (Christenen et al., 2011).

Scoring. The 20-item survey was based on a scale from zero to six. The researcher scored the items from zero to six to allow respondents to indicate the semester that the competency first takes place. A scale of zero indicated that the competency was not included. The level of measurement for the survey was nominal.

General Statistical Strategy

The data from the study were collected in RedCAP and exported into the Statistical Package for Social Sciences version 25 (SPSS), and all analysis took place within SPSS. The data were evaluated for the measures of central tendency including the

mean, range, mode, median, and standard deviation. The researcher calculated the Cronbach's alpha of the surveys to determine the internal consistency of the *Essentials Competencies for Evidence-Based Practice in Nursing.* The demographic data allowed the researcher to assess how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs across the country. The researcher evaluated the data for any errors.

Data Cleaning

The data were entered into SPSS and cleaned to make sure that all variables were valid and had usable values. The researcher ran a frequency on all variables and examined the frequencies to determine if there were any invalid data, unusual data, missing data, and noted the variability within the data. Data deemed to be questionable were double checked for accuracy to ensure there was no error during transcription. Additionally, any data that were considered invalid or out-of-range were defined as a system missing and not included in the final data analysis (Plichta & Kelvin, 2013). Two surveys had significantly missing data and were not included within the data analysis.

Descriptives

Descriptive statistics was used to report the frequency of states, the role of the respondent that completed the survey, and number of semesters to complete the program. The central tendencies included the median, range, and standard deviation of the 20-item *Essential Competencies for Evidence-Based Practice in Nursing* and were analyzed and reported. This discussed is included in Chapter Four.

Hypothesis Testing

The current investigation was non-experimental and utilized survey methodology. Therefore it was descriptive in nature and did not necessitate the application of an inferential statistic as a means to test a hypothesis.

Limitations

The study's limitations include threats to internal and external validity. Threats to internal validity are related to the respondents and instrumentation. Threats to external validity are focused on the ability to generalize the findings. Internal and external threats are examined deeper in the next section.

Threats to Internal Validity

An internal threat to the study included selection bias. This type of threat notes that there is a lack of randomization of the participants. A convenience sample was utilized to sample the respondents and, therefore, the respondents were not randomized. The second threat to internal validity was the instrumentation. This was due to the fact that different groups could respond differently to the instrumentation because they are composed of different respondents. For the purpose of this study it is possible that faculty, deans, and program chairs responded differently to the instrument based upon their familiarity with the program plan. The study evaluated the Cronbach's alpha which was set at .70 to help control for the threat to instrumentation (Christensen et al., 2011).

Threats to External Validity

Threats to external validity are concerned with the extent that the results of a study can be generalized. The researcher attempted to decrease the threats to external validity by ensuring a sample size that was adequate. A large sample size helped the

study demonstrate significance. The research utilized convenience sampling, which is a non-probability sampling technique. This method was utilized to ensure that the sample was representative of baccalaureate pre-licensure nursing programs accredited by the CCNE. A power analysis conducted and indicated that a sample of at least 27 programs was needed for the study. The researcher sent the survey to 667 schools attempting to exceed the goal of 27 respondents. A total of 96 surveys were completed. Since over 45 respondents participated in the study, the power of the study increased to $p = .95$.

Chapter Summary

The study is a non-experimental, descriptive design that utilized a convenience sample of baccalaureate pre-licensure nursing programs. The study sought to gain information to provide insight on how EBP scholarship is addressed within pre-licensure baccalaureate nursing programs. The purpose of this study was to describe the current state of evidence-based practice scholarship in the curriculum of baccalaureate pre-licensure nursing programs. The *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship. The study's findings have the potential to enhance faculty recognition of the necessary education on EBP which supports student nurses' EBP skills, attitudes, and competencies.

Chapter 4

Results

There is an identified gap regarding how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The purpose of this study was to describe the current state of EBP scholarship in the curriculum of baccalaureate pre-licensure nursing programs. The research question stated: how is EBP scholarship addressed within baccalaureate pre-licensure nursing programs? The *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship. The study was a non-experimental, descriptive design that utilized a convenience sample of leaders from baccalaureate nursing programs accredited by the CCNE. This chapter presents a review of the study findings, a review of the collection process, data cleaning, descriptives, hypothesis testing, and reliability testing.

Data Collection

The researcher sent a message invitation via email to participate in the dissertation study. The message was sent to the chief nurse administrator of baccalaureate nursing programs. A total of 667 emails were sent to CCNE accredited baccalaureate nursing programs in the United States and Puerto Rico. The invitation email included two attachments: the IRB approved *Participant Letter for Anonymous Surveys* and a PDF copy of the survey; the email also included a link to the survey. The invitation letter asked the chief nurse administrator to complete or share the information with the appropriate person(s). There were a total of 98 surveys completed.

Data Cleaning

All of the completed surveys ($N = 98$) were checked for missing data. There were 19 surveys that were missing data. There were only two surveys that were deemed incomplete, as only two items were completed on one and zero were completed on the second. Therefore, neither was utilized during data analysis in SPSS software. This was discovered as the data were being reviewed prior to entering into SPSS software. The other 17 surveys were missing one to three data points, and the missing data did not have a pattern. All 96 surveys were then utilized in data analysis. The surveys utilized nominal data choices.

Descriptives

The researcher gathered a limited amount of demographic data from the respondents. The demographic data collected included the program location, respondent role, if the program was accelerated or traditional, and the number of semesters to complete the program. The demographic data are presented in the following section. The researcher also discusses the response to measures.

Descriptives of the Sample

The sample consisted of 96 leaders in the programs. Of these respondents, 27.1% identified as a dean, 36.5% as the chairperson for the baccalaureate undergraduate pre-licensure program, and 35.4% as a faculty member. No participants were identified as a level coordinator. One respondent did not indicate a role. The sample consisted of primarily traditional programs (90.6%) and 8.3% identified as an accelerated program. One respondent did not answer this question. Thirty-four states and Puerto Rico were represented within the study. Michigan had the highest frequency (9), followed by Texas

(8), Pennsylvania (6), Minnesota, Missouri, New Jersey, New York, and Wisconsin (4). The full demographics describing program locations are listed within Appendix C. The majority of respondents (40.6%) identified that the program took four semesters to complete. This was closely followed by six semesters at 33.3%, and 18.8% reported at five semesters. Semester one and two were both reported as 1%. Five respondents did not answer this question. The demographics are represented as a whole in Table 1.

Table 1

Sample Description

Characteristic	*Response (%)*	*Total n*
Respondent Role		
Dean	27.1	26
Chairperson for the BSN program	36.5	35
Faculty member	35.4	34
Level coordinator	0.00	0
Missing	1	1
Program Characteristic		
Traditional	90.6	87
Accelerated	8.4	8
Missing	1	1
# of Semesters to complete the program		
One	0	0
Two	1	1

Three	1	1
Four	40.6	39
Five	18.8	18
Six	33.3	32
Missing	5.3	5

Response to the Measurements

The survey utilized the 20 competencies from The *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) to measure for EBP scholarship within baccalaureate pre-licensure nursing programs. Each of the competencies or items on the survey had seven options. The options were first semester, second semester, third semester, fourth semester, fifth semester, sixth semester, or not included. The responses were coded as a 1-6 and not included was coded as zero. The item scores ranged from 1 to 6 with a mean range from 1.40 to 4.15 and a standard deviation that ranged from .96 to 1.46. The means and standard deviations for each of the items are presented in Table 2. Fifty-one respondents reported one or more item as "not included" or did not answer an item.

