The Relationship of Education, Years of Experience, and School Nursing Practice to the Importance of School Nursing Knowledge

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ABSTRACT

Problem: Because of the complex nature and autonomy of school nursing practice, multiple professional organizations recommend a Bachelor of Science in Nursing as the minimum level of education for entry into this specialty. Despite research demonstrating benefits to patients and nurses with this level of education, school nurses across the U.S. vary widely in their educational and experiential preparation for this critical role. Benner's *Novice-to-Expert Framework* emphasizes the importance of experience in nursing or in a specialty practice to developing the skill needed to provide expert nursing care. This study investigated what knowledge school nurses considered important to competent practice when responding to the National Board for Certification of School Nurses *2007 Role Delineation Survey* and whether there are differences in how school nurses responded to these questions based on their educational and experiential backgrounds.

Methods: This was a quantitative, non-experimental exploratory study involving secondary analysis of the survey data. Demographics were analyzed using descriptive statistics. Non-parametric statistical procedures (Fisher's Exact Test) were used to see if the 399 subjects' answers to 32 knowledge questions on the survey differed based on education level, years of general nursing experience, and years of school nursing experience.

Results: Most subjects indicated that 27 of the 32 knowledge areas were moderately or extremely important for competent school nursing practice. Results of Fisher's Exact Test indicated differences on two items based on the education level of the respondents and differences on two items based on years of experience in school nursing, but no significant differences were found based on years of overall nursing experience. Communication skills in counseling had a significant difference based on both education level and years of school nursing experience; but it was impossible to tell which was more significant.

Conclusions: This study contributes to the body of knowledge about school nursing and what this sample of school nurses perceived as important knowledge for competent practice. However, this analysis of differences in answers given to the survey knowledge questions does not settle the debate of whether there are differences in nurse perceptions based on education level or experience.

Dedication

I am a very lucky woman: I am sustained by a wide circle of family, friends, colleagues, and mentors. I owe all of you an eternal debt of gratitude for your enthusiasm and encouragement throughout this journey.

I dedicate this work to these beloved family members and friends, who have listened to me discuss this process until I'm sure they were dying of boredom. I am especially grateful to my parents, Nancy Carter Crump Emory and William Michael Gooding, who taught me that I could be or do anything I wanted. I am most thankful for my husband, Jerry Cruise: your patience may have waxed and waned throughout this long process, but your love has never wavered.

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CHAPTER I

INTRODUCTION

School Nursing is a role specialty within nursing practice that has become increasingly complex since its inception. Research has shown that intervention by school nurses can have a positive effect on the health and well-being of children (Maughan, 2003; Robert Wood Johnson Foundation (RWJF), 2010; Stock, Larter, Kieckehefer, Thronson, & Maire, 2002). Nurses can become licensed at two levels in the United States: licensed practical or vocational nurses and registered nurses (RN). The licensed practical nurse (LPN) requires physician or RN supervision and provides basic nursing care. This type of nursing requires a technical or vocational degree, generally acquired in less than two years (US Department of Labor, Bureau of Labor Statistics, 2012). Most experts recommend that school nurses be licensed as RNs. In addition to performing basic nursing care, RNs coordinate and supervise the care of patients and provide education and counseling to individuals and groups. In the United States, there are three paths to becoming a registered nurse: the diploma, the associate's degree and the bachelor's degree.

Educational requirements for entry level into any type of nursing practice is one of the most hotly debated subjects related to the profession (Benner, Sutphen, Leonard, & Day, 2010; Saver, 2006). Because of the complex nature of practice and the autonomy required of nurses working in school health, a bachelor's degree in nursing (BSN) is strongly recommended as the minimum level of education for entry into this specialty (National Association of School Nurses [NASN] & American Nurses Association [ANA], 2005). This view is supported by the

American Academy of Pediatrics Council on School Health (2008) and the American Federation of Teachers (2009). The *Health, Mental Health, and Safety Guidelines for Schools* (Duncan, Luckenbill, Robinson, Wheeler, & Wooley, 2004), developed by more than 300 experts in the field of school health, goes further, recommending that school nurses should be RNs with specialty certification. Certification requires training beyond that provided in most bachelor's degree preparation. While individual states may have various requirements for certification of school nurses, certification at the national level requires a BSN (National Board for Certification of School Nurses, 2010).

Despite the recommendations made by these respected authorities, school nurses across the United States vary widely in their educational levels and experiential preparation for assuming this critical role (NASN & ANA, 2005; Rice, Biordi, & Zeller, 2005). "Nationwide, 21.7% of districts required newly hired school nurses to have an associate's degree in nursing, 5.4% required them to have an undergraduate (baccalaureate) degree in nursing, and 5.6% required them to have a graduate degree in nursing" (Brener, Vernon-Smiley, Leonard, and Buckley, 2013, p. 58). Many states allow nurses with minimal education, such as LPNs, to practice in schools, but approximately 86% of school districts require school nurses to have licensure at the RN level Brener, Vernon-Smiley, Leonard, and Buckley; National Association of State Boards of Education, 2012). This study will examine whether differences in educational backgrounds, years of experience in nursing, and/or years of experience in the specialty of school nursing affect school nurse perceptions of the importance of knowledge deemed critical to the practice of school nursing by the NASN, the ANA, and the National Board for the Certification of School Nurses.

Historical Perspectives

Nursing Education

The practice of nursing predates history. In early times, care of the sick was performed mostly by family members, servants, slaves, medicine men and women, and religious devotees (Donahue, 1996). Nursing in the west was primarily tied to Christianity and, in the east, to Islam. While the majority of nursing was done by women, men in religious orders and soldiers were often called upon to minister to the ill and injured. In some hospitals, nursing care was provided by members of religious sects and usually only to patients of the same gender as the nurse (Donahue). Practitioners learned by trial and error, by observing others, or through apprenticeship. There was little, if any, formal education involved.

While the Renaissance saw a phenomenal rise in research and knowledge about the human body, medicine, science, and public health, the period from the 1550s through the 1850s is considered to be the "Dark Period of Nursing" (Donahue, 1996, p. 160). In many countries, the Reformation brought about the dissolution of Catholic religious orders that provided nursing care to the poor and downtrodden of society, especially those suffering from mental illness and communicable disease. Smaller hospitals in monasteries and convents were closed. The remaining public hospitals were fearful places of squalor and disease where care was largely provided by female nurses who lacked education, compassion, and morals (Donahue). Nursing was considered a last resort occupation, after criminal activity failed to provide a living for many of these women. The pay was low, the hours were excessive, and the work was grinding. Neglect, robbery, and abuse of patients were commonplace.

The latter 19th century saw some return of attempts to provide a better level of health care in some countries and the modern version of nursing and nursing education began to emerge

(Donahue, 1996). Protestant and Catholic religious orders began to implement social and public health reform, again rising to the challenge of caring for the sick and the poor. These religious groups established three-year training programs to teach nurses to provide care for the sick in hospitals and home-visiting programs. This is the social environment that influenced Florence Nightingale to work for change in the education and practice of nurses.

Nightingale is considered by most nursing theorists to be the mother of the modern approach to nursing and nursing education. She grew up in a wealthy, influential family in England in the early 1800s. She was well-educated, highly intelligent, and passionately devoted to improving the lives of the poorest members of society (Dunphy, 2001). Though her family resisted her desire to become a nurse because of the poor reputation accorded the profession in 19th century England, Nightingale stubbornly undertook nursing apprenticeships in both Protestant and Catholic religious hospitals. After completing her training, publishing a study of hospital practices throughout Europe, and a year of managing a women's hospital, Nightingale was well-known for her expertise in nursing. In 1854, she was called upon by influential political friends to lead a contingent of nurses to address the deplorable conditions in the military hospital at the Crimean War front (Dunphy). Nightingale and her staff worked tirelessly to improve sanitation and care for the wounded soldiers. Nightingale used her considerable statistical expertise to track and publicize the outcomes of the nurses' care and management of the hospital. As a result of their work, mortality rates dropped from more than 50% to 20% in less than six months.

Upon her return to England, Nightingale capitalized on her exceptional achievements and heroic public reputation to influence significant reforms in health care, including that provided in military settings, public hospitals and mental health facilities (Schuyler, 1992). In 1860, she

established the first professional training school for nursing. Nightingale believed that nursing was a service to humanity and to God. She promoted the integration of spirituality and the sciences as the foundation for all aspects of nursing care (Dunphy, 2001). At the Nightingale Training School, students were educated in the basics of patient care, as well as in the sciences, humanities, ethics, and statistics, subjects which had never before been a part of nursing education (Schuyler). Nightingale further emphasized the importance of moral character, attention to detail, and excellent observational skills (Nightingale, 1859). Along with planning, directing, and delivering patient care, Nightingale believed that nurses must take charge of the management of health care facilities and their non-nursing staff.

Graduates of Nightingale's school became superintendents of hospitals throughout the world, including the United States (Schuyler, 1992). These women established this new approach to professional nursing as they undertook training of their nursing staff, changing, forever, the old, negative reputation of the nursing profession. Nightingale continued to research and write about nursing and health care throughout her life. Her philosophy of nursing serves as the foundation for the education and practice of nursing today, more than 100 years after her death.

The Evolution of Modern Nursing Education.

Unlike most other health professions in the United States, there are multiple ways of obtaining the education required to become licensed as a RN: diploma programs, associate's degree programs, and Bachelor of Science degree programs (Institute Of Medicine [IOM], 2011). Diploma programs are hospital-based and evolved from the Nightingale-type training schools. Diploma students are essentially apprenticed to the hospital, typically for three years, learning patient care and clinical skills on the job (Raines & Taglaireni, 2008). Classes in basic sciences, such as anatomy, are either taught within the hospital setting in between students' work

schedules or by affiliation with a local college or university. Diploma students are not awarded a college degree, but are eligible to sit for the National Council Licensure Examination for Registered Nurses (NCLEX) upon completion of the program.

As American nurses became more organized in the late 1800s, nurse leaders called for a more professional level of education and a move away from apprenticeship-style training. Richard Olding Beard, a physician at the University of Minnesota, is credited with spearheading the establishment of the first university-based nursing school in 1909 (Glass, 1985). Beard was motivated by his association with Isabel Hampton Robb, the superintendent of Johns Hopkins Nurses Training School, which was modeled after the Nightingale Training School. Ms. Robb was a prominent advocate for professional nursing education (Beard, 1920). Beard (1912) believed that, initially, the use of hospitals as training schools was mutually beneficial: nurses received a solid foundation in basic skills and the hospitals received a free labor force that was molded to meet the needs specific to each facility and patient population. However, the variation in the level of education received from one hospital to the next resulted in a lack of consistency. Beard and others maintained that hospitals were also taking advantage of the nursing students, often working them 12 to 14 hours a day with classes added in only when convenient. Beard asserted that the rising professional status of nursing demanded standardized admission criteria, including a high school diploma, physical and moral fitness, an empathetic personality, and "quick intelligence" (Beard, 1912, p. 786). He supported the belief of prominent nursing leaders that in-depth education in the humanities and the sciences was as important to nursing as it was to "…the related profession of medicine" (Beard, 1912, p. 785). It was only with a university degree that Beard believed the public could be assured of the competence of the nursing workforce.

Despite recommendations from professional nursing organizations for a move toward higher education, the diploma program was the most common route for becoming a registered nurse well into the second half of the 20th century. In 1965, more than 85% of registered nurses graduated from diploma schools, compared to only 10% from bachelor's degree programs (IOM, 2011). Into this mix was introduced a new type of nursing education, the associate's degree, developed largely in response to a crisis in the supply of nurses following World War II (Haase, 1990). This nursing shortage was fueled by multiple changes in the field of health care: the increasing ability of medicine to treat illness through the invention of antibiotics and anesthetics, increasing numbers and specialization of physicians, upgrading of hospital facilities, and a rise in the number of Americans with private health insurance. These changes strengthened the call for large numbers of highly skilled nurses to provide care in the nation's health care system. The creation of the associate's degree also answered, to some extent, renewed calls from nurse reformers to move the profession out of hospitals and into the higher education system. Associate's degree programs were first offered in 1958 and were solidly established in junior and community college systems throughout the country by the late 1960s (Haase).

Associate's degree nursing programs generally require that students complete basic prerequisites in the sciences prior to engaging in approximately two years of nursing courses and clinical education (Human Resources and Services Administration [HRSA], 2010). These programs provide an economical approach for many who would not otherwise be able to afford a nursing education (Raines & Taglaireni, 2008). The shortened timeframe for completion, when compared with a bachelor's degree program, is appealing to many who are eager to get into the profession as soon as possible (Benner, et al, 2010). These factors may account for the fact that associate's degree graduates now make up the largest percentage of all practicing RNs in the

United States, at 45.4%, with 66% of new graduates obtaining this degree. At the same time, diploma graduates have steadily declined to around 20% overall and less than 5% of new graduates (HRSA, 2010).

Bachelor's degrees in nursing typically require four years of full time education. The percentage of bachelor's program graduates has grown, slowly but steadily, since the early 1900s. Currently, 34.2% of practicing registered nurses have this level of education (HRSA, 2010).

> Baccalaureate nursing programs encompass all of the course work taught in associate degree and diploma programs plus a more in-depth treatment of the physical and social sciences, nursing research, public and community health, nursing management, and the humanities. The additional course work enhances the student's professional development, prepares the new nurse for a broader scope of practice, and provides the nurse with a better understanding of the cultural, political, economic, and social issues that affect patients and influence health care delivery (American Association of Colleges of Nursing [AACN], 2012, p. 1).

Leadership development and community nursing concepts are strongly emphasized in BSN programs (IOM, 2011). Bachelor's degree students also have the opportunity to experience a broader array of clinical settings during their lengthier educational experience.

Despite the differences in coursework and clinical practice, students graduating from diploma, associate, and baccalaureate programs must all pass the same national, RN licensure exam, the NCLEX-RN©, prior to entering practice (IOM, 2011). There is little difference in pass rates of nurses from the three types of educational programs (AACN, 2012), which has further fueled the debate over the type of education nursing students should be required to obtain

before entering practice. However, "The NCLEX-RN© is a multiple-choice test that measures the *minimum technical competency* for safe entry into basic nursing practice" (AACN, 2012, p. 5). It is not designed to determine differences between new graduates' levels of competency based on education, nor can it measure all the knowledge and skills acquired by students throughout their educational experiences.

Background of School Nursing

In the United States, school nursing was first introduced in 1902, in New York City, as a response to the problem of rising absenteeism, especially within poor and immigrant communities (Rogers, 1905). A program of school health inspections, using physicians, had been undertaken in Boston in1894 and in Chicago in 1895. New York followed suit with its own program in 1896, trying to combat outbreaks of serious communicable disease like measles and scarlet fever. Under this program, children with contagious illnesses were sent home by school physicians and often never returned to school (Rogers, 1905).

At the same time, Lillian Wald, considered to be the founder of public health nursing in the U.S., ran a visiting nurses' program called the Henry Street Settlement (Vessey & McGowan, 2006). Ms. Wald was well-known among public health authorities and charitable organizations as a strong advocate for the poor. She was consulted for ideas to address the decreasing school attendance in these poorest neighborhoods. Ms. Wald agreed to work with the New York Department of Education to provide the services of a nurse in the schools to assist the physicians on an experimental basis for one month. Lina Rogers was assigned to four schools which had a total student population of 8,671 students (Rogers, 1905). She undertook a thorough assessment of the schools and their community environment, as well as the needs of the affected families. She found that the notes sent home with children by the physicians were often lost or destroyed

before ever reaching the parents. In many cases, the parents could not read, did not understand the physicians' instructions, or simply could not afford the treatment recommended for the excluding ailment. There was also a lack of communication between the physicians, the parents, the students, and school personnel (Rogers, 1905). This often led to children being readmitted before they had been cured of their contagious diseases.

Ms. Rogers conducted daily visits to the homes of children who were excluded from school and often found them playing with other, healthy children after school let out, leading to the spread of whatever condition had been the problem in the first place (Rogers, 1905). In other cases, the home environment was seriously unsanitary or other family members were ill, prompting Ms. Rogers to provide assistance in educating the families, administering treatment, cleaning, and obtaining resources for affected families who could not afford medications, physician visits, or cleaning supplies (Rogers, 1905).

Ms. Rogers devised and implemented a detailed plan to improve children's health by working with the physicians to screen for illness in the schools each day, providing treatment for minor ailments at school, and continuing home visits to address issues that fostered the development and persistence of illness among the students (Rogers, 1905). Unlike the physicians' focus on excluding children from school to prevent the spread of communicable disease, the goal of Ms. Rogers' program was to facilitate children's attendance at school by intervening in a timely, effective, and holistic manner to eradicate disease. As Rogers (1908) stated, these children "…could least afford to lose their schooling, as they belong, almost all, to that class of wage earners who are legally allowed to work [and leave school] at the age of fourteen" (p. 967).