Table 2

Frequencies from the Essential Competencies for Evidence-Based Practice in Nursing

Competencies	*N*	*Mean*	*Std. Deviation*
1	45	1.40	.96
2	45	2.62	1.23
3	45	2.31	1.22

4	45	2.53	1.09
5	45	2.48	1.14
6	45	2.73	1.23
7	45	2.82	1.00
8	45	2.71	1.14
9	45	2.86	1.14
10	45	2.84	1.16
11	45	2.31	1.27
12	45	3.82	1.28
13	45	3.77	1.41
14	45	2.42	1.30
15	45	3.42	1.46
16	45	2.11	1.21
17	45	2.44	1.40
18	45	3.80	1.27
19	45	3.02	1.46
20	45	4.15	1.39

Note. The full description of each competency is located in Appendix D.

Overall, competency 1 had the highest percentage at 63.5% of being introduced during the first semester. After competency 1, the majority of the competencies were first introduced during the second semester. This included competencies 2, 3, 4, 10, 11, 14, and 17. Six competencies were identified as having the highest percentage of being first introduced during the third semester. These included competencies 5, 6, 7, 9, and 19. Competencies 13, 15, 18, and 20 were identified as having the highest percentage of

being first introduced during the fourth semester. Competency 8 had the highest percentage (27.1%) during semester two and three. Competency 16 had the highest percentage of being first introduced (30.2%) during the first and second semester.

The competencies align with the star model of knowledge transformation ©, and each competency is aligned with a star point. There are five star points, and the star points correspond with the star model of knowledge transformation ©. The star points are as follows: 1) primary research and includes competencies 1-5; 2) evidence summary and includes competencies 6-9; 3) translation and includes competencies 10-12; 4) integration and includes 13-18; and, finally, 5) evaluation and includes competencies 19-20. Table 3 lists the star points and the competencies. Table 4 lists the competency number, the semester in which the highest percentage was reported, and the star point the competency is located on. The percentages ranged from 19.8-63.5% inclusion. The frequency for each of the competencies is presented in Table 5.

Table 3

Star Model of Knowledge Transformation ©

Star Point	Competencies
Primary Research	1-5
Evidence Summary	6-9
Translation	10-12
Integration	13-18
Evaluation	19-20

Table 4

Competencies with the Highest Percentage of Inclusion and the Semester Location Compared to the Star Point.

Competency #	Highest *%*	Semester	*Star Point*
1	63.5	1	1- Primary Research
2	36.5	2	1- Primary Research
7	35.4	3	2- Evidence Summary
4	34.4	2	1- Primary Research
17	34.4	2	4- Integration
3	33.3	2	1- Primary Research
9	33.3	3	2- Evidence Summary
6	32.3	3	2- Evidence Summary
5	30.2	3	1- Primary Research
14	30.2	2	4- Integration
16	30.2	1 & 2	4- Integration
11	28.1	2	3- Translation
19	28.1	3	5- Evaluation
8	27.1	2 & 3	2- Evidence Summary
10	27.1	2	3- Translation
13	24	4	4- Integration
20	22.9	6	5- Evaluation
18	21.9	4	4- Integration
15	19.8	4	4- Integration

Table 5

Frequency for Each of the Competencies

Competency	*First Semester %*	*Second Semester %*	*Third Semester %*	*Fourth Semester %*	*Fifth Semester %*	*Sixth Semester %*	*Not Included %*	*Missing*
1	63.5	24.	6.3	2.1	1.0	3.1		
2	9.4	36.5	34.4	11.5	5.2	3.1		
3	21.9	33.3	25.0	8.3	2.1	2.1	6.3	1
4	10.4	34.4	32.3	13.5	6.3	2.1		1
5	13.5	27.1	30.2	12.5	8.3	4.2	3.1	1
6	11.5	25	32.3	11.5	7.3	5.2	7.3	
7	4.2	25	35.4	13.5	7.3	5.2	9.4	
8	11.5	27.1	27.1	17.7	7.3	3.1	6.3	
9	9.4	29.2	33.3	14.6	5.2	4.2	2.1	2
10	8.3	27.1	26.0	13.5	9.4	3.1	11.5	1
11	21.9	28.1	19.8	9.4	7.3	4.2	9.4	
12	2.1	6.3	14.6	18.8	13.5	9.4	35.4	
13	3.1	8.3	17.7	24.0	14.6	10.4	20.8	1
14	17.7	30.2	24.0	16.7	6.3	3.1	2.1	
15	5.2	16.7	16.7	19.8	11.5	14.6	14.6	1
16	30.2	30.2	18.8	9.4	4.2	4.2	3.1	
17	20.8	34.4	19.8	6.3	7.3	5.2	5.2	1
18	2.1	7.3	19.8	21.9	14.6	12.5	20.8	1
19	11.5	17.7	28.1	15.6	6.3	11.5	9.4	
20	1	8.3	15.6	24	12.5	22.9	15.6	

Almost all of the competencies were identified as being “not included.” The competencies that were identified as being “not included” were 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. The percentage range was from 2.1% -35.4%. The

highest percentage of "not included" was competency 12 at 35.4 %. This was followed by competency 13 and 18 with 20.8% of respondents indicating the competency was "not included." Table 6 lists the competencies that were identified as not included along with the percentage of not included and the location of the competencies on the star points.

Table 6

Frequencies of the Competencies Not Included

Competencies	Not Included %	Star Point
12	35.4	3- Translation
18	20.8	4- Integration
13	20.8	4- Integration
20	15.6	5- Evaluation
15	14.6	4- Integration
10	11.5	3- Translation
19	9.4	5- Evaluation
11	9.4	3- Translation
7	9.4	2- Evidence Summary
6	7.3	2- Evidence Summary
8	6.3	2- Evidence Summary
3	6.3	1- Primary Research
17	5.2	4- Integration
16	3.1	4- Integration
5	3.1	1- Primary Research
14	2.1	4- Integration

9	2.1	2- Evidence Summary

It is important to evaluate the competencies as they are located on the star model given that this is a progression model and the likelihood of alignment with the progression is expected. Table 7 reports the competencies, their location on the star model, and how the competencies could be presented based on a four- or six-semester program. The researcher proposes that within a four-semester program, 25% of the competencies would be taught each semester. In a six-semester program, 25% would be introduced during the first semester, 20% during the second, 15% during the third, fourth, and fifth semesters. Finally, 10% would be taught in the sixth and final semester. Table 8 presents the proposed plan for a four- and six-semester program. This process of presenting competencies each semester allows for a more even distribution of EBP content, follows the star model, and follows the constructivist learning theory (Merriam, Caffarella, & Baumgartner, 2007). It also supports the AACN (2008) guidelines to incorporate EBP across a curriculum.

Table 7

The Proposed Location of the Competencies within a Four- and Six-Semester Program.

Competencies	*Star Point*	*Four-Semester Program*	*Six-Semester Program*
1	1- Primary Research	1st	1st
2	1- Primary Research	1st	1st

3	1- Primary Research	1st	1st
4	1- Primary Research	1st	1st
5	1- Primary Research	1st	1st
6	2- Evidence Summary	2nd	2nd
7	2- Evidence Summary	2nd	2nd
8	2- Evidence Summary	2nd	2nd
9	2- Evidence Summary	2nd	2nd
10	3- Translation	2nd	3rd
11	3- Translation	3rd	3rd
12	3- Translation	3rd	3rd
13	4- Integration	3rd	4th
14	4- Integration	3rd	4th
15	4- Integration	3rd	4th
16	4- Integration	4th	5th
17	4- Integration	4th	5th
18	4- Integration	4th	5th

19	5- Evaluation	4th	6th
20	5- Evaluation	4th	6th

Table 8

Proposed Sequencing of the Competencies for a Four- or Six-Semester Program

Proposed Sequencing	Four-Semester Program %	Competencies	Six-Semester Program %	Competencies
Semester 1	25	1-5	25	1-5
Semester 2	25	6-10	20	6-9
Semester 3	25	11-15	15	10-12
Semester 4	25	16-20	15	13-15
Semester 5			15	16-18
Semester 6			10	19-20

In order to evaluate the frequencies and trends of the competencies, the researcher evaluated the data from the four- and six-semester programs separately. The majority of respondents (40.6%) indicated their program consisted of four semesters. There were a total of 39 respondents that indicated four semesters. When evaluating the individual data from the respondents that identified as a four-semester program, three were excluded from this analysis as the respondents indicated one or more of the competencies past the fourth semester (n = 36). The data from the respondents that indicated their program consisted of four semesters are presented in Table 9.

Table 9

Four-semester Programs

Competencies	*1st Semester %*	*2nd Semester %*	*3rd Semester %*	*4th Semester %*	*Not Included %*	*Missing*
1	66.7	25	5.6	2.8		
2	8.3	52.8	36.1	2.8		
3	19.4	50	19.4	5.6	5.6	
4	16.7	50	30.6			1
5	19.4	38.9	33.3	2.8	2.8	1
6	13.9	38.9	27.8	5.6	13.9	
7	5.6	38.9	36.1	5.6	13.9	
8	19.4	41.7	22.2	8.3	8.3	
9	13.9	44.4	27.8	5.6	5.6	1
10	8.3	44.4	27.8	8.3	11.1	
11	27.8	41.7	13.9	5.6	11.1	
12		13.9	16.7	33.3	36.1	
13	2.8	16.7	19.4	41.7	19.4	
14	16.7	44.4	27.8	8.3	2.8	
15	8.3	25	16.7	33.3	16.7	
16	44.4	33.3	5.6	11.1	5.6	
17	36.1	36.1	8.3	11.1	8.3	
18	5.6	13.9	19.4	38.9	19.4	2.8
19	19.4	22.2	27.8	22.2	8.3	

20		19.4	13.9	50	16.7

In evaluating these data, the majority of the competencies were first introduced during the second semester. This included competencies 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 14. Competency 17 had a high score of 36.1% in both the first and second semester. The fourth semester had the highest number of competencies being introduced and included competencies 13, 15, 18, and 20. Overall, the competency with the highest percentage of being "not included" was competency 12 (36.1%). This competency states "Participates on a team to develop agency-specific EBP clinical practice guidelines" (Stevens, 2009, p. 13). This finding was consistent with all of the respondents within the study. Competency 20 was identified by each of the four-semester program respondents as being "not included" in the first semester. Additionally, competency 4 was identified by each of the four-semester program respondents as not being included within the fourth semester. This information is presented in Table 10.

Table 10

Location of the competencies in the four-semester programs

Four-semester Programs	Competencies
Semester 1	1, 16, 17*
Semester 2	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 17*
Semester 3	19
Semester 4	13, 15, 18, 20

Note. *Competency 17 was reported at 36.1% in the first and second semester. Competency 14 was indicated 21.9% in the second and fourth semester. Competency 13 was indicated at 25% in the fifth and sixth semesters.

There was a total of 33.3% of respondents who indicated having a total of six semesters within their programs *n = 32.* The researcher evaluated the data from the six-semester program respondents. These data are presented in Table 11. Overall, these data indicate that the majority of the respondents first introduced competencies during the third semester. This included competency 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 16, and 17. This was followed by the sixth semester which indicated the highest competencies at 15, 18, 19, and 20. Competency 12 had the highest total of being not included at 34.4%. Competency 14 indicated a split between of the highest during the second and fourth semester (21.9%). Competency 13 also had a split of 25% during the fifth and sixth semester. Table 11 shows the location of the competencies for the six-semester programs.

Table 11

Six-semester Programs

Competencies	*1st Semester %*	*2nd Semester %*	*3rd Semester %*	*4th Semester %*	*5th Semester %*	*6th Semester %*	*Not Included %*	*Missing*
1	65.6	18.8	9.4			6.3		
2	6.3	28.1	31.3	15.6	12.5	6.3		
3	15.6	25	31.3	9.4	6.3	6.3	6.3	
4	3.1	28.1	31.3	15.6	15.6	6.3		
5	3.1	25	28.1	12.5	18.8	9.4	3.1	
6	3.1	18.8	31.3	15.6	18.8	12.5		

7	3.1	15.6	37.5	12.5	18.8	9.4	3.1	
8	3.1	18.8	28.1	18.8	18.8	6.3	6.3	
9	6.3	18.8	34.4	18.8	12.5	9.4		
10	3.1	12.5	25	15.6	25	6.3	12.5	
11	12.5	15.6	28.1	6.3	18.8	9.4	9.4	
12	3.1		12.5	12.5	18.8	18.8	34.4	
13	15.6	3.1	15.6	12.5	25	25	15.6	3.1
14	15.6	21.9	18.8	21.9	15.6	6.3		
15	3.1	6.3	12.5	12.5	21.9	34.4	9.4	
16	18.8	21.9	28.1	6.3	9.4	12.5	3.1	
17	6.3	31.3	28.1		15.6	12.5	3.1	
18			21.9	12.5	12.5	31.3	21.9	
19	3.1	9.4	25	9.4	15.6	28.1	9.4	
20	3.1		9.4	6.3	12.5	50	18.8	

Table 12

Location of the Competencies in the Six-Semester Programs

Six-semester Program	Actual
Semester 1	1
Semester 2	14*, 17
	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 16,
Semester 3	18,
Semester 4	14*

Semester 5	13*
Semester 6	13*, 15, 18, 19, 20

Note. * Competency 13 was indicated at 25% in the fifth and sixth semesters. Competency 14 was indicated 21.9% in the second and fourth semester.

When comparing the two groups, four semesters vs six semesters, there were similarities. First, both groups had competency 1 being introduced during the first semester (66.7% and 65.6%). Second, both groups had similar findings with competency 12. This competency had the highest overall totals of being "not included" at 36.1% and 34.4%. Both groups also indicated competencies 13, 15, 18, and 20 having the highest percentages during the final semester. For competency 17, both groups had high percentage during the second semester at 36.1% and 31.3%.

For competencies 2-11, both groups had the highest percentages of being introduced during the second and third semesters, with percentages ranging from 28.1% - 52.8%. Both groups reported percentages (<10%) for competencies 1-11 as being introduced during the final semester. This is a finding that does not follow the normal distribution from respondents. The majority of respondents reported these competencies within the second or third semester. It is unexpected that these competencies would fall within the final semester. Competency 16 was distributed differently for both groups. The four-semester programs reported 44.4% during the first semester for competency 16 while the six-semester program reported 28.1% during the third semester.

Table 13 compares the data from the four-semester programs and the six-semester programs to the proposed competency integration plan. As discussed, both programs were heavily loaded during the second and third semesters with competencies. Introducing a large number of competencies during the second and third semesters could

call into question whether the competencies are building upon each other or are primarily presented during one course rather than integrated over time within the curriculum.

Competency 12 had the highest percentage of being "not included" for both groups with 35.4% for four-semester programs and 34.4% for six-semester programs. When it was included, it was widely distributed across the semesters. This could suggest that programs are unsure of where this competency fits within the curriculum. Another point of interest is that competencies 1-3 and 5-10 were reported as being first introduced during the last semester by both groups with a range of 2.8%-12.5%. These competencies are located within the first two star points. Given the response by the majority of the respondents, it would be expected that these competencies would be presented closer to the beginning of a program rather than the final semester.

Table 13

Proposed Competency Integration Plan vs Actual Data for Four and Six-Semester Programs.

Four-semester Program	Proposed % Per Semester	Competencies	Actual
Semester 1	25	1-5	1, 16, 17*
Semester 2	25	6-10	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 17*
Semester 3	25	11-15	19
Semester 4	25	16-20	13, 15, 18, 20

Six-semester Program	Proposed % per Semester	Competencies	Actual
Semester 1	25	1-5	1
Semester 2	20	6-9	14*, 17
Semester 3	15	10-12	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 16, 18,
Semester 4	15	13-15	14*
Semester 5	15	16-18	13*
Semester 6	10	19-20	13*, 15, 18, 19, 20

Note. * Competency 13 was indicated at 25% in the fifth and sixth semesters. Competency 14 was indicated 21.9% in the second and fourth semester. Competency 17 was reported at 36.1% in the first and second semester.