After the first month, the school nurse's interventions were deemed so successful that the New York City Department of Health and the Department of Education agreed to provide funding to expand the program. A team of 12 school nurses, working under Ms. Rogers' direction, reduced school exclusions of children from more than 10,000 in September, 1902 to 1,100 in September, 1903, a decrease of 98% in absenteeism only one year later (Rogers, 1905; Rogers, 1908). Utilizing the nursing process of assessment, planning, intervention and evaluation, along with careful documentation, and education of families and school personnel, these pioneers in school nursing demonstrated a significant impact on children's health and enabled thousands to take advantage of the opportunities afforded by public education.

More than a century later, school nurses continue to impact the lives and educational achievement of the children they serve. They perform health screenings, administer medications to treat or prevent illness, provide case management services, and render emergency care and referral in the event of injury. However, school nursing practice has expanded significantly since its early days (Board et al., 2011). School nurses still contend with communicable disease prevention and transmission daily, but their time is increasingly devoted to addressing a wide range of social and health problems that may significantly interfere with learning: violence, poverty, sexually transmitted diseases, deteriorating school buildings, environmental pollution, bioterrorism, teen pregnancy, substance abuse, and rising rates of asthma, diabetes and obesity (Denehy, 2007b; Osorio, Marx, & Bauer, 2000; Rice, Biordi, & Zeller, 2005). These issues, and more, impact the ability of children to focus on learning, as well as require intervention by school nurses.

Improvements in medical technology have also contributed to increased health needs among children in school. Children who would not have survived even a few decades ago now

live with chronic disease and disabilities resulting from accidents, prematurity, and birth defects. Medical procedures that were once only performed in hospitals are now routinely performed in schools (American Academy of Pediatrics Committee on School Health [AAP], 2008; Rice, Biordi, & Zeller, 2005). Federal laws, such as *Section 504 of the Rehabilitation Act*, the *No Child Left Behind Act* and the *Individuals with Disabilities Education Act*, require that children with health concerns and disabilities be allowed access to the same educational opportunities as their non-disabled peers (Adams & McCarthy, 2007). Research has shown that children afforded these opportunities are more likely to develop to their fullest potential. *Healthy People 2020* (US Department of Health and Human Services, 2012) recommends a minimum ratio of one full time nurse for every 750 healthy students as well as RN licensure, but the burden on public schools to provide for both the educational and health needs of millions of able-bodied and disabled children during the school day is significant (National Education Association, n.d.). The current economic downturn has seen the dissolution of multiple positions in public education, and school nurses are frequently among the first to go. Just as they did prior to the introduction of school nurses in New York City, health care responsibilities often fall to teachers and lay support staff (Rogers, 1905). According to the *School Health Policies and Programs Study (SHPPS), 2006* (Brener, Wheeler, Wolfe, Vernon-Smiley, & Caldart-Olsen, 2007), the ratio of school nurses-to-students remains below the minimum national recommendation in nearly 60% of the nation's schools, essentially unchanged from the previous study completed in 2000. The 2012 *SHPPS* did not evaluate this ratio, but will do so again in 2014 (Brener, Vernon-Smiley, Leonard, & Buckley, 2013).

Problem Statement

Despite recommendations by multiple experts in the fields of nursing, education, and child health, only 86% of U.S. school districts have policies requiring newly hired school nurses to be RNs and only 11% require a BSN or higher education for newly hired school nurses ((Brener, Vernon-Smiley, Leonard, & Buckley, 2013). There is a growing body of research that demonstrates that patients cared for by RNs with BSNs have significantly better outcomes than patients cared for by nurses with ADN or lower educational levels. Research also demonstrates differences in perceptions, thinking, decision-making, and ability to "see the bigger picture" between nurses based on their level of education. However, there is little research into the differences in patient outcomes or nurses' perceptions and knowledge levels in the field of school nursing. Such research could provide a foundation for encouraging educational and school nursing administrators to hire school nurses with bachelor's preparation or to require existing school nurses with less education to continue with their professional development.

Purpose of the Study

The purpose of this study was to explore what knowledge school nurses considered important to competent practice when responding to the National Board for Certification of School Nurses *2007 Role Delineation Study* and whether there are differences in how school nurses from different educational and experiential backgrounds responded to these questions.

The knowledge areas on the *2007 Role Delineation Study* survey are deemed critical to the school nursing specialty by the National Association of School Nurses, the American Nurses Association, and the National Board for the Certification of School Nurses.

Theoretical Framework

The theoretical framework supporting this study is Patricia Benner's *Novice-to-Expert Theory* (1984/2001) of knowledge development and skills acquisition in nursing practice. Benner's theory is based on the 1980 *Dreyfus Model of Skills Acquisition* (Dreyfus & Dreyfus, as cited in Benner, 1984/2001) and asserts that nurses advance through five stages in their professional development. Nursing students are considered to be in the "novice" stage, progressing to advanced beginner by the time they graduate. After two to three years in the same or similar patient care setting, most nurses advance to the competent and proficient stages. The expert nurse usually has spent five or more years in the same practice setting. During their research, Benner and colleagues (1984/2001) also identified seven domains of nursing practice and described competencies and characteristics for each domain.

Benner's theory of development is primarily related to the years of experience in the field of nursing, as well as in specialty practice areas. In other words, a nurse who may be at a higher stage in one area may revert to a lower stage when transferring to a different nursing role or practice setting. While the length of time a nurse has been practicing in a certain area is the main focus of this theory, Benner (1984/2001) contends that "experience-based skill acquisition is safer and quicker when it rests upon a sound educational base" (p. xix). In fact, Benner and her research colleagues are in the forefront of research that supports the need for nurses to achieve higher levels of education in order to improve the quality of the health care system (Benner et al., 2010). Therefore, as this research sought to determine whether education, experience, or both influence school nursing knowledge, Benner's theory was appropriate as a supporting framework for this work.

Research Questions

The intent of this study was to answer the following questions:

1. Are there differences in the answers school nurses provided regarding the importance of knowledge questions on the National Board for Certification of School Nurses *2007 Role Delineation Study* based on the nurses' level of education?
2. Are there differences in the answers school nurses provided regarding the importance of knowledge questions on the National Board for Certification of School Nurses *2007 Role Delineation Study* based on years of nursing experience?
3. Are there differences in the answers school nurses provided regarding the importance of knowledge questions on the *2007 Role Delineation Study* based on years of school nursing experience?

Definition of Terms

1. *Nursing process:* "a conceptual framework that allows the…practicing nurse to think systematically and process pertinent information…" (Huckaby, 2009, p. 72). The first phase of the nursing process is assessment, which involves gathering subjective and objective information about the patient and his/her health care issues. Next, the nurse arrives at a nursing diagnosis, which is a statement of how the patient is affected by the health care issue. Thirdly, the nurse collaborates with the patient and other members of the health care team to plan interventions to prevent or alleviate the effects of the health concerns identified in the assessment. The next step in the process is implementation of the plan. Following implementation is evaluation of the effectiveness of the intervention. The nursing process is cyclical and ongoing, in that

evaluation involves additional assessment of patient status and outcome, as well as planning for further interventions if necessary.

2. *Clinical reasoning*: "The process used to assimilate information, analyze data, and make decisions regarding patient care" (Simmons, Lanuza, Fonteyn, & Hicks, 2003, as cited in AACN, 2008, p. 36).

3. *Critical thinking*: a purposeful process of making decisions based on inquiry, analysis, synthesis, evaluation, inference, and interpretation (AACN, 2008; Facione, 1990).

4. *Clinical judgment:* the outcomes achieved as a result of critical thinking and the nursing process (Pesut, 2001).

5. *Failure-to-rescue:* a measure of patient safety that is used to determine the quality of health care. Failure-to-rescue involves failure to recognize a patient crisis or adverse condition in time to prevent complications and death (Fagin, 2001; Taenzer, Pyke, & McGrath, 2011).

6. *Nurse Surveillance:* "…a process through which nurses monitor, evaluate, and act upon emerging indicators of a patient's [or population's] change in [health] status. The components of this process include: ongoing observation and assessment, recognition, interpretation of clinical data, and decision-making" (Kutney-Lee, Lake, & Aiken, 2009, p. 218).

Limitations

The study was limited by the following factors:

1. The survey was not sent to all school nurses in the United States. Rather, it used a convenience sample of school nurses on email distribution lists and list-servs familiar to the Board of Directors of the National Board for Certification of School Nurses. Because it was not a random sample, results cannot be generalized to the broader population of school nurses.
2. There was no manipulation of independent variables.
3. Because this was a self-reporting instrument, the results depended on the perceptions and understandings for the school nurses answering the survey questions. Thus, there was the possibility of respondent and non-respondent bias.
4. This survey was quite lengthy (289 questions, including the demographic questions). This could have contributed to survey fatigue and a higher likelihood that respondents did not complete the entire survey (Fowler, 1995).

Significance of the Study

Using results from the *2007 Role Delineation Study* conducted by the National Board for Certification of School Nurses, this study adds to the growing body of research regarding the differences in perceptions of nurses with different levels of education and the differences in perceptions between nurses with varying years of experience. This study also delved into the application of Patricia Benner's Theory of Novice-to-Expert development and whether it applies to school nursing perceptions regarding the knowledge required for competent practice. More specifically, this research serves to establish a dialogue about the issue of educational and

experiential preparation for entry into the field of school nursing. School nursing requires an increasingly complex level of clinical skill and knowledge. School nurses practice in extremely autonomous and, at times, isolated settings. The National Board for Certification of School Nurses, the National Association of School Nurses, and the American Nurses Association have established standards of professional knowledge required for the competent practice of school nursing. These standards were reflected in the knowledge questions on the *Role Delineation Survey.* This research study also examined whether the school nurses surveyed perceived these knowledge areas as important to their practice as do these professional organizations.

Assumptions

The following assumptions guided this study:

1. The participants of the study responded truthfully to the knowledge questions on the *2007 Role Delineation Survey*.
2. The participants accurately interpreted the questions asked in the knowledge area of survey.
3. The knowledge area questions of the survey accurately reflected the knowledge deemed important to the competent practice of school nursing by experts in the field.

CHAPTER II

REVIEW OF THE LITERATURE

There is a large and growing body of literature about the differences between baccalaureate and associate's degree RN education. Some research considers differences in patient outcomes based on the education and experience of nurses. Other research examines differences in nurses' perceptions of their own abilities, knowledge and nursing practice, depending on education and experience. Patricia Benner and colleagues have examined both education and experience in developing their theory of nursing expertise. While many professional organizations recommend the BSN as the minimal preparation for school nursing practice, few studies were found that specifically address the educational differences among school nurses. This review examined seminal literature in all these areas.

Theoretical Framework: Patricia Benner's Novice-to-Expert Theory

Background, Constructs, and Organization

The *Novice-to-Expert Theory* (Benner 1984/2001) is categorized as a middle range theory. Middle range theory was developed by sociologist Robert Merton in 1968 as a bridge between grand theory and empirical science (Parker, 2001). "Middle range theories are narrower in scope than grand theories. They are composed of a limited number of concepts and propositions that are written at a relatively concrete and specific level" (Fawcett, 2005, p. 19). This narrower scope makes middle range theories more amenable to empirical testing, but comprehensive enough to frame the complexities inherent in nursing practice (Parker). Middle range theory is widely used in nursing scholarship and research because its lower level of abstraction makes it easier to test than grand theory. The *Novice-to-Expert Theory* includes aspects of both descriptive and explanatory middle range theory, as it describes and classifies

phenomena and also seeks to explain relationships between the concepts identified (Fawcett, 2005).

The *Novice-to-Expert Theory* was developed in the 1980s as the result of a qualitative research study of nursing practice (Benner 1984/2001). Benner and colleagues conducted interviews, focus groups, and observations of approximately 100 nurses in six acute care hospitals of varying size and focus (private, public, and teaching hospitals). Benner (1984/2001) believed that nursing had "…been studied primarily from a sociological perspective" (p. 1), leading to much information about the culture, roles and relationships of nursing practice. The purpose of this study was to examine nursing knowledge that develops as a result of nursing experience.

The *Dreyfus Model of Skill Acquisition* (Dreyfus & Dreyfus, as cited in Benner, 1984/2001), based on studies of skills development among chess players and airline pilots, formed the foundation for the *Novice-to-Expert Theory* (Dreyfus and Dreyfus as cited in Benner, 1984/2001). This model "…distinguishes between the level of skilled performance that can be achieved through principles and theory learned in a classroom and the context-dependent judgments and skill that can be acquired only in real situations" (Dreyfus, 1982, as cited in Benner, 1984/2001, p.21).

The *Novice-to-Expert Theory* considers skill development in the context of the total situation rather than as a product of inherent characteristics of the nurse (Benner, 1984/2001). Benner maintains that nurses advance through five stages of development in their professional development, but may return to an earlier stage if they move to a different practice setting. Benner goes on to identify 31 competencies of nursing practice identified during the study and classified into seven domains.

In Benner's theory, the first stage of nursing skill acquisition is the "Novice", the level of most nursing students in the earliest phases of their education. Novice nurses have had no experience with the situations in which they are expected to perform (Benner, 1984/2001). The goals and tools used in patient care are totally unfamiliar to them. They are taught objective information, such as normal vital signs and universal rules of patient assessment and care that can be applied regardless of the situation. "The rule-governed behavior typical of the novice is extremely limited and inflexible" (Benner, 1984/2001, p. 21). When the novice describes practice situations, "…one can smell the textbook; he is not yet at home with the language, and the words sound like foreign objects" (Benner, 1984/2001, p. 20). Most novices have a limited ability to make independent judgments or decisions about the best approach to patient care.

The second stage is the "Advanced Beginner". This is equivalent to the experience level of most senior nursing students and new graduates. Advanced beginners have coped with enough real situations to recognize some meaningful components in comparable situations (Benner, 1984, 2001). They begin to internalize their own set of guidelines based on their experiences, but are not likely to recognize nuances that could clue them into an existing or impending problem. They spend more time concentrating on the rules they have learned in the past and task completion, rather than being able to distinguish between what is important and what is not important in various situations. They require ongoing support from more experienced nurses in learning to set priorities and recognize important aspects of patients' conditions.

Stage Three of Benner's theory is the "Competent" nurse. This is a nurse who has at least two to three years of experience in the same or relatively similar field of nursing practice. Competent nurses begin to formulate more long-range goals or plans in their practice. Their ability to set priorities and recognize important cues is increasing.

> The competent nurse lacks the speed and flexibility of the proficient nurse, but does have a feeling of mastery and the ability to cope with and manage the many contingencies of clinical nursing. The conscious, deliberate planning that is characteristic of this skill level helps achieve efficiency and organization (Benner, 1984/2001, p. 27).

Stage Four of Benner's model is "Proficient". Proficient nurses generally have three to five years of experience in their field or specialty. Nurses at this stage are able to see a broader picture of various patient care situations than nurses at lower levels of experience (Benner, 1984/2001). Expectations are based on a wide range of experiences and performance is guided by fundamental principles, rather than tightly constricted rules and guidelines. Proficient practitioners are able to recognize more quickly and easily when a situation does not fit the expected course of events. This allows the proficient nurse to respond more rapidly and efficiently, setting priorities and screening out the less important aspects of the situation.

The fifth and final stage of Benner's theory is "Expert", which occurs once the nurse has spent five or more years in a particular nursing setting. Expert nurses rely on a vast reserve of knowledge and experience to respond to patient care situations, rather than rules, guidelines, or principles (Benner, 1984/2001). They note subtle changes in patients' conditions, even while they are involved in completing tasks. Experts do not waste time on unimportant details or alternative solutions to a problem situation. They possess a well-developed intuitive ability to grasp the meaning and importance of various situations and rarely require internal analysis to respond quickly and appropriately. However, because expert nurses respond almost intuitively, they may not always be able to explain how they reached a decision or chose a specific action. As a result, expert nurses may not always make the best teachers for novices or advanced

beginners. Competent or proficient nurses may be better able to explain the best approaches to patient care.

Benner (1984/2001) and colleagues also identified 31 competencies of nursing practice in their study, which were later categorized into seven domains. The domains are *the helping role, the teaching-coaching function, the diagnostic and patient-monitoring function, effective management of rapidly changing situations, administering and monitoring therapeutic interventions and regimes, monitoring and ensuring the quality of health care practices*, and *organizational and work role-competencies*. Although these domains were derived from the narratives and observations of acute care nurses, school nursing practice reflects all of these competencies.