It is evident that there are areas where there seems to be agreement on the location of competencies among the respondents. This includes the location of competency 1 during the first semester, competency 14 during the second semester, and competencies 13, 15, 18, and 20 during the final semesters. It is also evident that there are areas identified by the respondents as having high percentages (>14*%)* of competencies being "not included." These competencies included 12, 13, 15, 18, and 20. It is also apparent that there are competencies which fall outside of the normal distribution as suggested by the researcher and the data. This includes competency 12. Competency 12 has the highest percentage of "not included" but is also abnormally distributed across the semesters. Further discussion of the implications from this study's findings will be included within Chapter Five.

Reliability Testing

The Cronbach's alpha was utilized to measure the internal reliability of the *Essential Competencies for Evidence-Based Practice in Nursing*. The Cronbach's alpha was measured at .87. This exceeded expectations. During the development of the study, this researcher sought to achieve a Cronbach's alpha of at least .70. A high Cronbach alpha indicates that the items are consistently measuring the same construct, which was EBP scholarship (Christensen et al., 2011). Additionally, the researcher evaluated the internal reliability if an item was deleted, and there were no items that identified as poorly functioning or that would change the Cronbach alpha significantly.

Hypothesis Testing

The null hypothesis stated that EBP scholarship is not addressed within baccalaureate pre-licensure nursing programs. Table 14 provides a combined total percentage for each of the competencies that were included and a total percentage of the competencies that were not included, n=96. The data indicate that each of the competencies was addressed by the majority of the respondents. As previously discussed, there were competencies that were identified as having a high percentage of not included. However, as a whole each of the competencies was included and had a combined inclusion percentage higher than 64.6%. Thus, the null hypothesis that EBP scholarship is not addressed within baccalaureate pre-licensure nursing programs was rejected.

Table 14

Total Percentages of Each of the Competencies

Competency	*Combined Included %*	*Combined Not Included %*	*Missing*

1	100		
2	100		
3	93.7	6.3	1
4	99		1
5	96.9	3.1	1
6	92.7	7.3	
7	90.6	9.4	
8	93.7	6.3	
9	97.9	2.1	2
10	88.5	11.5	1
11	90.6	9.4	
12	64.6	35.4	
13	79.2	20.8	1
14	97.9	2.1	
15	85.4	14.6	1
16	96.9	3.1	
17	94.8	5.2	1
18	79.2	20.8	1
19	90.6	9.4	
20	84.4	15.6	

Chapter Summary

This study was a non-experimental, descriptive design that utilized a convenience sample of *n*=96 leaders in pre-licensure baccalaureate nursing programs accredited by the CCNE. The null hypothesis that EBP scholarship is not addressed within baccalaureate pre-licensure nursing programs was rejected. Therefore, EBP is addressed within baccalaureate pre-licensure programs. However, the results do indicate several competencies were "not included." The final chapter discusses the implications and recommendations of the findings.

Chapter 5

Discussion and Summary

The purpose of this study was to describe the current state of evidence-based practice scholarship in the curriculum of baccalaureate pre-licensure nursing programs. This study examined 96 survey responses from program leaders on how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The research question stated: how is EBP scholarship addressed within baccalaureate pre-licensure nursing programs? The *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship.

The study was a non-experimental, descriptive design that utilized a convenience sample of leaders in pre-licensure baccalaureate nursing programs accredited by the CCNE. The *Essential Competencies for Evidence-Based Practice in Nursing* was utilized to measure how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The respondents indicated their role within the program. The roles included nursing program deans, baccalaureate pre-licensure nursing program chairs, and faculty members. The respondents indicated the number of semesters to complete the program, a selection of one to six semesters was given. Thirty-four states and Puerto Rico were represented in the study. The study included both traditional and accelerated baccalaureate pre-licensure nursing programs.

The study design was grounded in the theoretical framework of Rogers' diffusion of innovations and the star model of knowledge transformation ©. Rogers' diffusion of

innovations evaluates the acceptance or rejection of new technology or new knowledge within a group or organization as it happens over time (Rogers, 2003). The four assumptions within this model are as follows: (1) four main elements: communication channels, an innovation, a social system, and time; (2) the innovation-decision process has four stages: the knowledge stage, the persuasion stage, the decision stage, and the implementation and confirmation stage; (3) the rate of adoption: relative advantage and rate of adoption; (4) four attributes of innovations: observability, complexity, compatibility, and trialability (Rogers, 2003). The diffusion of innovations was used to understand how the innovation of EBP scholarship is accepted or rejected within the social system of baccalaureate pre-licensure nursing programs.

The star model of knowledge transformation © star point four is practice integration. This was used to examine the integration of EBP scholarship within baccalaureate pre-licensure nursing programs. Additionally, the *Essential Competencies for Evidence-Based Practice in Nursing* complemented the star model of knowledge transformation as both were developed by Dr. Stevens and align with each other. Each of the 20 competencies fall into one of the five star points. Table 3 outlines the five star points and the competencies that fall into the star point. As previously discussed, the star model organizes old and new EBP concepts into a single framework to improve care as a whole (Stevens, 2012b).

The star model provides a clear understanding of how new EBP knowledge moves into practice. The model itself has five key points and is depicted as a star. The five key points of the star are as follows: (1) discovery, (2) evidence summary, (3) translation to guidelines, (4) practice integration, (5) process, outcome evaluation

(Stevens, 2012b). Each of the competencies falls within one of the five key star points. As stated previously, this study focused on star point four which is practice integration, in order to discover how EBP scholarship is integrated within baccalaureate pre-licensure nursing programs.

EBP is an expected competency for healthcare professionals (IOM, 2001; 2003). The American Association of Colleges of Nursing incorporated EBP as an expected competency within their guiding document titled *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). However, new graduate nurses lack the ability to incorporate EBP into their professional practice (Jackson, 2016; Spector et al., 2015; Sullivan et al., 2009). The diffusion of innovations was used to understand how the innovation of EBP scholarship is being accepted or rejected within the social system of baccalaureate pre-licensure nursing programs. The star model provided a framework for practice integration and how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs.

Summary of Findings

The findings of this study indicated that EBP scholarship is incorporated within baccalaureate pre-licensure nursing programs. However, almost all of the competencies were noted by some of the respondents as being "not included." The respondents reported 17 of the 20 competencies as being "not included." The competencies identified as "not included" were 3 and 5-20. The AACN (2008) has indicated a need to include EBP scholarship within baccalaureate nursing education. These data indicate some respondents are reporting areas in which EBP scholarship is not being taught. The percentages of the competencies that were not included range from 2.1% to 35.4%.

Competency 12 had the highest reported percentage of being "not included" at 35.5%. The percentages across the semesters for this competency varied. There seems to be a lack of consensus by the respondents as to where this competency fits within the curricula.

All respondents reported competencies 1, 2, and 4 as being included which indicates a consensus among respondents of their importance. Competency 1 had the highest percentage of being first introduced during the first semester at 63.5%. This implies consensus among the respondents and that it is important for this competency to be introduced early in curricula. Competency 2 and 4 had the highest percentage being introduced during the second semester at 36.5% and 34.4%. When comparing these competencies to Bloom's Taxonomy, they are located within the remembering and understanding components of the basic levels of Bloom's Taxonomy (Anderson et al., 2001). This suggests that these competencies are considered important by the respondents and are needed early on in baccalaureate pre-licensure nursing programs.