The *helping role domain* includes creating an environment that supports healing and empowers patients to participate in and control their own recovery (Benner, 1984/2001). The nurse's role is to provide comfort, emotional and informational support, and maintain human dignity during patients' most challenging times. Education, inclusion of the family, cultural competence, and advocating for the patient are important aspects of helping that are also seen in school nursing practice (Wolfe, 2006). The nurse creates a therapeutic community by communicating with interdisciplinary health team members and interpreting the health care system for the patient and family. In many cases, the school nurse may be the only health care provider a child routinely sees, making this domain critical.

The *teaching-coaching domain* utilizes principles of health education to help a patient navigate through the course of an illness (Benner, 1984/2001). Nurses in this role "…take what is foreign and fearful to the patient and make it familiar and thus less frightening" (Benner, 1984/2001, p. 77). In this domain, nurses assess patients' readiness to learn, interpret diagnoses,

provide rationale for interventions, and support patients in managing lifestyle changes resulting from illness and treatment. Nurses assist patients and their families in dealing with situations, such as disability, disfigurement, and death, subjects which are generally avoided in current western society. School nurse advocacy and planning are central to helping children with chronic or disabling illnesses re-integrate into the school setting, as well as helping children with acute care needs receive health care interventions (AAP, 2008).

The *diagnostic and monitoring domain* relates to the issue of nurse surveillance, which is a seminal focus of nursing practice and will be discussed later in this chapter. This "…function of the nurse has expanded dramatically as the number of illnesses and interventions per patient have increased almost exponentially over the past 20 years" (Benner, 1984/2001, p. 95). Nurses spend more time in direct contact with patients than any other member of the health care team. With experience and education, nurses develop skills allowing them to assess the patient's capacity for recovery. As expertise develops, so does the nurse's ability to anticipate problems and detect early warning signs of complications. This is important to the wellbeing of children in school as well, as the school nurse is usually the first provider to see a child with a health problem. School nurse surveillance, or being alert to more serious issues underlying the presenting complaint, can prevent disability and save lives (Malone & Bergren, 2010).

The fourth domain is *effective management of rapidly changing situations*. This relates to the skill of the nurse in handling crisis situations, such as life-threatening emergencies. Nurses functioning in this domain must immediately be able to recognize the urgency of the circumstances, coordinate the health care team response, bring together the necessary resources, and manage the crisis until physician assistance is available. As the school nurse is functioning

autonomously, crisis management is a central role (Grant, 2002). In fact, many school nurses lead their schools' crisis response planning teams.

Administering and monitoring therapeutic interventions and regimens is the next domain. This role includes safe and accurate administration of medications through various routes, another important issue in nursing practice. Nurses must monitor patients for side effects, expected responses, or toxic reactions to the treatment, including possible interactions with other medications or the patient's own conditions. Wounds sustained during injury or surgery are treated and monitored for proper healing. Patients must be protected from the hazards associated with illness, weakness, treatments, and hospitalization, such as pain, skin breakdown, falls, communicable disease, and respiratory complications. "Nurses often fail to give themselves credit for their skill in administering the often complex and intricate current therapeutic interventions and regimens" (Benner, 1984/2001, p. 121). School nurses are directly involved in administering medications and treatments for a variety of health care issues in children (Wolfe, 2006). They may also be responsible for training unlicensed assistive personnel, faculty, or staff to deliver care in the nurse's absence.

Monitoring and ensuring the quality of health care practices is the sixth domain. Because of their intimate knowledge of the patient and his/her condition, nurses are in a unique position to detect and prevent errors in all aspects of patient care, including those that arise from interventions by other members of the health care team. Benner (1984/2001) describes the nurses' discomfort with discussing this domain, saying they saw it as a failure of the system which should have protected the patient. The competencies in this domain also involve balancing the need for medical intervention with the patient's ability to tolerate them or need for rest and quiet to heal. Nurses functioning in this domain must also be able to communicate clearly with

other providers, including physicians, to persuade them to order certain medications, tests, or treatments the nurse deems necessary to the patient's well-being. "This domain offers little satisfaction to the nurse because…when things go wrong…, the nurse is confronted with a sense of guilt over not catching the error regardless of its source" (Benner, 1984/2001, p. 143-144).

The *organizational and work-role competencies* form the seventh and final domain. These involve learning to prioritize and meet the multiple needs of multiple patients, cope with staffing issues, and work as a part of a therapeutic team to provide optimal patient care. Burnout is a significant issue in the current climate of nursing shortages, as nurses increasingly find themselves doing more with less. Nurses new to school health practice are often overwhelmed by their multiple responsibilities and the fact that they, alone, are accountable for the health of the school community (Simmons, 2002).

Literature Related to the Theory

There is a debate among nurse scholars as to whether Benner's *Novice-to-Expert* framework is a theory. Altmann (2007) calls the model a philosophy, stating that the concepts lack operational definitions, making them difficult to test. Altmann also criticizes the small sample size, lack of random sampling, and resulting questions of validity and credibility in Benner's research that Altmann claims make generalization of findings inappropriate. Altmann criticizes the fact that "interpretation is subjective in nature for both the individual telling the experience and the researcher" (p. 119), despite this being the usual process for qualitative research. Altmann further condemns Benner's "bias toward the positive" (p. 119), stating that the focus was on the nurses' views of successful outcomes in exemplary situations, rather than on negative occurrences, and no patient interviews were included. However, a careful and in-depth reading of Benner's work contradicts this aspect of Altmann's critique, revealing that several

negative situations were indeed presented as exemplars (Benner 1984/2001). The nurses' narratives about these unsatisfactory outcomes provide a rich discussion of how nurses learn from their experiences and reflect on their practice to improve it over time.

English (1993) and Cash (1995) are other outspoken critics of Benner's theory, also citing methodological problems with Benner's research and lack of operational definitions for terms such as "intuition" and "expertise". Cash's strongest criticism is that she feels Benner ignores issues of power and control which were brought out by many of the nurses' narratives, especially regarding nurses' interactions with physicians. However, there was discussion of these issues in both the 1984 and the 2001 editions of Benner's *Novice-to-Expert* book. Benner (1996) responded to Cash, stating that exposing the power struggles inherent in nursing practice through such narrative inquiry shines a light on an issue that may otherwise go unexplored. Benner hopes this stimulates debate that may bring about a more appropriate balance of power between nurses and physicians.

English (1993) focuses on the lack of empirical evidence for Benner's stages and domains. He asserts that in order to support and strive for excellence, nurses need to be able to identify specific qualifications necessary for such achievement. English states these are not found in Benner's model, but Benner (1984/2001) explains that "expertise cannot be legislated or standardized...since expertise in a situation always involves an accurate interpretation of specific responses to a specific situation" (p. 177). Expertise cannot be taken out of context without reducing it to "…a minimal level of competency" (Benner 1984/2001, p. 177).

Lyneham, Parkinson, and Denholm (2008) supported Benner's assertion that intuition is used by experts in making clinical decisions in a phenomenological study of 14 emergency department (ED) nurses. Lyneham, et al. expand and elaborate on the construct of intuition to

describe stages of recognition and internalization of intuitive knowledge. They found that nurses with five or more years of experience in the ED learned to pay attention to and act on feelings and instincts about patients' conditions that they would have ignored earlier in their careers due to their inexperience and reliance on strict rules to guide their practice.

Darbyshire (1994) responds to criticism of Benner's methodology, stating that English's critique comes from the philosophical perspectives of positivism and cognitive psychology. English's (1993) emphasis on empiricism as the preferred method for studying nursing practice excludes the growing body of knowledge obtained from qualitative inquiry. This type of research has experienced increasing acceptance in the human sciences in the decades since Benner and colleagues first presented their research (Rossman & Rallis, 2003). "Benner's and Dreyfus's work is specifically directed at proposing, not that science is of no value, but that a viable alternative to these traditional ways of understanding practice, theory, and knowledge is possible" (Darbyshire, 1994, p. 756). Benner (1996) answers her critics in similar fashion, also pointing out that part of the research for the *Novice-to-Expert Theory* was, indeed, conducted as clinical observations.

Others have criticized Benner's (1984/2001) *Novice-to-Expert Theory* from a strictly philosophical perspective that is beyond the scope of this dissertation and is irrelevant to the model's usefulness as a framework for studying and understanding nursing practice. Despite the debate, the model is widely accepted as a middle range theory (Jones, 2007; Meleis, 2007) and has been utilized as a foundation for the development of educational programs in the United States and the United Kingdom. In nursing education within the UK, the model is foundational to teaching critical thinking skills and self-reflection in nursing education at both the undergraduate and graduate levels (Hargreaves & Lane, 2001).

The University of Maryland Baltimore School Nursing developed clinical simulation protocols that consider the developmental skill levels of the student, as described in Benner's novice stage, while providing experiences in professional behavior, critical care of patients, and interdisciplinary collaboration. These simulations increased student confidence and skill in a safe environment (Larew, Lessans, Spunt, Foster, & Covington, 2006). Faculty from another simulation center in California described a similar approach in structuring simulated patient care situations to incorporate experiences appropriate to the developmental stage of the novice student (Waxman & Telles, 2009). However, no results of students' performance or outcomes were provided in their report. The model has also been used to assess the acquisition of skill and knowledge at the expert level, as in the development of nursing specialty examinations in the fields of legal nurse consulting (Jones, 2007) and urological nursing (Johnson, 2005).

While many nursing researchers utilize Benner's theory as their framework, few studies were found that actually tested the model or its constructs. One qualitative study compared the perceptions of six BSNs with two or less years of full time school nurse experience and six BSNs with five or more years of school nurse experience (Simmons, 2002). No discussion was provided regarding the participants' nursing experience prior to entering school nursing practice. Common themes were identified between and within the groups that corresponded with Benner's theory development and the claim that expert nurses regress to a lower stage when moving into a new practice setting. Novice school nurses and expert school nurses appreciated the independence they had in their practice, but novice school nurses were plagued by uncertainty, insecurity, and a sense of isolation, feelings that seemed to have diminished for the experienced school nurses. New school nurses were more likely to experience role confusion than experienced nurses. Both groups emphasized that formal, bachelor's level education and

previous practice experiences, such as public health and leadership positions, were critical to being adequately prepared for assuming the responsibilities of school nursing. This study provides some support for Benner's (1984/2001) *Novice-to-Expert Theory* in that newer school nurses demonstrated less confidence in their roles and responsibilities than experienced school nurses. The school nurses' emphasis on education and experience also supports Benner's assertion that experience is not a substitute for education.

Application of the Theory to This Research Proposal

Because this research explored whether school nursing practice is affected by educational preparation or years of experience or both, Benner's (1984/2001) *Novice-to-Expert Theory* formed a sound framework for studying this issue. The domains of nursing competency are reflected in the *School Nursing Scope and Standards of Practice* (ANA & NASN, 2011) and *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). These theoretical constructs guided the investigation, as well as resulting discussions and recommendations.

Literature Comparing Nurse Educational Level Related to Nursing Practice and Patient Outcomes

Education and Experience Related to Patient Outcomes

The most well-known research regarding differences in patient outcomes related to nurse education has been conducted by Linda H. Aiken and colleagues (Aiken, Clarke, Cheung, Sloane, & Silber, 2003; Friese, Lake, Aiken, Silber, and Sochalski, 2008; Kendall-Gallagher, Aiken, Sloane, and Cimiotti, 2011). In a 2003 cross-sectional analysis of data from over 230,000 surgical patients discharged from 168 hospitals in Pennsylvania, Aiken, et al. (2003) utilized

detailed logistic regression models to estimate the effects of higher proportions of bachelor's- or master's-educated nurses on patient mortality and failure to rescue.

> After adjusting for patient characteristics and hospital structural characteristics (size, teaching status, level of technology), as well as for nurse staffing, nurse experience, and whether the patient's surgeon was board certified, a 10% increase in the proportion of nurses holding a bachelor's degree was associated with a 5% decrease in both the likelihood of patients dying within 30 days of admission and the odds of failure to rescue (Aiken, et al., 2003, p. 1617).

Years of nursing experience were not found to have a significant association with decreased patient mortality or failure to rescue when education, hospital characteristics, etc. were added to the regression model (Aiken, et al., 2003).

Additional research has supported these findings. A study by Kendall-Gallagher, Aiken, Sloane, and Cimiotti (2011) examined 2005 discharge data from 652 "…adult acute care hospitals located in California, Florida, New Jersey, and Pennsylvania" (p. 189). Records were evaluated for patients who were admitted for general, orthopedic or vascular surgery. The outcome variables were inpatient death within 30 days of admission, failure-to-rescue, and inpatient death following complications. These outcomes were compared to hospital structural characteristics (teaching status, size, and level of technology, as in the 2003 Aiken, et al. study), as well as nurse education, specialty certification, and years of experience. Researchers found that a

> decreased risk of inpatient 30-day mortality and failure to rescue were associated with higher proportions of nurses with BSN and higher degrees…Specialty certification of

> nurses was also associated with lower mortality and failure to rescue, but only among nurses with BSN or higher education. Mean years of hospital nurse experience was not a significant predictor of patient mortality after taking into account education (Kendall-Gallagher et al., 2011, pp. 192-193).

Friese, et al. (2008) conducted a secondary analysis of the data from the above Pennsylvania hospitals used in the Aiken, et al. study (2003), but targeted a different sample population of surgical patients with various types of cancer. The researchers used the following outcome measures: 30-day mortality, defined as patient death within 30 days of hospital admission; complications, defined as patient diagnoses that developed during the current admission and were not found on admission or in prior patient hospital stays; and failure to rescue, defined as death from post-surgical complications occurring within 30 days of hospital admission (Friese, et al.). These outcomes were compared with various nursing characteristics (practice environment, staffing and educational background) and hospital characteristics (size, teaching status, National Cancer Institute recognition, and ability to provide advanced procedures such as organ transplants). The effect of years of nursing experience was not considered in this study.

The study analysis showed that hospitals with more nurses educated at the bachelor's degree or higher level had lower mortality rates ($p<.05$) (Friese, et al., 2008). Nurse education level was also found to be associated with a lower rate of failure to rescue ($p.<.01$), as were higher nurse-to-patient ratios and favorable practice environments. However, educational preparation of nurses was not found to have a significant influence on complication rates.

In 2005, Estabrooks, Midodzi, Cummings, Ricker, and Giovannetti conducted a cross-sectional analysis of 1998-1999 outcome data from more than 18,000 patients discharged from

49 out of 109 acute care hospitals in Alberta, Canada. Patients were included in the study if they had admitting diagnoses of "…acute myocardial infarction, congestive heart failure, chronic obstructive pulmonary disease, pneumonia, or stroke" (Estabrooks, et al., p. 76). This study found that hospitals with a higher proportion of nurses with bachelor's degrees had lower rates of patient mortality during the 30 days following admission. This effect held true in both univariate ($p<.001$) and multivariate analyses ($p<.05$). Years of nursing experience was not examined in this study either.

Another Canadian study analyzed data from 46,993 patients and 5,980 nurses in all large teaching and community hospitals in Ontario (Tourangeau et al., 2006). Data were from patients admitted with acute myocardial infarction, stroke, pneumonia, or septicemia who were discharged between April, 2002 and March, 2003. Analysis indicated that hospitals with a higher proportion of nurses with bachelor's degrees had lower levels of patient mortality within 30 days after admission. A "…10% increase in proportion of baccalaureate-prepared nurses was associated with nine fewer deaths for every 1,000 discharged patients" (Tourangeau et al., 2006, p. 41). Mean years of nursing experience on the clinical unit was not significantly associated with lowered risk of 30-day mortality.

In a 2007 cross-sectional analysis study of all 115 Belgian hospitals and 260,923 patients, Van den Heede et al. (2009b) found no significant association between the proportion of registered nurses with a bachelor's degree and patient outcomes using logistic regression models. However, in 2008, when analyzing data from specific units that care for cardiac surgical patients, Van den Heede et al. (2009a) reported a significant relationship between nurse education levels and patient outcomes. This sample consisted of 9,054 patients admitted for either cardiac bypass or cardiac valve surgery in 29 acute care hospitals in Belgium. The latter study found that a

higher proportion of nurses with baccalaureate education was associated with a lower risk of dying in the hospital following cardiac surgery, even after controlling for other risk factors such as the volume of procedures done in the hospital, the intensity of nursing care, and patient characteristics (e.g. gender, type of procedure, etc.). Nurse experience levels were not a variable in either of these studies.

The authors postulate that the differences in their findings relate to the fact that the more recent study was conducted at the unit level rather than the hospital level, which would have included both general nursing units and intensive care units (Van den Heede, et al., 2009a). Intensive care units have higher ratios of nurse-to-patient staffing, a higher intensity of nursing care, and sicker patients than the general units that were studied in the more recent 2008 research. Combining these factors may underestimate the actual experiences of patients in certain types of nursing units (Sales et al., 2008).