There was also a consensus among respondents that competencies 13, 15, 18, and 20 were all taught during the final semester. Competency 17 was also found to have a consensus among respondents as being taught during the second semester. This did not change when comparing four-semester programs to six-semester programs. Competencies 2-11, 14, 17, and 19 were reported highest during the second and third semesters. Competencies 2-11, 14, 17, and 19 had the highest reporting during the first and second semester, and this appears to be a point of consensus among the group. When the data between the four- and six-semester programs were compared, this finding was still true. Even when broken into four- and six-semester programs, competency 17 was

found to be taught during the second semester by all. It was unexpected to find competencies 1-11 had percentages (<10%) reported within the final semester. Based on the star points and the star model, it would be expected to find these competencies reported by the respondents earlier on in the semesters.

The data imply that 70% of the competencies are being taught over the second and third semesters. This is a large number of competencies taught during two semesters. Even when comparing the four- and six-semester programs, the percentages of competencies taught during the second and third semesters are still high. The four-semester group was at 65%, and the six-semester group was at 60%.

The researcher proposes that breaking up the competencies so that they are taught in smaller percentages over the semester would support the constructivist learning theory (Merriam, Caffarella, & Baumgartner, 2007). The researcher suggests breaking the competencies up across semesters based on the location of the competency on the star model and the star point. Table 15 provides the suggested competency sequencing for a four- or six-semester program. This would more evenly distribute the competencies across programs.

Table 15

Proposed competency sequencing

	4 Semesters		6 Semesters	
	Program %	Competencies	Program %	Competencies
Semester 1	25	1-5	25	1-5
Semester 2	25	6-10	20	6-9
Semester 3	25	11-15	15	10-12

Semester 4	25	16-20	15	13-15
Semester 5			15	16-18
Semester 6			10	19-20

The study findings indicate EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. However, the findings also suggest there are areas with high percentages of being "not included" and could be strengthened. The study findings also present varied distribution of EBP scholarship across semesters. Overall, the data indicate that inclusion of EBP primarily occurs during the second and third semesters. As reported, EBP scholarship is an expected competency for healthcare professionals (IOM, 2001, 2003). The AACN (2008) indicates that EBP should be integrated across curricula. The findings from this study suggest it is primarily presented during the second and third semesters. The researcher suggests based on the star model that the competencies could be more evenly distributed across curricula.

Integration of the Findings with Previous Literature

As discussed previously, there is an identified gap in the literature regarding how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The limited amount of research on how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs could be due to the fact that it is an expected competency. Yet all nursing programs integrate EBP scholarship differently. Current research is primarily focused on specific educational interventions within an individual program. Until now, no studies have focused on how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs across the nation. This study provides a

clear description on the varied distribution of how EBP scholarship is addressed across semesters within baccalaureate pre-licensure nursing programs.

This research supports the IOM recommendation to incorporate EBP into professional healthcare education (IOM, 2001, 2003). The AACN (2008) also called for the incorporation of EBP into pre-licensure nursing education. The study's findings clearly present that EBP is incorporated into curricula. The findings from this research study provide evidence concerning the call from QSEN (2017) for EBP to be included as a core competency within pre-licensure nursing education. Though the data do not identify if EBP was identified as a core competency, they provide evidence that EBP is included with the curricula. Wonder et al. (2017) noted that further research is needed to evaluate programs and teaching strategies and thereby gain an understanding of what is known about EBP. The findings from this study provide further insight into how EBP scholarship is incorporated into baccalaureate pre-licensure nursing curricula.

Implications of the Findings

The purpose of this study was to describe the current state of evidence-based practice scholarship in the curriculum of baccalaureate pre-licensure nursing programs. The research question stated: how is EBP scholarship addressed within baccalaureate pre-licensure nursing programs? The *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship. The study examined 96 survey responses from program leaders on how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The findings from this study have clear implications for nursing education, nursing practice, nursing research, and nursing policy.

Implications for Nursing Education

This study utilized a convenience sample of 96 pre-licensure nursing programs. It provides insight into how EBP scholarship is addressed within pre-licensure nursing programs across the USA and in Puerto Rico. These findings support the call from the IOM (2001, 2003) and the AACN (2008) that EBP scholarship be included within healthcare education. It also supports the QSEN project. The QSEN project focuses on six core competencies of nursing education, one of which is EBP in the nursing curricula. The results provide data that indicate EBP scholarship is incorporated into nursing curricula (QSEN, 2017). However, results are not able to address whether EBP is considered a core competency by the respondents.

Melnyk et al. (2016) indicated that nurses who are prepared with EBP skills will contribute to transforming the delivery of health care. Nurse educators and nursing education contribute to practice preparation. As a whole, the results indicated that EBP is addressed within baccalaureate pre-licensure nursing programs. However, as discussed, there are several competencies that were identified as having high percentages of "not included" which included competencies 12, 13, 15, 18, and 20. There were also competencies that were identified as having no consensus on placement; these included 15 and 18. The researcher cannot draw a conclusion as to why these competencies were not included. However, these competencies did have a common theme of active participation with EBP. The competencies 12 states "participate on team to develop. . ." (Stevens, 2009, p. 14). Competency 13 states "Compare own practice with agency's . . ." (Stevens, 2009, p.16). Competency 15 states "participate in the organizational culture . . ." (Stevens, 2009, p. 16). Competency 18 states "assist in integrating practice change . . ."

(Stevens, 2009, p. 16). Competency 20 states "participate in evidence-based quality improvement" (Stevens, 2009, p. 18).

All programs should conduct this assessment to evaluate how EBP scholarship is addressed within the curriculum and if there are any identified gaps. Once an assessment has been made, faculty can evaluate if any changes are needed for the program of study. If changes are needed, then faculty can consider utilizing The *Essential Competencies for Evidence-Based Practice in Nursing* or another model as a guide (Stevens, 2009). These competencies were developed to be used by nurse educators to incorporate EBP into nursing education. Educators who complete this assessment will have a greater understanding of how EBP is addressed within their program and identify areas of gaps. Educators can use the findings from this study as a point of reference to compare their own baccalaureate pre-licensure nursing program.

Implications for Nursing Practice

Nurses are the primary providers tasked with incorporating EBP (Jackson, 2016). For EBP to be fully adopted into widespread practice, it must be fully accepted by microsystems, leaders, policy makers, and individual care providers (Stevens, 2013). Barriers for incorporating EBP still exist and include the following: inadequate skills and knowledge in EBP; environments and cultures that do not support EBP; misconceptions concerning EBP; outdated policies and politics; limited resources and tools; resistance from leaders, colleagues, and nurse managers; lack of EBP mentors; and academic programs that emphasize research rather than an EBP care approach (Melnyk & Fineout-Overholt, 2015; Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012; Melnyk et al., 2016; Melnyk, Grossman, et al., 2012).

Nursing practice is tasked with helping new graduates transition to practice and fill gaps from the academic setting. The findings from this study provide evidence on how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The findings show areas that have the potential to assist nursing practice in understanding why some barriers may exist.

Walter, Aucoin, Brown, Thompson, and Sullivan (2014) assessed clinical nurses and nurse managers' engagement in shared governance and EBP readiness through two surveys. The findings from the surveys indicated the respondents had low confidence scores in the areas of discovery and research, translation guidelines, and evidence summary. These findings helped the researchers develop and plan to increase EBP engagement (Walter et al., 2014). Utilizing this same approach, employers will need to assess new graduate nurses' knowledge of EBP scholarship. Employers can then fill the knowledge gap with continued education support in order to prepare nurses to support EBP, research initiatives, and quality.

Implications for Nursing Research

Nursing research indicated that EBP enhances healthcare outcomes, decreases cost, improves safety, improves the quality of health care, and reduces variations in care (McGintry & Anderson, 2008; Melnyk & Fineout-Overholt, 2015; Melnyk, Fineout-Overholt, et al., 2012). Research has focused on the effectiveness of EBP in undergraduate nursing education (Davidson & Candy, 2016; Heye & Stevens, 2009; Ruzafa-Martínez et al., 2016; Scurlock-Evans et al., 2017). The studies have mainly focused on educational interventions to enhance the understanding of EBP (Andre, Aune, & Braend, 2016; Davidson & Candy, 2016; Leach, Hofmeyer, & Bobridge, 2016;

Melnyk, 2013; Ruzafa-Martínez et al., 2016; Scurlock-Evans et al., 2017). Despite this research, new graduate nurses lack the competencies, skills, and attitudes that are needed for EBP (Blackman & Giles, 2017; Jackson, 2016).

The findings from this study help to identify how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. For example, the study's findings indicate that over half of the competencies are presented to students during the second or third semester. The high volume of competencies being presented during one semester could be a contributing factor to new nurses' lacking competencies, skills, and attitudes for EBP. Ciliska (2006) reported that often programs have an EBP course that is stand-alone with no connection between EBP expectations, skills, and knowledge into clinical practice. The data from this study did not assess the number of courses that teach EBP. However, it does appear that the competencies are primarily introduced during the second and third semester which could indicate courses focused on EBP. More studies are needed about the variation in nursing education competencies that are not directly tested on the NCLEX-RN. While programs vary, essential healthcare competencies should not be optional and could be considered a requirement. The lack of formal assessment makes it unclear what is truly covered in individual programs.

Implications for Public Policy

Nurses are the largest portion of the nation's healthcare workforce (IOM, 2011). The public calls for nurses who are able to deliver patient-centered, high-quality, safe care (IOM, 2003). Providing high-quality care is dependent upon EBP competencies (Young et al., 2014). Nursing programs are tasked with preparing future nurses to utilize

EBP scholarship. The findings from this study add to the understanding of EBP scholarship and help to close an identified gap.

The findings from this study indicate that EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The data also present that there are competencies which are identified by many programs as not included, some consensus on location within the program, and areas where there is a lack of consensus. Accrediting agencies such as the CCNE could mandate in the accrediting standards that the *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) could be included within the curriculum. The rationale for this recommendation comes from the fact that EBP is identified as a core competency and should, therefore, be a requirement for nursing education (IOM, 2003, QSEN, 2017). Nursing faculty who have the ability to influence program policy can utilize the findings from this study to assess their own programs. After careful evaluation of their assessment, nursing faculty can make changes within their program policies and practices. The results would strengthen programs and improve the quality of EBP scholarship.

Future Recommendations

The findings from this study answer a gap within the literature. The findings answer how EBP scholarship is addressed within baccalaureate pre-licensure nursing education. However, the work cannot stop here. This research attempts to follow the example set by Ferrell, Grant and Virani (1999). Their work began the process of improving end-of-life (EOL) care by strengthening nursing education. The hope is that this research and future research help to strengthen EBP scholarship through improving nursing education.

The first recommendation is to replicate the study. The replicated study would utilize baccalaureate pre-licensure nursing programs accredited by the CCNE, Accreditation Commission for Education in Nursing (ACEN), and the National League for Nursing Commission for Nursing Education Accreditation (CNEA). Future research might seek to understand what semester students are perceived to be competent for each of the 20 competencies. The results would then be compared and contrasted. The larger data set could help to determine if the competencies that had a high rate of not being included were a single phenomenon or part of a consistent issue across programs of nursing regardless of the accreditation agency. The data collection instrument would also ask respondents to comment on competencies that were selected as "not included." The qualitative data collected might help to answer why some competencies are "not included" by programs.

A second study might seek to survey nursing organizations who regularly hire new graduate nurses. The researcher would seek to understand how nursing organizations perceive how prepared new graduate nurses are to engage in EBP scholarship. The *Essential Competencies for Evidence-Based Practice in Nursing* would be utilized as the assessment tool (Stevens, 2009). The data from this study and the previous study could be utilized to compare differences between academic perceptions and nursing practice perceptions with the goal to improve residency programs, hospital orientation, and curriculum development.

Future research could also include nursing faculty. As reported, the results from this study indicated the majority of respondents (64%) were in leadership positions either as deans or chairpersons. A second faculty study would focus on individual faculty's

knowledge of the *Essential Competencies for Evidence-Based Practice* and their ability to teach the competencies (Stevens, 2009).

Since the results of this study indicated 65% of respondents were deans or chairpersons, another study might focus on individual faculty's knowledge of EBP scholarship content mapping within baccalaureate pre-licensure nursing programs. It would also assess faculty perceptions of the responsibility to teach EBP. For example, do faculty perceive that one or two faculty members within a program are tasked with teaching the majority of EBP or is EBP content distributed throughout courses for all faculty to teach?

These future research studies have the potential to strengthen EBP scholarship overall by improving EBP scholarship within nursing education. Each of these proposed studies has potential to add to the current state of EBP scholarship research. The findings can indicate new and important recommendations that will change EBP scholarship and nursing education.

Limitations

One limitation was a threat to internal reliability in the form of a selection bias since a non-probability convenience sampling was utilized with only 96 respondents. This type of sampling does not allow for randomization of the participants. Threats to external validity are concerned with the extent that the results of a study can be generalized. The researcher attempted to decrease the threats to external validity by ensuring a sample size that was adequate. A large sample size helped the proposed study demonstrate significance. The researcher utilized a convenience sampling which is a non-probability sampling technique. This sampling method decreases the ability to generalize

the findings because of the small sample size and the findings are relevant to the institutions that participated within the study.

The instrument was an additional limitation as different groups can respond in different ways. Respondents may not have been familiar with the 20 competencies. Additionally, schools of nursing are inundated with requests to complete surveys. Yet, the internal reliability measured a Cronbach's alpha of .87 which indicated a high level of internal reliability.

Chapter Summary

There is an identified gap in the nursing literature regarding how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. This study examined 96 survey responses from program leaders on how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The purpose of this study was to describe the current state of evidence-based practice scholarship in the curriculum of baccalaureate pre-licensure nursing programs. The research question stated: how is EBP scholarship addressed within baccalaureate pre-licensure nursing programs? The *Essential Competencies for Evidence-Based Practice in Nursing* (Stevens, 2009) was utilized to measure the state of EBP scholarship.

The study was a non-experimental, descriptive design that utilized a convenience sample of leaders in pre-licensure baccalaureate nursing programs accredited by the CCNE. The *Essential Competencies for Evidence-Based Practice in Nursing* was utilized to measure how EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. The respondents' roles included nursing program deans, baccalaureate pre-licensure nursing program chairs, and faculty members. The respondents selected the

number of semesters to complete the program with an option of one to six. Thirty-four states and Puerto Rico were represented in the study. Both traditional and accelerated baccalaureate pre-licensure nursing programs were included within the study.

The findings from the study showed that EBP scholarship is addressed within baccalaureate pre-licensure nursing programs. However, it also indicated competencies with a lack of consensus in placement, some with consensus in placement, and many with high percentages of "not included." Overall, the findings indicate the majority of respondents address EBP scholarship during the second and third semesters.

The findings from this research fill an identified gap in the literature. Findings also provide a guide to help nursing faculty evaluate EBP scholarship within their own programs. Nursing faculty can utilize the Rogers' diffusion of innovations model and the star model of knowledge transformation © to further incorporate EBP scholarship within their program. There is a need to further research EBP scholarship within baccalaureate pre-licensure nursing programs. Further research and dissemination of the research will ensure that nursing students have the best opportunities to learn about EBP so that their patients will benefit.

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Appendix A

Initial and Follow-up Email Invitation

Dear (Chief Nurse Administrator Name Placed Here)

My name is Elizabeth Whorley and I am a doctoral student at the Nova Southeastern University College of Nursing. I am currently conducting my dissertation research on exploring how evidence-based practice scholarship is addressed within baccalaureate pre-licensure nursing programs. I am hoping that you will complete or share the attached information with the appropriate person(s) in the hopes that they will participate in my study. This study was approved by the Nova Southeastern University Institutional Review Board (2018-130-Web).