Sales et al. (2008) conducted a cross-sectional study using retrospective data from 453 nursing units in 123 Veterans Health Administration Hospitals in the U.S.; 171 of these were intensive care units, and 282 were general nursing units. This study found no association between the proportion of bachelor's prepared registered nurses and patient outcomes, but this variable was only analyzed at the hospital level as the researchers were unable to obtain educational preparation data at the unit level. Other factors, such as staffing levels and number of registered nurse hours per patient per day were found to be associated with a decreased risk of patient mortality when analyzed at the hospital level, but not when examined at the nursing unit level. The only variables that retained significant associations at the unit level were the patient's risk of complications and having an intensive care unit stay (Sales et al., 2008). Since these researchers emphasized that unit-level data reflect a more accurate picture of a patient's hospital

trajectory, the lack of a relationship between nurse education and patient outcomes at the hospital level in this study warrants further examination at the unit level. Nurse experience was not a variable considered in this analysis.

There are other studies that have failed to demonstrate a strong association of nurse education levels with patient outcomes. In 2001, Blegen, Vaughn, and Goode reported on two studies conducted at the nursing unit level: the first study examined data from 42 units in one large tertiary care hospital; the second study analyzed data from 39 units in 11 hospitals over 2.5 years. In both studies, patient care units with the highest proportion of nurses having greater than five years of experience had slightly lower medication error rates. In the second study, units with more experienced nurses had fewer patient falls. Units with a higher proportion of bachelor's prepared nurses had similar patient outcomes compared to those with a lower proportion of baccalaureate graduates except in study one, where units with more bachelor's prepared nurses actually had higher medication error rates (Blegen, et al., 2001). In study two, the higher the proportion of experienced RNs (> 5years), the lower the medication error rates and patient fall rates. No effect was found in the second study related to nurse education levels, but the researchers reported that units with more BSNs had a higher proportion of RNs and nurses with less experience delivering care, either of which could have muted the effects of education on patient outcomes.

Neither of these studies examined whether there was an interaction between experience and education. Nor did they consider whether the higher medication error rates could have been related to more frequent reporting of medication errors by bachelor's prepared nurses as compared to nurses from other educational backgrounds. In fact, surveys of registered nurses in New York and Texas in 1996 found that associate's prepared nurses "were more than nine times

as likely as those with a bachelor of science degree to be charged with violations" such as medication errors (AACN and Green, as cited in Fagin, 2001). Walters (1992) found that nurses with more experience made significantly fewer medication errors and reported a larger proportion of those that were made. Calliari (1995) also found that nurses with more experience made fewer medication errors. In Calliari's study, the more education nurses in the study had, the less likely they were to make medication errors. So this issue warrants further examination before conclusions can be drawn with confidence regarding the relationship of medication errors to education level.

A cross-sectional study of 1999 discharge data from 157 hospitals in Pennsylvania by Kutney-Lee and Aiken (2008) found that a decreased risk of 30-day mortality and failure to rescue for surgical patients with serious mental illness was associated with higher levels of nurse staffing rather than educational levels. Years of nursing experience was not considered. Effects of higher educational levels of nurses were in the positive direction, but did not approach the level of statistical significance (Kutney-Lee & Aiken). However, the study found that the length of hospitalization was shorter for patients in hospitals with higher proportions of bachelor's or higher educated nurses.

In a recently published study, Blegen, Goode, and Park (2013) conducted cross-sectional analysis of patient outcomes in 21 teaching hospitals throughout 2005. Hospitals with a higher proportion of BSNs were found to have lower rates of patient mortality from congestive heart failure, hospital-acquired decubitus ulcers, deep vein thrombosis, pulmonary embolus, failure-to-rescue in surgical patients with complications, and expected length of hospital stays (Blegen et al., 2013). These effects held true even when researchers controlled for patient acuity and hospital characteristics such as higher proportions of low-income patients. The correlation

between nurse education level and development of hospital-acquired infections due to medical care was in the negative direction, but not found to be statistically significant. Years of nurse experience was not one of the study variables.

Education and Experience Related to Nurse Performance and Cognitive Processes

Professionalism is one attribute that is strongly associated with bachelor's preparation in nursing. Individual practitioners embrace and internalize a set of ethical and practice standards that are developed and accepted by the profession (Cottrell, 2008; Kubsch, Hansen, & Huyser-Eatwell, 2008). Professionals demonstrate altruism and a sense of service as their prime motivation. Accountability, clinical excellence, and self-determination are characteristics of professional nurses. A study by Brooks and Shepherd (1992) utilized the Watson-Glaser Critical Thinking Appraisal and the Health Care Professional Attitude Inventory tools to compare critical thinking and professional attitudes among seniors from four different types of RN educational settings. These tools have been found to have strong reliability and validity. Two hundred students were tested in southeastern Pennsylvania, 50 each from a diploma program, an associate's degree program, a traditional four-year baccalaureate program, and a program in which RNs with associate's degrees or diplomas complete their bachelor's degrees (RN-to-BSN).

The researchers found no significant difference in professionalism scores when comparing seniors in the traditional BSN program and seniors in the ADN program (Brooks & Shepherd, 1992). The seniors in the RN-to-BSN completion program had the highest professionalism scores and the seniors in the diploma program had the lowest. The researchers also found a significant correlation between the number of years of nursing experience and professionalism, which might at least partially explain the RN-to-BSN students having higher

scores. It stands to reason that RNs who had already practiced in the field for a number of years would have a stronger professional identity than those who had not graduated.

In terms of critical thinking scores, students in the RN-to-BSN program and those in the traditional BSN program had almost identical scores (Brooks & Shepherd, 1992). These two groups scored significantly higher in critical thinking than seniors in the ADN or diploma programs. While the small sample size, convenience method, and exploratory nature of the study limit generalization of the results, this research supports other research that demonstrates higher-level critical thinking skills in BSN graduates.

Another interesting approach to examining differences in nurse educational levels is to compare performance and cognitive processes of ADNs when they enter a BSN completion program to posttests of those graduating from the program (Phillips, Palmer, Zimmerman, & Mayfield, 2002). In a study of 223 students entering a RN-to-BSN program, researchers compared professional development scores with those of the 168 students who completed the program. Four developmental levels were considered: professional awareness, professional identification, professional maturation, and professional mastery (Phillips et al., p. 282). Individuals rate themselves as being at one of these four levels within five professional dimensions: nursing practice/process, communication/collaboration, leadership, professional integration, and research/evaluation. The tool used to test the subjects in this study has high content validity ratings. Graduating RN-to-BSN students were found to have significantly higher scores on all five dimensions of professionalism than at admission into the program.

Sizemore, Robbins, Hoke, and Billings (2007) conducted surveys and exit interviews of graduates of RN-to-BSN programs in California that use distance education methods to engage ADNs in rural and medically underserved parts of the state. Students reported changes in their

practice, including increased confidence, a sense of responsibility to the community, increased political involvement, and a greater sense of autonomy and accountability (Sizemore, et al.). Formal assessments were also conducted, using tools for measuring professionalism and critical thinking. Graduates were found to have significantly higher scores in both areas upon graduation than were found on admission.

In 1988, Johnson conducted a meta-analysis of 139 quantitative studies that compared the effects of bachelor's, associate, and diploma nursing education on nurse performance and perceptions. These studies compared a number of nursing behaviors, including problem-solving, communication, leadership, autonomy, role adoption, clinical performance levels, attitudes toward work, and knowledge levels. Johnson's research found that significant differences existed between BSNs and ADNs, but no differences were found between nurses with associate degrees and those with diplomas. Because of this, ADN and diploma nurses were combined into a single technical category for comparison with BSNs in this analysis. The differences between the groups persisted even when controlling for the research design and methods, the date of the research, and the region of the country where the research was conducted.

Johnson's (1988) analysis found that nurses with bachelor's degrees "…perform better than technical nurses in behaviors identified with professional education and practice: communication, knowledge, problem-solving, professional role, and teaching" (p. 191). Technical nurses were found to have better technical skills and to be more "…bureaucratically-oriented" (Johnson, p. 191). However, there were no differences between groups in the areas of autonomy and leadership. This is a surprising finding, given that BSNs are educated with the goal of filling leadership roles (AACN, 2012). Professional organizations also strongly

recommend the BSN as the minimum education for entry into autonomous nursing practice settings, such as school nursing (NASN & ANA, 2005).

This meta- analysis also showed that the differences between the two groups were less significant during the first year of practice and in hospital settings (Johnson, 1988). Research indicated that new graduates from both baccalaureate and associate degree programs needed a year of adjustment "…and work experience to make the transition from the academic setting to a professional clinical nursing role…" (Johnson, p. 191). Both ADNs and BSNs experienced role conflict and difficulties with job satisfaction. According to Johnson, these findings support the need for orientation for new RNs from any educational background and clarification of roles for technical and professional nurses.

Giger and Davidhizar (1990) utilized a short essay questionnaire to determine differences in conceptual and theoretical approaches to nursing care based on senior nursing students' education levels. Graduating seniors from ADN programs (N=176) and BSN programs (N=167) were found to have statistically significant differences in professionalism, leadership, and skill in using the nursing process. BSN graduates were found to have a significantly higher level of professional behaviors: they were "…more concerned with research methodology, teaching, and individual, group, and community assessment. The associate degree nurse was more concerned with the technical aspects of nursing care, which include maintenance of equipment and direct nursing care" (Giger & Davidhizar, pp. 1013-1014). This study also found BSNs to be more "….knowledgeable in the areas of nursing diagnosis, concept analysis and theoretical identification, and implementation of the nursing process than…" ADNs (Giger & Davidhizar, p. 1014).

Morris and Faulk (2007) conducted a qualitative study of changes in professional behavior among 10 graduates of an RN-to-BSN program, "…using a survey developed by researchers from *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 1998)" (p. 447). The *Essentials* document (updated in 2008) is used by educational programs to set standards for educating BSNs; it delineates nursing roles, competencies and professional values expected of graduates from these programs (AACN, 2008). Subjects identified changes in a wide array of professional behaviors: increased interdisciplinary collaboration, patient advocacy, and confidence in teaching patients, improved ability to analyze research, more participation in the political process, a stronger sense of autonomy, improved delegation skills, membership in professional organizations, pursuit of advanced education, and increased integration of professional values such as caring, altruism, respect for human dignity, justice, integrity, and accountability (Morris and Faulk, p. 450).

Another qualitative, phenomenological study of 12 graduates of RN-to-BSN programs had similar findings (Delaney & Piscopo, 2007). Subjects reported that, as a result of their BSN education, they had increased confidence in their ability to achieve goals, communicate, and think critically. They stated they had also gained leadership skills, expanded their use of research to support changes in nursing practice, become more politically involved, and gained a stronger sense of professional identity. They stated that their coursework in community health nursing, which is not provided to the same extent in ADN programs, had broadened their horizons and increased their cultural awareness. These nurses found they had moved from a task-oriented practice to a more patient-oriented practice. The researchers emphasized that, while the BSN does not always come with more recognition or a higher salary, "the ability to see the bigger picture was the most powerful common experience for the nurses. They were able to move

beyond old patterns of thinking and behavior to envision the whole person, critically analyzing the complexity of the human experience" (Delaney & Piscopo, p. 172).

A survey conducted by Kubsch et al. (2008) examined perceptions of professional values among 198 nurses from a variety of educational backgrounds. RNs who were attending BSN completion programs were found to have the highest mean scores on professionalism and ADN graduates not involved in furthering their educations were found to have the lowest scores. Interestingly, nurses with fewer years of experience (zero to two) were found to have higher mean scores than those with more experience, but differences based on years of experience were not found to be statistically significant. Also interesting is the fact that, after completing RN-to-BSN programs, graduates' "mean perceived professionalism scores dropped" (Kubsch, et al., p.381). No explanation was offered for this finding.

Hiltz (2001) conducted the only study found that specifically looked at differences among school nurse responses based on educational preparation. This unpublished descriptive study surveyed 408 school nurses in Minnesota to determine the most frequent interventions performed in their practice and their perceived self-competency on various school nursing interventions. Most respondents were bachelor's prepared (N=255); only 18 were prepared at the associate's or diploma levels. The associate and diploma nurses appear to have been grouped together for the analysis, though this was not specifically explained in the report.

A list of 44 school nurse interventions was presented in the survey and respondents ranked these skills in order, from most to least frequently performed (Hiltz, 2001). The subjects then indicated their level of competence to perform these interventions on a four-point scale, from "not applicable", to "not at all prepared", to "well-prepared" (Hiltz, p. 6-7). Interventions

ranged from clinical skills and documentation to interdisciplinary collaboration, health education, and management skills.

There were more similarities among ADNs and BSNs in terms of their top 10 most frequently-performed interventions than there were between these two groups and masters prepared nurses (MSNs) (Hiltz, 2001). However, BSNs and MSNs focused more on population-based health interventions than did the ADNs, an important focus in school nursing. The MSNs performed health systems, health promotion, and interdisciplinary collaborative interventions more frequently than the other two groups.

There were similarities among all three groups in their perceptions of their competencies to perform the list of interventions (Hiltz, 2001). Seven interventions were ranked in the top ten interventions for MSNs, BSNs, and ADNs, though their order in the ranking differed slightly. ADNs were the only school nurses who ranked themselves as being well-prepared to handle emergency interventions. BSNs were the only ones that listed monitoring of chronic conditions in their top 10 and MSNs were the only ones to include use of the nursing process and interdisciplinary collaboration in the list of skills they felt most prepared to perform.

Hiltz's unpublished study has many limitations, making the results inconclusive as to whether there are indeed significant differences between ADNs and BSNs. There was no statistical analysis of the differences in responses to determine significance. The respondents were all from Minnesota, affecting generalizability of the results, and there was a large number of BSNs compared to ADNs. Self-reporting by the respondents is also a potential limitation in terms of accuracy of results.

A survey of 14,000 Illinois RNs (Young, Lehrer, & White, 1991) found that BSNs were more likely than ADNs and diploma nurses to perform complex tasks frequently and less likely

to spend time performing routine tasks that required less skill. The tasks considered by the researchers to require more skill were evaluation of patient outcomes, psychosocial examinations, physical examinations and nursing diagnosis. Gathering health histories was considered to be a lower level task. Interestingly, nurses with more experience were less likely to perform these complex tasks, a fact not explained by the authors. There was no cross comparison of whether these more experienced nurses were working outside of hospitals, where such tasks were less likely to be performed, or were in management positions where they had less opportunity to perform these duties.

Summary of the Literature Review

As Kendall-Gallagher, et al. (2011) state, "failure to find a significant effect on patient outcomes of nurse experience in [their] study and the prior Aiken et al. (2003) study provides additional support that experience is not a substitute for education or specialty certification" (p. 193). Nurse experience levels were not considered in the studies by Giger and Davidhizar (1990), Hiltz (2001), Kutney-Lee and Aiken (2008), Friese et al. (2008), Estabrooks et al. (2005), Sales et al. (2008), Blegen et al. (2013), or Van den Heede et al. (2009). Some studies, such as those conducted by Blegen et al. (2001) demonstrated a positive association between patient safety and nurse experience, but no relationship between patient safety and nurse education levels, other than showing slightly more medication errors reported by BSNs in the first half of their research.

There are certainly limitations with many of these studies. Several of them used cross-sectional analysis, which does not allow for causal inferences. As with any study that relies on secondary data analysis, information obtained from administrative datasets, such as those used in the studies by Aiken et al. (2003), Tourangeau et al. (2006), Van den Heede et al. (2009a and

2009b), and Estabrooks et al. (2005), may not be as accurate as clinical data. Survey data used in some of the studies assumes that respondents answer truthfully and understand the questions. However, there is strong support in many of the above studies for the hypothesis that having a higher proportion of nurses with bachelor's degrees or higher levels of education has a positive effect on a variety of patient outcomes and nurses' cognitive processes. While cause cannot be established from most of these studies, having more nurses with a baccalaureate education in a hospital is associated with shorter lengths of hospital stays, lower risk of developing pressure ulcers, deep vein thrombosis, and pulmonary embolus, a lower risk of failure to rescue, and reduced risk of patients dying from a post-surgical complication or of complications from a serious illness. Nurses with bachelor's degrees demonstrate higher levels of critical thinking and professionalism than those with associate's degrees, as well as a stronger foundation in nursing theory and research. ADNs completing a BSN program report increases in self-confidence, accountability, political and community involvement, and other behaviors associated with professionalism.