This study will provide valuable information to understand the current state of evidence-based practice scholarship in the curriculum of baccalaureate pre-licensure nursing programs. The survey is a single web-page, takes less than 20 minutes to complete online, and no identifying information is collected. I have attached a PDF copy of the survey to review prior to entering the data and a copy of the participation letter of anonymous surveys.

Thank you for your time and assistance. Please do not hesitate to contact me with any questions or concerns. Please let me know if you'd like to receive a copy of the aggregated results.

All the best,

Elizabeth
Elizabeth Whorley, PhD (c), RN, CNE
Doctoral Candidate
Nova Southeastern University College of Nursing

Survey Link

https://redcap.nova.edu/redcap/surveys/?s=CTAJTN34HW

Follow-up Email

Greetings,

My name is Elizabeth Whorley and I am a doctoral student at the Nova Southeastern University College of Nursing. You previously received an invitation to participate in my dissertation research on exploring how evidence-based practice scholarship is addressed within baccalaureate pre-licensure nursing programs. I am hoping that if you have not already completed or shared the attached information with the appropriate person(s) you would consider sharing this information in hopes that they will complete the survey. This study was approved by the Nova Southeastern University Institutional Review Board (IRB # 2018-130-Web).

This study will provide valuable information to understand the current state of evidence-based practice scholarship in the curriculum of baccalaureate pre-licensure nursing programs. The survey is a single web-page, takes less than 20 minutes to complete online, and no identifying information is collected. I have attached a copy of the participation letter of anonymous surveys. If you prefer to review the survey prior to entering the data I have attached a PDF copy.

Thank you for your time and assistance. Please do not hesitate to contact me with any questions or concerns. Please let me know if you'd like to receive a copy of the aggregated results.

All the best,

Elizabeth

Elizabeth Whorley, PhD (c), RN, CNE Doctoral Candidate Nova Southeastern University College of Nursing

Appendix B

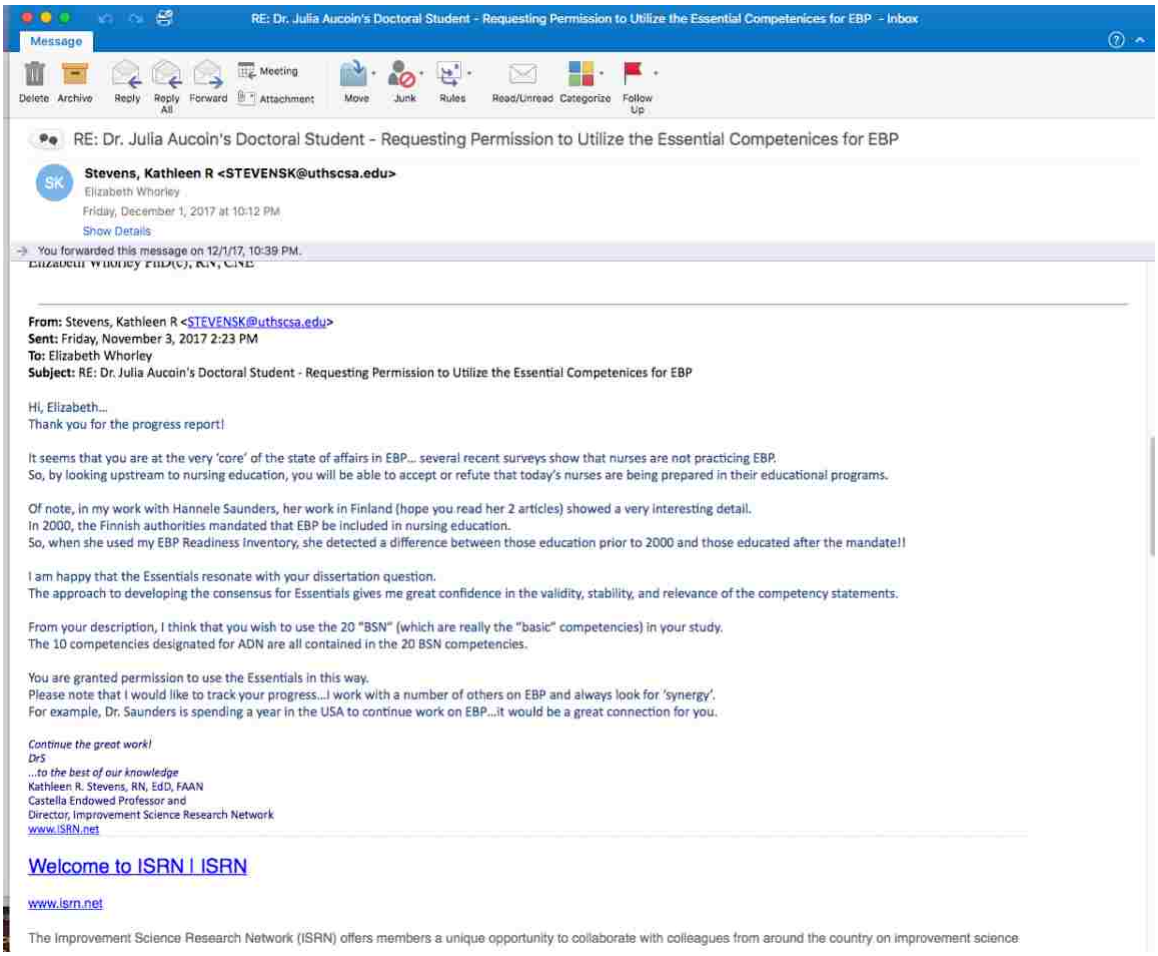
Essential Competencies for Evidence-Based Practice in Nursing

1. Define EBP in terms of evidence, expertise, and patient values.
2. With assistance and existing standards, critically appraise original research reports for practice implications in context of EBP.
3. Use pre-constructed expert search strategies (hedges) to locate primary research in major bibliographic databases.
4. Recognize ratings of strength of evidence when reading literature, including web resources.
5. Classify clinical knowledge as primary research evidence, evidence summary, or evidence-based guideline.
6. From specific evidence summary databases (e.g., Cochrane Database of Systematic Reviews), locate systematic reviews and evidence summaries on clinical topics.
7. Using existing critical appraisal checklists, identify key criteria in well-developed evidence summary reports.
8. List advantages of systematic reviews as strong evidential foundation for clinical decision making.
9. Identify examples of statistics commonly reported in evidence summaries.
10. With assistance and existing criteria checklist, identify the major facets to be critically appraised in clinical practice guidelines.
11. Using specified databases, access clinical practice guidelines on various clinical topics.
12. Participate on team to develop agency-specific evidence-based clinical practice guidelines.
13. Compare own practice with agency's recommended evidence-based clinical practice guidelines.
14. Describe ethical principles related to variation in practice and EBP.
15. Participate in the organizational culture of evidence-based quality improvement in care.
16. Deliver care using evidence-based clinical practice guidelines.
17. Utilizing agency-adopted clinical practice guidelines while individualizing care to client preferences and needs.
18. Assist in integrating practice change based on evidence-based clinical practice guidelines.

19. Choose evidence-based approaches over routine as base for own clinical decision making.
20. Participate in evidence-based quality improvement processes to evaluate outcomes of practice changes.

Appendix C

Permission to utilize *Essential Competencies for Evidence-Based Practice in Nursing*



RE: Dr. Julia Aucoin's Doctoral Student - Requesting Permission to Utilize the Essential Competenices for EBP - Inbox

Message

Delete Archive Reply Reply All Forward Meeting Attachment Move Junk Rules Read/Unread Categorize Follow Up

RE: Dr. Julia Aucoin's Doctoral Student - Requesting Permission to Utilize the Essential Competenices for EBP

Stevens, Kathleen R <STEVENSK@uthscsa.edu>
Elizabeth Whorley
Friday, December 1, 2017 at 10:12 PM
Show Details

You forwarded this message on 12/1/17, 10:39 PM.