Many of the studies discussed above also support the premise that patients whose nurses have more experience have better outcomes, supporting the *Novice-to-Expert Theory* of Patricia Benner (1984/2001). Higher levels of experience have been associated with fewer medication errors, better reporting of those errors, and fewer patient falls. Many of the studies that found associations of educational level and decreased risk of patient mortality or failure-to-rescue did not include years of nursing experience as a study variable. Those that did, however, found that years of nursing experience was not a factor in preventing these complications.

The growing body of literature regarding the effects of differences in educational level and years of experience on the practice and perceptions of nurses, as well as on the outcomes of

their patients, validates the assertion that this is an important and timely concern for the nursing profession, as well as for those who educate and hire nurses. The fact that there is still significant debate about the minimum level of education that should be required for entry into the nursing profession indicates a need for additional investigation. The fact that so little research exists into the effects of education and experience on the practice and perceptions of school nurses in particular further strengthens the importance of this research. Benner's *Novice-to-Expert Theory* provided a supporting framework for investigating these important influences on school nursing practice. Findings could be used to improve that practice through development of appropriate educational and experiential preparation for nurses wishing to enter the field of school health, as well as guidelines for school systems wishing to hire the best-qualified nurses to administer their programs. Improving school nurse preparation for the role would, in turn, be expected to improve the health of the school communities they serve.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

There is a substantial body of research into the differences in nursing practice, knowledge, perceptions, and patient outcomes in acute care settings based on education level and years of experience. However, the review of the literature showed that there is a gap in such research regarding school nurses, despite the fact that the National Association of School Nurses and other professional organizations in school and pediatric health recommend the BSN as the minimum education and experience in other fields of nursing prior to entering the field. The objective of this study was to examine what knowledge school nurses considered important to competent practice when responding to the National Board for Certification of School Nurses *2007 Role Delineation Study* and whether there were differences in how school nurses from different educational and experiential backgrounds responded to these questions.

Setting and Sample

The sample for this research project was the school nurses who participated in the *2007 Role Delineation Study* (Professional Testing Corporation [PTC] & National Board for the Certification of School Nurses [NBCSN], 2007). This survey is a requirement for accreditation of the school nurse specialty certification examination by the American Board of Nursing Specialties. A link to this online survey was emailed to more than 2,000 school nurses across the United States. Of these, 547 participants created a username and password and 391 completed the entire survey, including knowledge questions, task questions, and demographic questions. There were 399 participants who answered all of the knowledge questions, as well as the

demographic questions focused on education level, years of nursing experience, and years of school nursing experience. It is their data that were examined for the purposes of this study.

Instrumentation

This was the first year that NBCSN undertook the role delineation study, and the survey was developed for that purpose in 2006. A focus group of 20 school nurses was invited to participate in writing the school nursing task section of the survey and completed a total of 330 potential questions which were then submitted to the NBCSN (PTC & NBCSN, 2007). Members of the NBCSN Board of Directors (a group of school nurses, school nurse administrators, researchers, and/or consultants), a representative from the Professional Testing Corporation, and the Vice President of the National Association of School Nurses then met over two days to analyze, revise, and categorize the questions developed by the focus group. The 32 knowledge questions and the scales for frequency and levels of importance were developed at this same meeting. The final survey included 238 task questions, 32 knowledge questions, and 19 demographic questions (see Appendix C) (PTC & NBCSN, 2007).

The online version of the survey was beta tested in early 2007 by the nine NBCSN Board of Directors members (PTC & NBCSN, 2007). This test resulted in additional revisions in response to board member feedback. In March, 2007, the final survey was emailed to the board members who were asked to distribute it widely to school nurses (non-certified and certified) on various email lists and list-servs. However, no record exists of which email lists and list-servs were utilized or a definite number of nurses who received the link (M. Gapinski, personal communication, November 23, 2010). Participants could log into the survey, create a user name and password, and return to it if they were unable to complete it in one session. Respondents were given a deadline of three weeks to complete the survey.

Limitations

There are recognized limitations with any survey, and this one was no exception. This was a newly developed survey; therefore reliability and validity have not been established. Another limitation was the use of convenience sampling, which means the results cannot be generalized to the entire population of school nurses (McMillan, 2008). Self-selection is also an issue for the validity of surveys, as well as the reliability and generalizability of the results. People who respond to a survey often have characteristics and opinions that differ from those who did not respond and therefore may not be truly representative of the target population (McMillan). Sample size and response rate is another consideration in any research. Less than 20% of the original sample completed the survey. The lower the response rate, the more likely the results are to be biased and to reflect the characteristics and practice of the respondents rather than the broader target population (McMillan). Finally, the length of this survey may have led to respondent fatigue and a higher rate of non-completion (Fowler, 1995).

Knowledge Questions

The knowledge questions section of the survey was chosen for analysis because these questions correlate closely with the *School Nursing Scope and Standards of Practice* (NASN & ANA, 2011), the domains of nursing practice identified by Benner (1984/2001), and *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). No research was found in the review of literature that examined what knowledge school nurses consider important to competent practice or whether there are differences in how school nurses from different educational and experiential backgrounds would respond to these questions. This study adds to the understanding of these issues.

Respondents to the NBCSN *2007 Role Delineation Study* were asked to answer the following question for each category of knowledge: "How important is this knowledge for competent performance?" (PTC & NBCSN, 2007). The possible answers were:

1. Not important – defined as having no importance and no impact on competence;
2. Slightly important – defined as being of minor importance and having slight impact on competence;
3. Moderately important – defined as having significant impact and essential;
4. Extremely important – defined as being of critical importance, having significant impact, and essential for competent performance.

The knowledge section of the survey included the following 32 categories:

1. Codes and Regulation
    a. Education
    b. Nursing Practice
    c. Health
    d. Labor
2. Legislative Process
3. Physical Assessment
4. Childhood Growth and Development
5. Pharmacology
6. Mental Health

7. Nutrition
8. Disease Process
9. Public Health Issues
10. Professional Issues
11. Ethical/Legal Issues
12. Communicable Diseases
13. Psychosocial Issues
14. Learning Theories
15. Instructional Theories
16. Change Theory
17. Anatomy and Physiology
18. Nursing Practice
19. Management Skills
20. Information Management
21. Leadership Skills
22. Nursing Process
23. Cultural Issues
24. Communication Skills
    a. Group Dynamics

b. Counseling

c. Conflict Resolution

25. Environmental Health

26. Evidence-Based Practice

27. Health Promotion

The crosswalk table in Appendix D provides a comparison of the *School Nursing Scope and Standards* (NASN & ANA, 2011), Benner's domains of nursing practice (1984/2001), the *Essentials of Baccalaureate Education for Nursing Practice* (AACN, 2008), and the knowledge categories from the *2007 Role Delineation Study* (PTC & NBCSN, 2007). This comparison demonstrates that the knowledge questions on the *Role Delineation Survey* are correlated with the expected practice competencies for school nurses, the knowledge foundation for baccalaureate-educated nurses, and the theoretical framework of this study.

Data Retrieval and Analysis

Permission to pursue the proposed investigation was originally granted by the Virginia Tech Institutional Review Board (IRB) on May 25, 2010 (IRB# 10-475) and was renewed annually, with the last approval letter received on June 14, 2013 (see Appendix A). A memorandum of agreement (MOA) was signed with the president of the NBCSN in December of 2009. This MOA allows utilization of the data for the purposes of the dissertation in exchange for review of the report provided by PTC and making recommendations for the next role delineation survey, but NBCSN retains primary ownership of the data for purposes of any additional future publications (see Appendix B). The data were collected and compiled into Microsoft Access software by the PTC from the original online surveys.

Research Design

This study utilized a quantitative, non-experimental exploratory analysis, using descriptive statistics to examine participant demographics and non-parametric statistical procedures (Fisher's Exact Test) for analysis of differences. The data were obtained in Microsoft Access format by email, but locked with a code and password to protect security of the data, and were transferred into the Statistical Package for Social Sciences (SPSS) software and the Statistical Analytic Software (SAS) for the purposes of conducting analysis. SPSS was used for descriptive analysis and SAS for the Fisher's Exact Test. The research questions were as follows:

Research Question 1: Are there differences in the answers school nurses provided to the knowledge questions on the National Board for Certification of School Nurses *2007 Role Delineation Study* based on the nurses' level of education? This question was analyzed using Fisher's Exact Test.

Research Question 2: Are there differences in the answers school nurses provided to the knowledge questions on the National Board for Certification of School Nurses *2007 Role Delineation Study* based on years of nursing experience? This question was analyzed using Fisher's Exact Test.

Research Question 3: Are there differences in the answers school nurses provided to the knowledge questions on the *2007 Role Delineation Study* based on years of school nursing experience? This question was analyzed using Fisher's Exact Test.

Results of the analysis are presented in Chapter 4.

CHAPTER IV

RESULTS

The purpose of this study was to investigate what knowledge school nurses considered important to competent practice when responding to the National Board for Certification of School Nurses *2007 Role Delineation Study* and whether there were differences in how school nurses from different educational and experiential backgrounds responded to these questions.

Participant Data

As discussed in Chapter 3, a link to the online survey was originally emailed to more than 2,000 school nurses across the United States. Of these, 547 participants created a username and password, and 391 completed the entire survey, including knowledge questions, task questions, and demographic questions. A total of 399 participants answered all of the knowledge and the demographic questions focused on education level, years of nursing experience, and years of school nursing experience. It is these data that were analyzed for this study.

Participant Demographics

Table 1 and Figures 1 through 3 depict selected participant characteristics for the entire 399 survey participants. The ages of the respondents ranged from 25 to 70 years of age, with two people declining to answer this question (see Figure 1). Sixty-eight percent of the respondents were between 45 and 59 (n=270), with the median age of all respondents being 51. This reflects the national trend of an aging nursing workforce. According to the American Nurses Association (n.d.), more than 50% of the nation's nurses are close to retirement age, with the median age being 46.

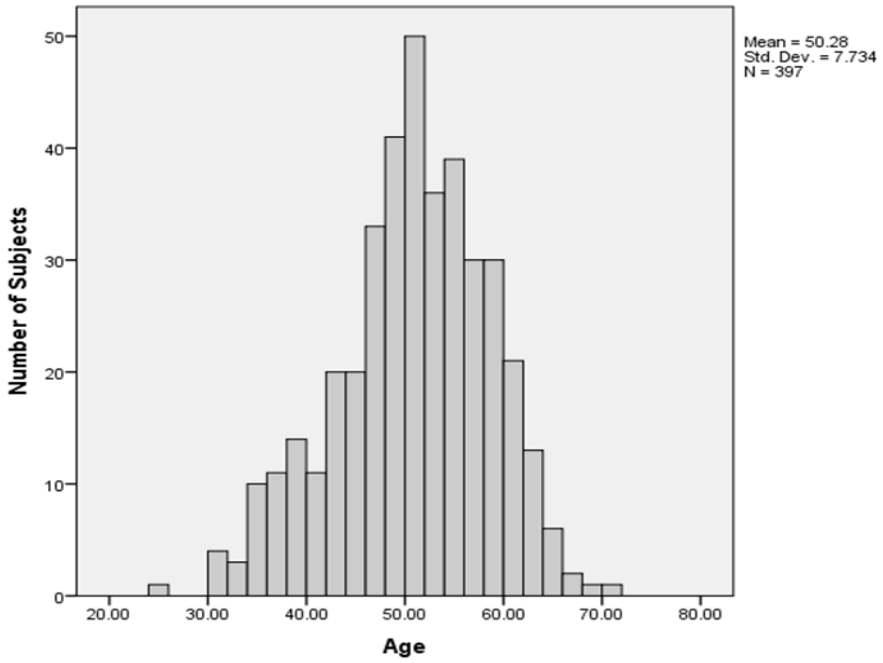

Figure 1. Age Range of Subjects

Most of the respondents were female (n=396) and only 3 were male. This is significantly lower than current national trends, where men made up almost 10% of all U.S. registered nurses in 2011 (United States Census Bureau, 2013). Data on the number of men in school nursing was not found and does not appear to be routinely collected (Wolfe, 2006).

More than 92% of the respondents were Caucasian, with 6.5% listed as non-white and three respondents declining to answer this question. The lack of diversity in the nation's healthcare workforce is a growing concern, but these numbers are even lower than the broader registered nurse population, which has 16.8% of members who are non-white (IOM, 2011).

Nearly 91% of the respondents listed their employment as full time. While, only 41.3% of schools have a full time school nurse (Burkhardt Research Services, 2007), many school

nurses cover more than one building as part of their full time responsibilities. No information was found on the number of full time school nurses in the country, so it is unclear whether the subjects of this study are reflective of the national school nurse population in terms of employment status.

The range of years of nursing experience among subjects was from zero to fifty, with the median being 25 years. The range of school nursing experience was zero to forty-five, with the median being 10 years. However, only one person reported having no previous nursing experience and the next lowest number of years of experience was four. Only two subjects reported that the survey year was their first year of school nursing experience.

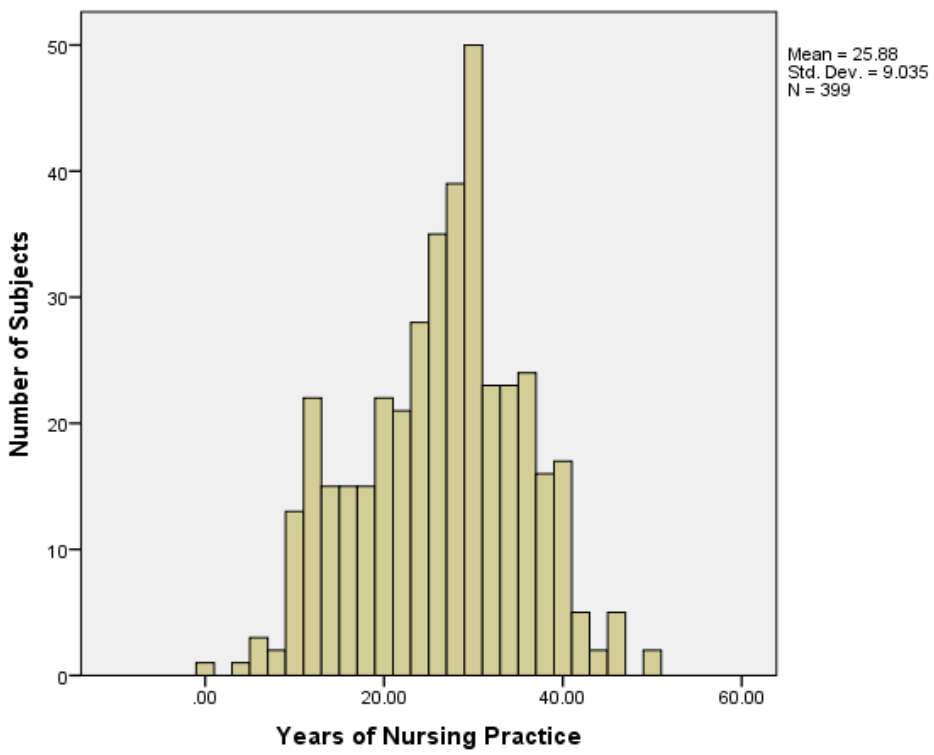

Figure 2. Total Years of Nursing Experience

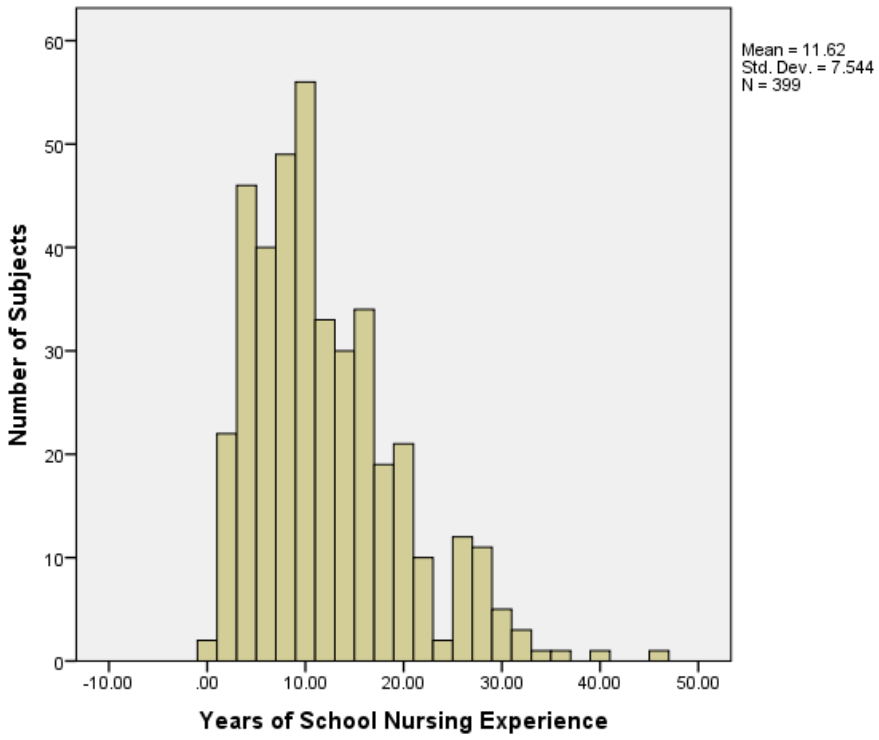

Figure 3. Years of School Nursing Experience

The largest educational category among respondents was BSN (n=185 or 46.4%). This is similar to the national statistics, with 41.3% of school nurses reporting a bachelor's degree in 2000, the last year when such information was collected (U.S. Department of Health and Human Services, as cited in Wolfe, 2006). Currently, only 34.2% of practicing registered nurses in the U.S. have this level of education (HRSA, 2010). Nearly 8% of the subjects had bachelor's degrees in other fields, 9.2% had associates degrees or diplomas in nursing, and 3.2% had graduate level education in nursing or other fields. Information on years of experience, education

levels, and ethnicities of the country's school nurse population is not collected by any organization on a routine basis (Wolfe, 2006).

In summary, the participants in this study have similar characteristics to the broader registered nurse population in terms of age and years of nursing experience. However, when considering gender, ethnicity and education level, there are significant differences among this sample when compared to the overall population of RNs in the U.S. The percentage of school nurses in this study with a BSN is similar to that of the overall population of school nurses in the country. No information was found on the number of full time school nurses in the U.S. There seems to be a lack of coordinated data collection regarding school nurse demographics in the U.S. (M. Bergren, personal communication, 2011; Wolfe, 2006).

Table 1

Selected Participant Characteristics (N=399)

Demographic Questions	Category	Frequency	Percentage of Total Participants
Gender	Male	3	0.8
	Female	396	98.2
Ethnic Background	African American	11	2.8
	Asian	1	0.3
	Caucasian	370	92.7
	Hispanic	1	0.3
	Native American	4	1.0
	Other	9	2.3
	No Response	3	0.8
Level of Employment	Full Time	362	90.7
	Part Time	34	8.5
	No Response	3	0.8
Education – Highest Level Achieved	Associate Degree	23	5.8
	Diploma	14	3.5
	Bachelor's Degree –Nursing	185	46.4
	Bachelor's Degree – Non-Nursing	31	7.8
	Master's Degree – Nursing	59	14.8
	Master's Degree – Non-Nursing	63	15.8
	Doctoral Degree – Nursing	2	0.5
	Doctoral Degree – Non-Nursing	2	0.5
	Other	20	5.0

Answers to Knowledge Questions

Frequencies

Between 87.5% and 99.8% of respondents answered that 27 of the 32 knowledge areas were moderately or extremely important to competent school nursing practice (See Table 2). The knowledge areas Codes and Regulations Related to Labor, the Legislative Process, Learning Theory, Instructional Theory, and Change Theory were considered unimportant or only slightly important by 27.1% to 43.8% of the school nurses surveyed. Knowledge of Change Theory was found to be related to years of school nursing experience. Discussion of this area follows in the analysis section of this chapter. None of the answers in the other knowledge areas were found to be related to education level, years of nursing experience, or years of school nursing experience.

Knowledge of Codes and Regulations Related to Labor was considered not important or slightly important by 33.1% of the respondents, moderately important by 46.1% and extremely important by 20.8%. Understanding legal issues related to labor is one of the expectations under Standard 17: Program Management in the *Professional Standards of School Nursing Performance* (NASN & ANA, 2011). School nurses are responsible for managing school health services in their buildings and, in this role, may be supervising other employees, making work schedules, and conducting performance evaluations. It is possible that some of the respondents have not had such experience, leading them to rank this knowledge area as less important. Most school nurses work independently and do not supervise others. However, lack of knowledge of codes related to labor practices could present a liability or could negatively affect a school nurse's own performance or work evaluation. Having a third of nurses who rank this knowledge as unimportant or only slightly important is an area of concern and warrants further investigation.

Legislative Process was considered unimportant or slightly important by 37.1% of subjects and moderately to extremely important by almost 73%. Participation in the development of health policy is a school nurse competency under Standard 12: Leadership in the *Professional Standards* (NASN & ANA, 2011). School nurses should play a central role in the development of policies and laws that affect the health of their school communities and the practice of school nursing. Doing so requires an understanding of the legislative process: identifying health issues of concern, gaining awareness of current health policies under legislative review, knowing how citizens and health care experts can participate in the legal process in order to positively influence the outcomes of legislative actions, and ascertaining the key players that may appreciate the school nurse's consultation and concern for student wellbeing. It is possible that the respondents are uncomfortable with involvement in health policy, do not feel empowered to participate in such activities, or have not had experience in such activities. They may also equate involvement in legislative processes with political activity, which is discouraged in many public school settings. Because this area can have a significant impact on school nurses' practice and student health, it is concerning that more than one third of the subjects found it to be unimportant or only slightly important. Further investigation could identify areas for education and training to help school nurses recognize the importance of such knowledge.

Learning Theory was ranked as unimportant or slightly important by 38.1% of respondents, Instructional Theory was considered unimportant or slightly important by 43.7%, and Change Theory was considered unimportant or slightly important by 43.8%. Health education is a central role of the school nurse. Standard 5B of the *Professional Standards* (NASN & ANA, 2011) is Health Teaching and Health Promotion and lists competencies directly related to these knowledge areas. School nurses provide education on a daily basis to students

individually or in the classroom, to parents needing education on the management of student illness or disability, to staff and faculty with questions about their own health concerns or about the health needs of the students in the classroom. Lack of knowledge about learning principles and ways to bring about health behavior change could make the school nurse's teaching and health promotion efforts significantly less effective. Education and facilitating change are such an integral part of school nursing practice that it is surprising that so many considered these knowledge areas less important and certainly warrants further investigation.

These results provide an interesting glimpse into what the school nurses responding to this survey consider important knowledge for competent performance. It is apparent that most of the school nurses surveyed considered it necessary to have a wide range of knowledge in order to function well in their positions. Their rankings provide some validation for what NBCSN, NASN, and ANA consider important knowledge for school nursing practice. The items considered less important or unimportant by a substantial number of respondents are concerning, as all of these areas are considered important to competent school nursing practice by the ANA and NASN (2011). Further research should be considered to investigate these responses.

Table 2

Answers to Knowledge Questions – Frequencies

Knowledge Question	Not Important		Slightly Important		Moderately Important		Extremely Important	
	No. of Subjects	%	No. of Subjects	%	No. of Subjects	%	No. of Subjects	%
1. Codes and Regulation								
a. Education	2	0.5	15	3.8	81	20.3	301	75.4
b. Nursing Pract.	0	0	1	0.3	15	3.8	383	96.0
c. Health	0	0	1	0.3	57	14.3	341	85.5
d. Labor	19	4.8	113	28.3	184	46.1	83	20.8
2. Legislative Proc.	13	3.3	95	23.8	199	49.9	92	23.1
3. Physical Assessment	0	0	1	0.3	28	7.0	370	92.7
4. Childhood Growth and Development	0	0	4	1.0	59	14.8	336	84.2
5. Pharmacology	0	0	3	0.8	110	27.6	286	71.7
6. Mental Health	0	0	5	1.3	114	28.6	280	70.2
7. Nutrition	0	0	7	1.8	165	41.4	227	56.9
8. Disease Process	0	0	4	1.0	77	19.3	318	79.7
9. Public Health Issues	0	0	12	3.0	142	35.6	245	61.4
10. Professional Issues	1	0.3	36	9.0	176	44.1	186	46.6
11. Ethical/Legal Issues	2	0.5	17	4.3	102	25.6	278	69.7
12. Communicable Disease	0	0	4	1.0	53	13.3	342	85.7
13. Psychosocial Issues	0	0	7	1.8	142	35.6	250	62.7
14. Learning Theories	8	2.0	144	36.1	187	46.9	60	15.0
15. Instructional Theories	13	3.3	161	40.4	177	44.4	48	12.0

Table 2 continued

Knowledge Question	Not Important		Slightly Important		Moderately Important		Extremely Important	
	No. of Subjects	%	No. of Subjects	%	No. of Subjects	%	No. of Subjects	%
16. Change Theory	28	7.0	147	36.8	167	41.9	57	14.3
17. Anatomy and Physiology	1	0.3	2	0.5	86	21.6	310	77.7
18. Nursing Practice	0	0	2	0.5	42	10.5	355	89.0
19. Management Skills	3	0.8	35	8.8	170	42.6	191	47.9
20. Information Management	5	1.3	36	9.0	180	45.1	178	44.6
21. Leadership Skills	3	0.8	25	6.3	144	36.1	227	56.9
22. Nursing Process	0	0	6	1.5	91	22.8	302	75.7
23. Cultural Issues	2	0.5	20	5.0	150	37.6	227	56.9
24. Communication Skills	3	0.8	30	7.5	168	42.1	198	49.6
a. Group Dynamics	2	0.5	31	7.8	151	37.8	215	53.9
b. Counseling	2	0.5	48	1.0	165	41.4	184	46.1
c. Conflict Resolution								
25. Environmental Health	1	0.3	37	9.3	182	45.6	179	44.9
26. Evidence-Based Practice	5	1.3	25	6.3	155	38.8	214	53.6
27. Health Promotion	0	0	10	2.5	88	22.1	301	75.4

Analysis of Differences

The purpose of this study was to see if there were differences in the answers to the knowledge questions related to the subjects' education levels, years of nursing experience, and years of school nursing experience. Education levels were grouped into the following categories for analysis: ADN or Diploma; BSN; Bachelor of Science – Other; and Graduate Degree. Twenty subjects who indicated an education level of "Other" were excluded from this analysis, as there was no way of discerning whether that education was higher or lower than the Bachelor's Degree in Nursing. While some of the subjects with graduate degrees may also have BSN education, it is impossible to tell because respondents were only asked to indicate their highest level of education, rather than all degrees achieved. The variables, years of school nursing experience and the years of overall nursing experience, were categorized according to Benner's (1984/2001) *Novice to Expert* framework: Novice/Advanced Beginner, zero to two years' experience; Competent/Proficient, three to five years; and Expert, greater than five years. Using Fisher's Exact Test, the answers to the knowledge questions were compared to these independent variables.

RQ1: Are there differences in the answers school nurses provided to the knowledge questions based on the nurses' level of education?

Two knowledge areas demonstrated statistically significant differences in the answers given by nurses from different educational levels. The first knowledge area demonstrating a difference related to education level was "Communication Skills – Counseling", with a significance of p=0.0102 using Fisher's Exact Test (see Table 3). Subjects with a BSN were more likely to respond that knowledge in the area of communication skills in counseling was moderately to extremely important (93%, n=172/185) than subjects with less education (76%,

n=28/37) or than subjects with a bachelor's degree in another field besides nursing (90%, n=28/31). Subjects with graduate degrees were more likely that those with any other degree (96%, n=121/126) to respond that counseling skills were moderately or extremely important knowledge for competent school nursing practice. *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008) discusses therapeutic communication and milieu therapy, both counseling skills, as important competencies under Essential IX: Baccalaureate Generalist Nursing Practice (p. 33). The *School Nursing Scope and Standards of Practice* (NASN & ANA, 2011) lists the use of "…formal health counseling techniques as an effective communication strategy" as one of the competencies of Professional Performance Standard 11: Communication (p. 58). As discussed earlier, the school nurse may be the first healthcare provider to see a student with a health problem, and mental health issues are no exception. Knowledge of counseling skills is essential in times when students are experiencing emotional distress, situational crises, or in dealing with the occurrence or aftermath of disasters in a school community. School nurses may be able to help children, families, and school staff deal with such stressors until more professional counseling can be arranged.

Table 3

Results of Fisher's Exact Test Comparing Nurse Education Level to Communication Skills – Counseling

Education Level	Answers to Knowledge Questions				
	Not Important	Slightly Important	Moderately Important	Extremely Important	Total
Associate Degree/Diploma	1	8	9	19	37
	2.70%	21.62%	24.32%	51.35%	
Bachelor's Degree - Nursing	1	12	79	93	185
	0.54%	6.49%	42.70%	50.27%	
Bachelor's Degree – Other	0	3	10	18	31
	0.00%	9.68%	32.26%	58.06%	
Graduate Degree	0	5	45	76	126
	0.00%	3.97%	35.71%	60.32%	
Total	2	28	143	206	379

Notes: P=0.0151 99% Confidence Interval 0.0120-0.0182

(20 subjects eliminated from analysis d/t unclear education level)

The second knowledge area to show a significant difference based on education level was information management, with a significance of p=0.0121. Again, respondents with BSN education were more likely to consider information management as moderately important or extremely important (90%, n=166/185) than subjects with less education (96.5%, n=32/37) or subjects with a bachelor's degree in another field besides nursing (87.1%, n=27/31). Subjects with graduate degrees were more likely (94%, n=119/126) than any respondents with less education to consider information management moderately or extremely important knowledge for competent nursing practice. Information Management and Application of Patient Care Technology is Essential IV of *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). "Knowledge and skills in information and patient care

technology are critical in preparing baccalaureate nursing graduates to deliver quality patient care in a variety of healthcare settings" (IOM, as cited in AACN, 2008, p. 17). Nurses must be competent in the use of computers to gather evidence regarding best practices in patient care, as well as technical skills in the use of technological devices used to measure patient status and to provide various interventions, such as monitors, ventilators, intravenous pumps, etc. Much of the documentation and communication about patient care is performed using electronic recording systems throughout the United States. Information technology can also be used to improve the safety and cost-effectiveness of patient care. Ethical use of information is another important facet of information management that is a part of BSN preparation.

Discussion of information management is integrated throughout The *School Nursing Scope and Standards of Practice* (NASN & ANA, 2011), especially in the section entitled *Standards of School Nursing Practice*. The *Standards* emphasize the use of standardized nursing terminology to communicate information about students' health status and the importance of competencies in information management, including the use of technology to gather data about students and their health concerns, obtain evidence-based research to enhance nursing practice, plan and implement appropriate interventions, document interactions and interventions in the school setting, and evaluate health outcomes. While many schools lack access to electronic health records or even computers for school nurses, the management of information is essential to timely, effective, safe, and holistic care of students in the school setting.

Of the subjects in this study with graduate education, 94% found information management moderately or extremely important knowledge for competent school nursing practice. The *School Nursing Scope and Standards of Practice* (NASN & ANA, 2011) emphasizes that information management is a major competency for graduate level school

nurses, so this is not surprising. In addition to using information and technology, graduate level school nurses are expected to develop systems for managing information in the school setting.

Table 4

Results of Fisher's Exact Test Comparing Nurse Education Level to Information Management

Education Level	Answers to Knowledge Questions				
	Not Important	Slightly Important	Moderately Important	Extremely Important	Total
Associates Degree/Diploma	0	5	9	23	37
	0.00%	13.51%	24.32%	62.16%	
Bachelor's Degree - Nursing	2	17	92	74	185
	1.08%	9.19%	49.73%	40%	
Bachelor's Degree – Other	2	2	10	17	31
	6.45%	6.45%	32.26%	54.84%	
Graduate Degree	0	7	62	57	126
	0.00%	5.56%	49.21%	45.24%	
Total	4	31	173	171	379

Notes: P=0.0121 99% Confidence Interval 0.0093-0.0149

(20 subjects eliminated from analysis d/t unclear education level)

In summary, competency in communication counseling skills and information management is considered important for school nursing practice by the NASN and ANA (2011). Baccalaureate prepared nurses are also expected to demonstrate competency in these areas (AACN, 2008). This study demonstrates that subjects with BSN or graduate education considered knowledge in these areas more important to competent school nursing practice than subjects with less education or bachelor's degrees in non-nursing fields. However, study

participants with graduate degrees were significantly more likely to consider these areas more important than respondents with lower levels of education.

RQ2: Are there differences in the answers school nurses provided to the knowledge questions based on years of nursing experience?

In keeping with Benner's (1984/2001) *Novice-to-Expert Framework*, participants' years of nursing experience were categorized into three levels: Novice/Advanced Beginner (0-2 years), Competent/Proficient (3-5 years), and Expert (more than 5 years). Most of the survey participants had more than five years of nursing experience (n=395/399) with only one having less than one year and three having five or fewer years. With so few numbers in these lower levels of experience, it is not possible to make a meaningful comparison.

RQ3: Are there differences in the answers school nurses provided to the knowledge questions based on years of school nursing experience?