Elizabeth Whorley PhD(C), RN, CNE

From: Stevens, Kathleen R <STEVENSK@uthscsa.edu>
Sent: Friday, November 3, 2017 2:23 PM
To: Elizabeth Whorley
Subject: RE: Dr. Julia Aucoin's Doctoral Student - Requesting Permission to Utilize the Essential Competenices for EBP

Hi, Elizabeth...
Thank you for the progress report!

It seems that you are at the very 'core' of the state of affairs in EBP... several recent surveys show that nurses are not practicing EBP.
So, by looking upstream to nursing education, you will be able to accept or refute that today's nurses are being prepared in their educational programs.

Of note, in my work with Hannele Saunders, her work in Finland (hope you read her 2 articles) showed a very interesting detail.
In 2000, the Finnish authorities mandated that EBP be included in nursing education.
So, when she used my EBP Readiness Inventory, she detected a difference between those education prior to 2000 and those educated after the mandate!!

I am happy that the Essentials resonate with your dissertation question.
The approach to developing the consensus for Essentials gives me great confidence in the validity, stability, and relevance of the competency statements.

From your description, I think that you wish to use the 20 "BSN" (which are really the "basic" competencies) in your study.
The 10 competencies designated for ADN are all contained in the 20 BSN competencies.

You are granted permission to use the Essentials in this way.
Please note that I would like to track your progress...I work with a number of others on EBP and always look for 'synergy'.
For example, Dr. Saunders is spending a year in the USA to continue work on EBP...it would be a great connection for you.

Continue the great work!
DrS
...to the best of our knowledge
Kathleen R. Stevens, RN, EdD, FAAN
Castella Endowed Professor and
Director, Improvement Science Research Network
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Appendix D

Confidential

The Implementation of the Essential Competencies for Evidence-Based Practice in Baccalaureate Nursing Education

After reading the participant letter for anonymus survey, and identifying the appropriate person(s) please complete the entire survey.

Please select the location of the program.

- ◯ Alabama
- ◯ Alaska
- ◯ Arizona
- ◯ Arkansas
- ◯ California
- ◯ Colorado
- ◯ Connecticut
- ◯ Delaware
- ◯ District of Columbia
- ◯ Florida
- ◯ Georgia
- ◯ Hawaii
- ◯ Idaho
- ◯ Illinois
- ◯ Indiana
- ◯ Iowa
- ◯ Kansas
- ◯ Kentucky
- ◯ Louisiana
- ◯ Maine
- ◯ Maryland
- ◯ Massachusetts
- ◯ Michigan
- ◯ Minnesota
- ◯ Mississippi
- ◯ Missouri
- ◯ Montana
- ◯ Nebraska
- ◯ Nevada
- ◯ New Hampshire
- ◯ New Jersey
- ◯ New Mexico
- ◯ New York
- ◯ North Carolina
- ◯ North Dakota
- ◯ Ohio
- ◯ Oklahoma
- ◯ Oregon
- ◯ Pennsylvania
- ◯ Puerto Rico
- ◯ Rhode Island
- ◯ South Carolina
- ◯ South Dakota
- ◯ Tennessee
- ◯ Texas
- ◯ Utah
- ◯ Vermont
- ◯ Virginia
- ◯ Washington
- ◯ West Virginia
- ◯ Wisconsin
- ◯ Wyoming

Please indicate your role:

- ◯ Dean
- ◯ Chairperson for the baccalaureate undergraduate pre-licensure program
- ◯ Faculty member
- ◯ Level coordinator

Instrument

Confidential

How would you characterize your program?

- ◯ Traditional
- ◯ Accelerated

Please select the number of semesters to complete the baccalaureate pre-licensure nursing program.

- ◯ One
- ◯ Two
- ◯ Three
- ◯ Four
- ◯ Five
- ◯ Six

Following the recommended curriculum plan at your institution, please select the semester students are first introduced to the following evidence-based practice competencies for the baccalaureate pre-licensure nursing program.

	First Semester	Second Semester	Third Semester	Fourth Semester	Fifth Semester	Sixth Semester	Not Included
Define EBP in terms of evidence, expertise, and patient values.	○	○	○	○	○	○	○
With assistance and existing standards, critically appraise original research reports for practice implications in context of EBP.	○	○	○	○	○	○	○
Use pre-constructed expert search strategies (hedges) to locate primary research in major bibliographic databases.	○	○	○	○	○	○	○
Recognize ratings of strength of evidence when reading literature, including web resources.	○	○	○	○	○	○	○
Classify clinical knowledge as primary research evidence, evidence summary, or evidence-based guideline.	○	○	○	○	○	○	○
From specific evidence summary databases (e.g., Cochrane Database of Systematic Reviews), locate systematic reviews and evidence summaries on clinical topics.	○	○	○	○	○	○	○
Using existing critical appraisal checklists, identify key criteria in well-developed evidence summary reports.	○	○	○	○	○	○	○
List advantages of systematic reviews as strong evidential foundation for clinical decision making.	○	○	○	○	○	○	○
Identify examples of statistics commonly reported in evidence summaries.	○	○	○	○	○	○	○
With assistance and existing criteria checklist, identify the major facets to be critically appraised in clinical practice guidelines.	○	○	○	○	○	○	○

Using specified databases, access clinical practice guidelines on various clinical topics.	○	○	○	○	○	○	○
Participate on team to develop agency-specific evidence-based clinical practice guidelines.	○	○	○	○	○	○	○
Compare own practice with agency's recommended evidence-based clinical practice guidelines.	○	○	○	○	○	○	○
Describe ethical principles related to variation in practice and EBP.	○	○	○	○	○	○	○
Participate in the organizational culture of evidence-based quality improvement in care.	○	○	○	○	○	○	○
Deliver care using evidence-based clinical practice guidelines.	○	○	○	○	○	○	○
Utilizing agency-adopted clinical practice guidelines while individualizing care to client preferences and needs.	○	○	○	○	○	○	○
Assist in integrating practice change based on evidence-based clinical practice guidelines.	○	○	○	○	○	○	○
Choose evidence-based approaches over routine as base for own clinical decision making.	○	○	○	○	○	○	○
Participate in evidence-based quality improvement processes to evaluate outcomes of practice changes.	○	○	○	○	○	○	○

Appendix E
Program Location

		Frequency	Percent	Cumulative Percent
Valid	Alabama	2	2.1	2.1
	Arkansas	2	2.1	4.2
	California	3	3.1	7.4
	Connecticut	1	1	8.4
	Georgia	1	1	9.5
	Illinois	3	3.1	12.6
	Indiana	2	2.1	14.7
	Iowa	2	2.1	16.8
	Kansas	3	3.1	20
	Kentucky	3	3.1	23.2
	Louisiana	2	2.1	25.3
	Maine	1	1	26.3
	Maryland	1	1	27.4
	Massachusetts	2	2.1	29.5
	Michigan	9	9.4	38.9
	Minnesota	4	4.2	43.2
	Mississippi	1	1	44.2
	Missouri	4	4.2	48.4
	Nebraska	2	2.1	50.5
	New Jersey	4	4.2	54.7
	New Mexico	1	1	55.8
	New York	4	4.2	60
	North Carolina	1	1	61.1
	Ohio	2	2.1	63.2
	Pennsylvania	6	6.3	69.5
	South Carolina	2	2.1	71.6
	Tennessee	3	3.1	74.7
	Texas	8	8.3	83.2
	Utah	1	1	84.2
	Vermont	1	1	85.3
	Virginia	3	3.1	88.4

	Washington	3	3.1	91.6
	West Virginia	1	1	92.6
	Wisconsin	4	4.2	96.8
	Puerto Rico	3	3.1	100
	Total	94	97.9	
Missing	System	2	2.1	
Total		96	100	