Participants' years of school nursing experience were categorized into three levels in keeping with Benner's framework: Novice/Advanced Beginner (0-2 years), Competent/Proficient (3-5 years), and Expert (more than 5 years). In Benner's framework, experts are identified as having more than five years of experience in nursing. There were 24 respondents in the Novice/Advanced Beginner Category (6%), 62 in the Competent/Proficient Category (15.5%), and 313 in the Expert Category (78.4%). Two knowledge areas demonstrated statistically significant differences in the answers given by nurses from different levels of school nursing experience, using Fisher's Exact Test. These knowledge areas were Change Theory ($p=0.0339$), and Communication Skills in Counseling ($p=0.0064$).

Expert school nurse participants were significantly more likely to consider Communication Skills in Counseling moderately important to extremely important (94%, n=295/313). This knowledge area was considered moderately to extremely important by 85% of subjects in the Competent/Proficient category (n=53/62) and 75% of those in the Novice/Advanced Beginner category (n=18/24). As discussed under RQ1, The *School Nursing Scope and Standards of Practice* (NASN & ANA, 2011) emphasizes the need for communication and counseling skills in school nursing practice. The use of communication skills and counseling of patients is threaded throughout Benner's (1984/2001) domains of nursing practice: communication with patients and their families about their health care is important to help them understand what is happening to them, deal with the emotional and physical challenges of illness and injury, and achieve the most positive outcomes possible. Expert nurses in Benner's study (1984/2001) exhibited highly developed therapeutic counseling skills when interacting with patients. Therefore, it is not surprising that the subjects with more experience in school nursing would place a higher value on knowledge in this area than nurses with less experience.

Table 5

Results of Fisher's Exact Test Comparing School Nurse Experience Level to Communication Skills – Counseling

School Nurse Experience	Answers to Knowledge Questions				
	Not Important	Slightly Important	Moderately Important	Extremely Important	Total
Novice/Advanced Beginner (0-2 Yrs.)	0 0.00%	6 25.00%	5 20.83%	13 54.17%	24
Competent/ Proficient (3-5 Yrs.)	0 0.00%	9 14.52%	20 32.26%	33 53.23%	62
Expert (>5 Yrs.)	2 0.64%	16 5.11%	126 40.26%	169 53.99%	313
Total	2	31	151	215	399

Notes: P=0.0064 99%, Confidence Interval 0.0043-0.0085

Expert school nurse participants were also significantly more likely to consider knowledge of Change Theory moderately important to extremely important (59%, n=185/313). This knowledge area was considered moderately to extremely important by 42% of subjects in the Competent/Proficient category (n=26/62) and 54% of those in the Novice/Advanced Beginner category (13/24). As discussed earlier, understanding of Change Theory is helpful when school nurses provide health education and encourage health behavior changes among students, families, and school staff. Helping patients achieve healthy lifestyle changes is a central part of Benner's (1984/2001) teaching-coaching domain.

Table 6

Results of Fisher's Exact Test Comparing School Nurse Experience Level to Change Theory

School Nurse Experience	Answers to Knowledge Questions				
	Not Important	Slightly Important	Moderately Important	Extremely Important	Total
Novice/Advanced Beginner (0-2 Yrs.)	0 0.00%	11 45.83%	10 41.67%	3 12.50%	24
Competent/ Proficient (3-5 Yrs.)	3 4.84%	33 53.23%	16 25.81%	10 16.33%	62
Expert (>5 Yrs.)	25 7.99%	103 32.91%	141 45.05%	44 14.06%	313
Total	28	147	167	57	399

Notes: P=0.0339, 99% Confidence Interval 0.0292-0.0386

It is also important to understand Change Theory when attempting to facilitate changes in the operation, policies and procedures of school health services. School nurses, as the managers of health services in their schools, may be challenged by those who feel threatened due to concerns about power and control or comfort with the status quo. Knowing how to overcome resistance to change is a valuable skill in such situations. It is not surprising that participants in the expert level of school nursing practice would see change theory as more important to competent practice than those with less school nursing experience. Expert nurses may have progressed into more supervisory roles than those with less experience and therefore have realized the importance of change theory in their practice.

Summary of Results

This study identified differences in the school nurse subjects' responses to two of the 32 knowledge questions, Communication Skills – Counseling and Information Management, based on their education level and responses to two knowledge questions, Communication Skills – Counseling and Change Theory, based on subjects' years of school nursing experience. Due to the low number of subjects with less than two years of general nursing experience, it was impossible to discern if there were statistically significant differences in the answers school nurses provided to any of the knowledge questions based on years of nursing experience.

Subjects with a BSN or a graduate degree were more likely to respond that knowledge in the area of Communication Skills – Counseling was moderately to extremely important than subjects with less education or a bachelor's degree in a non-nursing field. Expert school nurse participants were also significantly more likely to consider Communication Skills in Counseling moderately important to extremely important, compared to subjects with less school nursing experience.

The second knowledge area to show a significant difference based on education level was information management. Again, respondents with BSN or graduate degrees were more likely to consider information management as moderately important or extremely important than subjects with less education or with a bachelor's degree in another field besides nursing. There were no differences in responses to this question based on experience.

Finally, expert school nurse participants were significantly more likely to consider knowledge of Change Theory moderately important to extremely important than those with less school nursing experience. There were no significant differences in participants' responses to this question related to education level or years of overall nursing experience.

Benner and others who promote experience as the most important component for developing nursing expertise do not discount the importance of a solid foundation in baccalaureate nursing education as preparation for entry into the field. The ability to make sound decisions and provide quality care to patients begins with a thorough education. While no differences were found related to education or experience for most of the knowledge question responses in this survey, the differences found support the idea that there are differences in nurses' perceptions in some knowledge areas related to education level and some related to years of experience in a specialty nursing practice. There is support in the literature for either premise, but this analysis was unable to determine whether one supersedes the other due to the data being a convenience sample and without a normal distribution. The fact that this was secondary analysis of data and the survey was not specifically developed to test the research questions of this study may be an additional factor in the study outcomes.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to investigate what knowledge school nurses considered important to competent practice when responding to the National Board for Certification of School Nurses *2007 Role Delineation Study* and whether there were differences in how school nurses from different educational and experiential backgrounds responded to these questions. The knowledge questions on the survey were based on competencies considered critical to the practice of school nursing by the National Board for Certification of School Nurses and are congruent with competencies within the *School Nursing Scope and Standards of Practice* (NASN & ANA (2011) and *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008). Because of the complex nature of school nursing practice and the autonomy required of nurses working in this field, multiple professional organizations strongly recommend a BSN as the minimum level of education for entry into this specialty (NASN & ANA, 2005). While the IOM (2011) and Benner et al. (2010) also recommend the BSN as the minimum education for entry into the practice of nursing, the *Novice-to-Expert Framework* (Benner, 1984/2001) emphasizes the importance of experience in nursing or in a specialty practice to developing the skill and intuition needed to provide expert nursing care.

This study utilized a quantitative, non-experimental exploratory method, using descriptive statistics and non-parametric statistical procedures (Fisher's Exact Test) to analyze the responses of participants to the 32 knowledge questions and specific demographic questions on the *2007 Role Delineation Study* survey. The knowledge questions section of the survey was

chosen for analysis because these questions are closely correlated with the *School Nursing Scope and Standards of Practice* (NASN & ANA, 2011), the domains of nursing practice identified by Benner (1984/2001), and *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008).

Conclusions

Most of the 399 subjects (87.5% to 99.8%) indicated that 27 of the 32 knowledge areas were moderately or extremely important for competent school nursing practice. It is encouraging that most of the school nurses taking the survey, regardless of education or years of experience in school nursing, recognize the importance of knowledge deemed critical to competent practice by the NBCSN, NASN, and ANA. However, it is concerning that five of these knowledge areas were deemed less important or unimportant by one fourth to nearly one half of the respondents: Codes and Regulations related to Labor, Legislative Process, Learning Theory, Instructional Theory, and Change Theory. All of these areas are essential to the competent practice of school nursing.

Findings of the analysis using Fisher's Exact Test indicated differences on two items based on the education level of the respondents and differences on two items based on years of experience in school nursing, but no significant differences were found based on overall years of nursing experience. One of the knowledge areas, communication skills - counseling, had a significant difference based on education level and also on years of school nursing experience; but it was impossible to tell whether experience or education was more significant. Because communication skills in counseling are within the scope of nursing practice and taught in BSN programs, it is not surprising that nurses with this level or higher education would consider these skills important to competent practice. This result is also commensurate with Benner's

(1984/2001) research on the *Novice-to-Expert* theory underpinning this study. In this research, expert nurses were shown to have significantly better skills in counseling of patients and families than nurses with less experience.

In addition to the fact that it was not specifically developed for the purpose of testing differences in education and years of nursing or school nursing experience, the survey presents other limitations that may have affected the results of this study. One of these issues is the lack of content validity. The American Board of Nursing Specialties (ABNS) is the accrediting body for the NBCSN certification examination. In the ABNS *Accreditation Standards*, Standard 7 requires that "the certifying organization has conducted validation studies to assure that inferences made on the basis of test scores are appropriate and justified" (ABNS, 2012, p. 15). Content validity establishes that the test questions are representative of the tasks and knowledge required for competent performance of the nursing specialty being tested (ABNS, 2004; McMillan, 2008). In most research, such validity is established by using focus groups drawn from the population of interest to verify that the meaning of the questions asked is correctly understood by the respondents and that the questions accurately reflect the tasks and knowledge required for the performance of school nursing. A group of school nurses developed the original survey, the NBCSN Board of Directors refined it and another group of representatives from PTC and the NASN served as a focus group to beta test the final version. This met the requirements outlined by ABNS (2012) for initial development of the survey. "However, because the job analysis that results from this process is based on the input of a relatively small number of experts, the document should be subjected to additional review and comment in the form of a validation survey" (ABNS, 2012, p. 15). The *2007 Role Delineation Survey* was not subjected to

further content validation studies, which may have affected the subjects' responses and the subsequent results of this secondary analysis.

Another issue is the method in which those taking the *2007 Role Delineation Survey* were chosen, convenience sampling. Because this was not a random sample chosen from the entire population of school nurses, the results cannot be generalized to this population (McMillan, 2008). Respondents could be representative of the approximately 2000 school nurses originally asked to participate, but not knowing any information about the characteristics of these non-responders, other than that they are school nurses, limits the ability to generalize even for this sample. Many respondents did not answer all the questions in the survey. This self-selection is also an issue for the validity of the survey and reliability of the results. People who respond to a survey often have characteristics and opinions that differ from those who do not respond and may therefore not be truly representative of the target population (McMillan, 2008). For example, more of the respondents to the *2007 Role Delineation Survey* have a BSN than any other educational level. Therefore, the answers may be skewed toward the level of practice and knowledge more common among BSN-prepared nurses.

Sample size is another important consideration that may have impacted the results. The survey was sent to a sample of approximately 2000 school nurses from various groups. While 547 participants at least started the survey, only 391 completed the entire survey. This is between 19% and 20% of the original sample. However, it is not clear whether the original intent of the NBCSN was to delineate school nursing roles within the entire population of school nurses, only those who are board-certified, or those who are members of a specialty interest group such as NASN. There are more than 66,000 school nurses in the United States, NASN has 14,780 members (NASN, 2011), and there are more than 3,000 NBCSN-certified school nurses

(NBCSN, 2013). The percentage of the respondents, if one of these population groups was meant as the target population, is less than 1%, around 3%, or around 13% respectively. The lower the response rate to a survey, the more likely that the results are biased and reflect the characteristics and practice of the respondents rather than the broader target population.

Finally, the accreditation application guidelines from ABNS (2012) stress the importance of research-level accuracy in the conduct and methodology of the *2007 Role Delineation Survey*. However, the PTC (2007) reported that the survey was initially developed by "approximately 20 school nurses" and sent to "more than 2000 nurses". The NBCSN Board members emailed the survey to their contacts, who were asked to send it to their contacts, and so on; but records of the exact numbers receiving the survey were not available, making it impossible to determine the actual response rate to the survey (M. Gapinski, personal communication, November 4, 2011). It would be helpful to keep track of such numbers during future surveys.

This study contributes to the body of knowledge about school nursing and what this sample of school nurses perceived as important knowledge for competent practice. However, this analysis of differences in answers given to the survey knowledge questions does not settle the debate of whether there are differences in nurse perceptions based on education level or experience. Recognizing that these findings cannot be generalized to the broader population of school nurses due to the limitations in the development, sampling methodology and administration of the survey, this study found that there were differences in perceptions of two knowledge areas related to education and two knowledge areas related to experience. These areas are essential to school nursing practice and warrant further research to examine whether these results are true for the broader population of school nurses.

Recommendations for Future Research

This study identified a gap in the overall demographic information gathered about the school nurse population. There is a lack of current information on the education levels, years of experience, racial/ethnic makeup, age, and gender of practicing school nurses in the United States. Such information is beneficial in determining whether school nurses reflect the populations they serve and whether, as with the broader registered nurse population, school nursing is in danger of a severe shortage in the near future brought on by aging and retirement of the workforce. Knowledge of education, licensure, and experience of school nurses could provide a better picture of the preparedness of nurses to enter the specialty.

The survey itself should be further refined to decrease the limitations discussed earlier in this chapter. Keeping complete and accurate records on the numbers and qualifications of anyone involved in developing the study should be considered fundamental. Knowing how many people were invited to participate and how many actually did is also critical to determine response rates and obtain a sample representative of the intended population. Using a random sampling method rather than convenience sampling would make the results more generalizable to the broader school nurse population. Shortening the length of the survey could increase the response rate.

Having additional focus groups take the survey and then provide feedback would answer a variety of important questions related to the content and structure of the survey:

- Are questions worded in a clear and understandable way?
- Do all focus group members comprehend the questions in the same way and as they were intended?

- Based on their experience, do the questions accurately reflect the tasks required for the performance of school nursing?
- Are there additional questions that should be added?
- Are there any questions that could be eliminated or consolidated?
- Are there any of the questions that are offensive?
- Are the instructions clear?
- Are there any components of the survey design that may interfere with its readability and ease of use, such as length, font size and style, organization of the questions, manner in which it will be delivered, etc.?
- How long did it take to complete the survey?
- Have focus group members taken it before?
- Have they seen it before, but decided not to take or complete it?
- If they did not complete the survey, why not?
- What could be changed to make it more likely school nurses will complete the survey?
- Who should be included in the survey?

Incorporating this feedback into modification of the survey would significantly increase its content validity. Focus groups should include school nurses from rural, urban, and suburban school districts, various regions of the country, and practicing at all educational levels: elementary, middle, and high school. Focus group participants with various levels of education and experience would also increase the validity of the survey.

It would be interesting to extend Benner's work, designing research to examine whether school nurses develop a knowledge base through experience, regardless of their educational background, that is similar to that of nurses with a BSN or higher level of education. Such information could assist school nurse administrators to structure orientation programs and career ladders that facilitate such knowledge development in newly hired school nurses or those with lower levels of experience. This could also be worthwhile knowledge for school nurse educators as they seek to design programs that provide continuing education for school nurses. Identification of learning needs and barriers to pursuit of education for nurses with ADNs or lower could result in more nurses pursuing the education that has been shown in other studies to improve their practice, knowledge base, and cognitive abilities.

While analysis of the knowledge questions found some differences in school nurse subjects' perceptions based on education level and some based on experience, the method of data collection for the original survey made it impossible to utilize regression techniques to determine if one was more significant than the other. Most of the knowledge questions showed no significant differences based on education or experience. Further research to specifically explore the influence of experience on school nursing knowledge, practice, and perceptions is needed to determine whether minimum levels of experience should be required prior to entry into the specialty. With the emphasis on the BSN as the minimum educational preparation for entry into the field of school nursing by so many professional organizations, further research is needed that examines whether the practice of bachelor's prepared school nurses is indeed safer and more effective than that of school nurses with lower levels of education. Without such research, it is difficult to make the argument to budget-conscious school administrators that they should hire

school nurses with BSN education and an expert level of experience, who may require higher salaries, to provide school health services.

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Appendix A.

Institutional Review Board Approval Letter

VirginiaTech

Office of Research Compliance
Institutational Review Board
North End Center, Suite 4120, Virginia Tech
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-4606 Fax 540/231-0959
email irb@vt.edu
website http://www.irb.vt.edu

MEMORANDUM

DATE: June 17, 2013

TO: Kerry J Redican, Erin Gooding Cruise

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires April 25, 2018)

PROTOCOL TITLE: School Nurse Role Delineation Study

IRB NUMBER: **10-475**

Effective June 14, 2013, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the Continuing Review request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As:	**Expedited, under 45 CFR 46.110 category(ies) 5**
Protocol Approval Date:	**June 29, 2013**
Protocol Expiration Date:	**June 28, 2014**
Continuing Review Due Date*:	**June 14, 2014**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

Appendix B.

Memorandum of Agreement Between NBCSN and Author

MEMORANDUM OF AGREEMENT

National Board for Certification of School Nurses

And

Erin G. Cruise, RN, MSN, NCSN

I. PURPOSE:

The purpose of this collaborative project is for Erin G. Cruise to conduct research regarding the practice of school nursing, utilizing survey data collected by the National Board for Certification of School Nurses.

II. PARTIES:

Parties to this **MOA include the** National Board for Certification of School Nurses **and Erin G. Cruise, a doctoral student at Virginia Polytechnic Institute and State University (herein referred to as Virginia Tech).**

III. GENERAL UNDERSTANDINGS, AGREEMENTS AND REQUIREMENTS

(Outlining general agreement to collaborate as partners, parameters for the collaboration, etc.)

A. The Board will provide Erin Cruise with the raw data from the survey and a copy of the survey questions that were sent out to school nurses in (date). The Board will provide information, as requested, related to the data itself, the development of the survey, available demographic information regarding the respondents, and methods of collecting the data and any analysis that has already been completed.

B. Erin Cruise will review and analyze the data for answers to research questions regarding the practice of school nursing, ways school nurses interact with students, teachers, administrators, staff, parents and communities, and evidence of the contributions of school nurses to the health and academic achievement of students and school community members. The results of this analysis will be used in Erin Cruise's doctoral dissertation and may be used to develop publications regarding the findings.

C. Communication will be primarily by telephone, electronic mail, and ground mail. The Board understands that Erin Cruise is a full time instructor at Radford University School of Nursing (which is not a party to this agreement) and, as such, her schedule is bound by her teaching responsibilities and contract. She receives no release time or compensation from Radford University for the pursuit of the doctoral degree. Erin Cruise is also a full time doctoral student at Virginia Tech University and does not receive any financial assistance or scholarships at this time. Therefore, in-person meetings, interviews, or presentations will be scheduled around Erin Cruise's working and school responsibilities and financial limitations. However, Erin Cruise will make every effort to honor the Board's requests for in-person meetings.

IV. SPECIFIC UNDERSTANDINGS, AGREEMENTS AND REQUIREMENTS

(Outlining specific timelines of the collaboration and project, all data requested from NBCSN, limitations to use of the data, scope of the research and its expected outcomes, attribution to NBCSN, ownership of data, etc.)

A. The Board requires that it will establish and maintain joint ownership with Erin Cruise of any data or other research findings that are the result of a collaborative agreement between the Board and Erin Cruise,
   i. The Board will be given credit for assistance provided and for being the source of the data in any publications, including the doctoral dissertation, of Erin Cruise.
   ii. If a member of the Board is directly involved in co-writing any publications resulting from the data analysis, this member will be listed as a co-author.
   iii. The Board will be kept informed by at least monthly reports of the progress of the analysis and dissertation and any publications as they are developed.
   iv. The Board will provide a contact person for Erin Cruise who can answer questions or obtain information needed for successful completion of the dissertation.

B. Erin Cruise requires that the Board will allow her to utilize the raw data, analysis, and any other information related to this survey as needed to complete her dissertation or resulting publications.
   i. Erin Cruise will consult with the Board regarding any planned publications prior to submission.
   ii. For any publication other than the dissertation, Erin Cruise will seek and obtain approval of the content from the Board prior to submission.
   iii. Erin Cruise will retain full creative control over the dissertation, but will credit the Board with providing the data and assistance.
   iv. Erin Cruise will provide ongoing monthly reports to the Board regarding the analysis and progress of the dissertation.
   v. Erin Cruise agrees to examine the data with the purpose of making recommendations to the Board regarding the development of the next scheduled survey, such as questions that could be deleted, rewording of any survey questions, and development of additional survey questions.

C. The expected date of completion of the dissertation is November, 2010.
   i. Additional journal article publications may be proposed following the publication of the dissertation.
   ii. This Memorandum of Agreement will remain in place until one year following the completion of the dissertation.
   iii. This Memorandum of Agreement may be extended past the deadline, based on the mutual agreement of both parties.

V. COST AND PAYMENT

(Outlining the billing by and the amount and manner of reimbursement to be made to NBCSN.)

A. The Board will provide the data and consultation by telephone and electronic mail to Erin Cruise free of charge.

B. Erin Cruise will provide analysis, monthly reports, and a final summary report by telephone and electronic mail free of charge.

C. The Board will not be responsible for Erin Cruise's expenses related to publication, travel or time spent in the analysis of the data or the completion of the dissertation or resulting publications. However, the Board may be asked to assist with Erin Cruise's travel expenses if an in-person interview or presentation is requested.

D. Erin Cruise will not be responsible for the Board's expenses related to member time spent in consultation with Erin Cruise or working on co-publications, or to any printing costs or costs of disseminating analysis results to the Board and other entities.

VI. MODIFICATION

This MOA may be modified at any time by written consent of all parties involved.

VII. TERMS AND TERMINATION

A. This MOA is effective on December 3, 2009 and is in effect until the project end date of one year following the completion of Erin Cruise's dissertation, or until otherwise modified.

B. The Board reserves the right to suspend or terminate the project if the project is not completed in a timely manner, and must provide written notification related to the termination, thirty day notice, and specific terms of agreement not met. Ms. Cruise must immediately return all materials and data provided by NBCSN, and any and all documents or texts completed related to the project. Furthermore, Ms. Cruise agrees that she will not use anything related to the data or document for a period of two years forward from the termination of the agreement.

C. The Entity, Ms. Cruise, may suspend or terminate the project within 30 days written notification of the Board and return all materials and data provided by NBCSN, and all documents or texts completed related to the project. Furthermore, Ms. Cruise agrees that she will not use anything related to the data or document for a period of two years forward from the termination of the agreement.

VIII. SIGNATORIES

The undersigned have read and agreed to collaborate in the proposed project and execute their responsibilities according to the terms of the MOA.
The undersigned hereby execute this Memorandum of Agreement on behalf of their agencies, instrumentalities, organizations, corporations or groups.

Mary Ann Lynch — Erin B. Cruise RN, MSN

President, NBCSN — Entity

Date: 1-15-10 — Date: 12-3-09

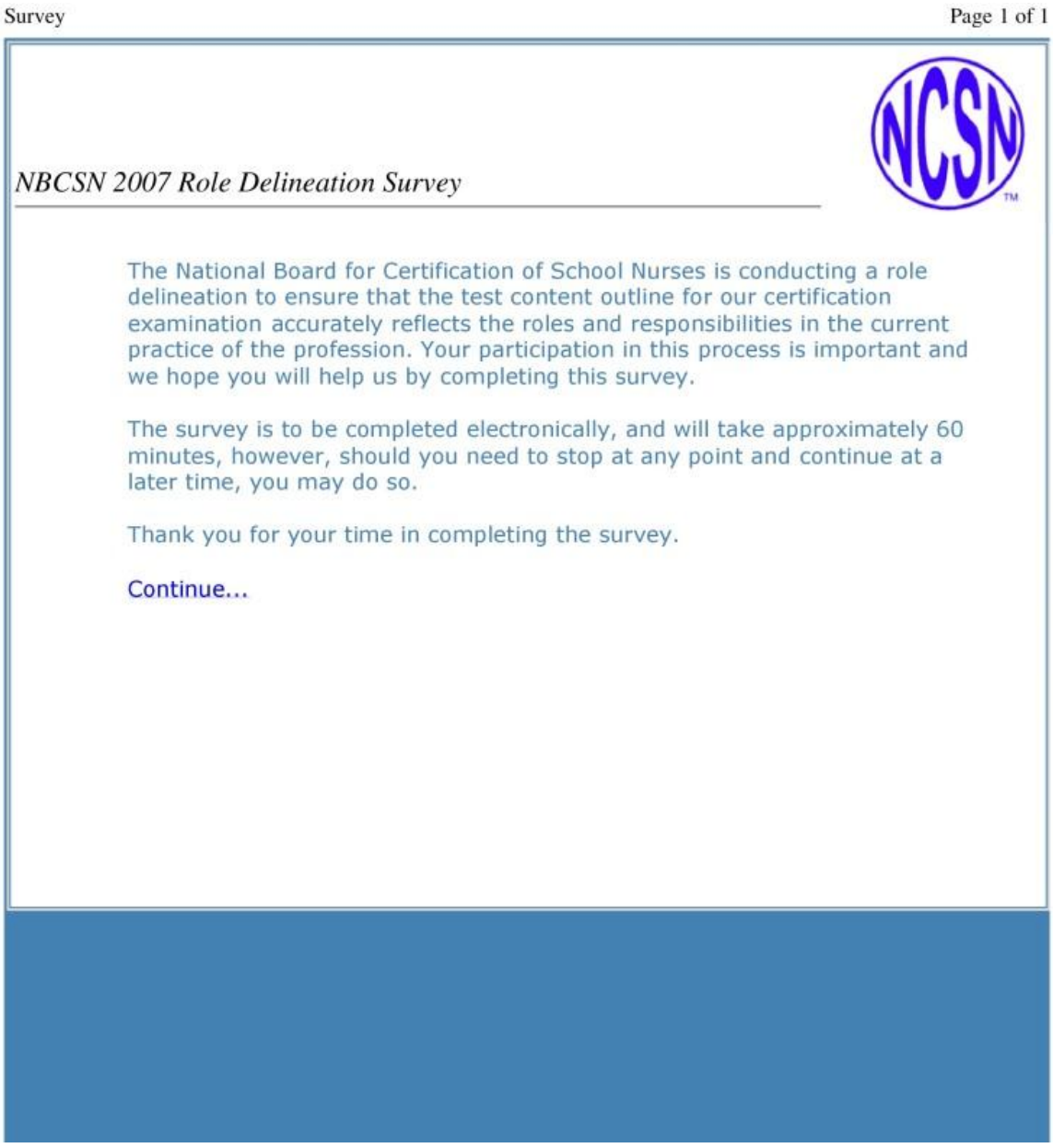
Mary Ann Lynch — Dr. Kerry Redican, VT

NBCSN Liaison to the Project — Faculty Advisor

Date: 1-15-10 — Date: 12/15/09

Appendix C.

NBCSN Role Delineation Study Survey Instrument



NBCSN 2007 Role Delineation Survey

Welcome, username **Sign off**

Introduction

Welcome to the NBCSN 2007 Role Delineation Survey online. Now that you have logged in successfully, please remember your username and password and save this link so you can return to the survey at a later time.

Survey structure

The survey has three main parts:

1. Task Statements
2. Knowledge Areas
3. Demographics

Directions

The survey asks you to evaluate 238 task statements in 7 categories and 32 knowledge areas. Please focus specifically on each task as related to the day-to-day performance of your own job. Although there may be some tasks not relevant to your particular job, it is very important that you read every item and mark a response for each. The Demographic section asks general questions to categorize respondents. None of the information we collect will identify you personally, so please respond to all demographic questions.

Section Number	Section Title	No. of Questions
	TASK STATEMENTS *In this section you will rate the frequency and importance of each task.*	
1	**I. ASSESSMENT**	45
2	**II. PRACTICE AND TREATMENTS**	62
3	**III. EDUCATION**	22
4	**IV. PLANNING CARE**	18
5	**V. COMMUNICATION**	25
6	**VI. MANAGEMENT**	59
7	**VII. PERSONNEL**	7
8	**KNOWLEDGE AREAS - *rate knowledge areas by importance***	32
9	**DEMOGRAPHICS**	18

One section will be presented at a time for you to enter your responses. You can save the survey anytime, and return back to it at your convenience. You can also switch among different sections at any time by selecting the section you want from the list on the bottom of the survey pages.

IMPORTANT NOTE: Please save the current section before switching to another section.

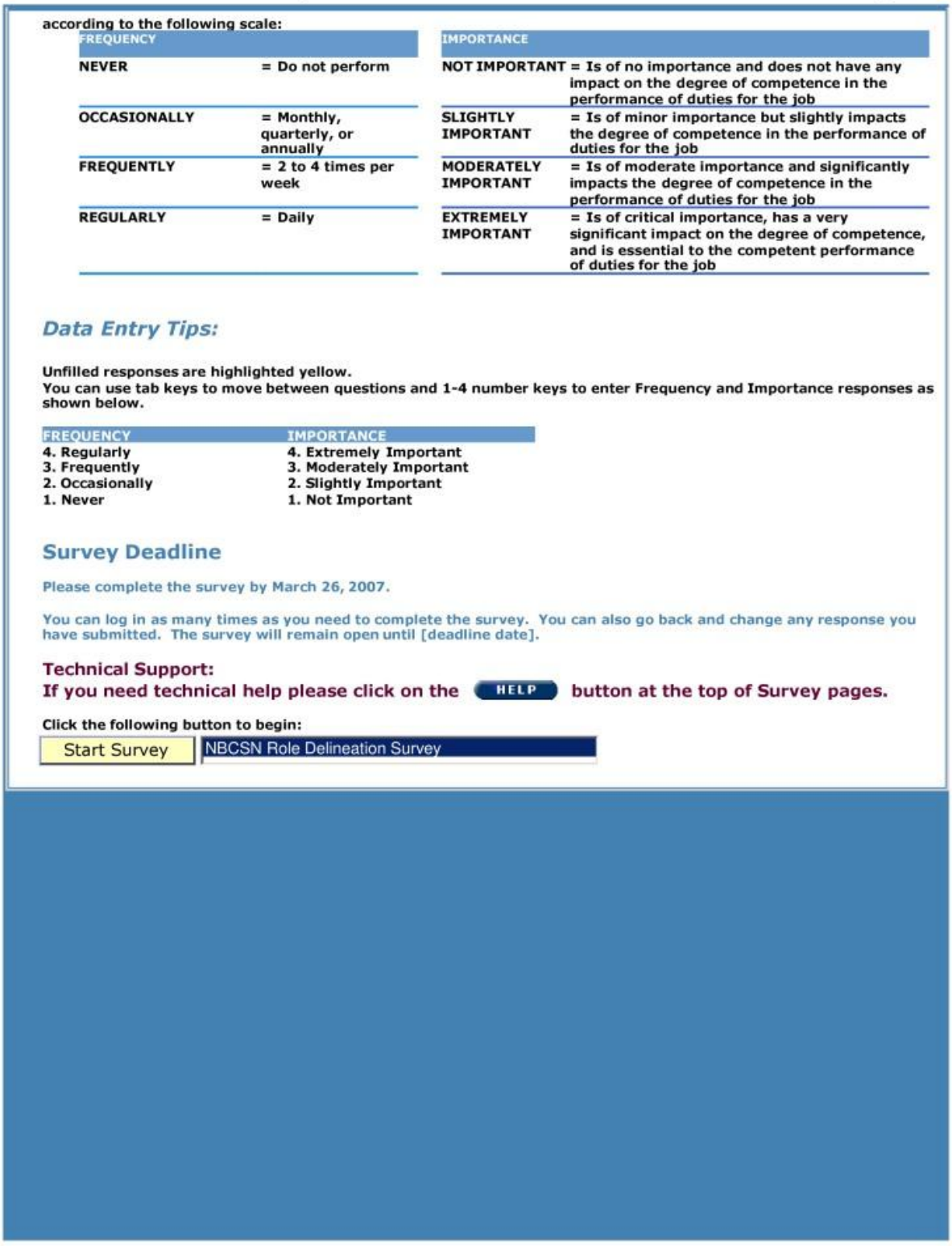
Survey Completion Status

At the bottom of the survey screens, you will see the Survey Completion Status as shown below. This will tell your progress and let you see incomplete sections.

	Survey Completion Status								
	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
% Completed	3.33%	1.61%	4.55%	2.78%	0%	0%	100%	5.88%	0%

Survey Scale Definition:

Please enter your responses to Frequency and Importance of Tasks and Knowledge Statements



according to the following scale:

FREQUENCY	
NEVER	= Do not perform
OCCASIONALLY	= Monthly, quarterly, or annually
FREQUENTLY	= 2 to 4 times per week
REGULARLY	= Daily

IMPORTANCE	
NOT IMPORTANT	= Is of no importance and does not have any impact on the degree of competence in the performance of duties for the job
SLIGHTLY IMPORTANT	= Is of minor importance but slightly impacts the degree of competence in the performance of duties for the job
MODERATELY IMPORTANT	= Is of moderate importance and significantly impacts the degree of competence in the performance of duties for the job
EXTREMELY IMPORTANT	= Is of critical importance, has a very significant impact on the degree of competence, and is essential to the competent performance of duties for the job

Data Entry Tips:

Unfilled responses are highlighted yellow.
You can use tab keys to move between questions and 1-4 number keys to enter Frequency and Importance responses as shown below.

FREQUENCY	IMPORTANCE
4. Regularly	4. Extremely Important
3. Frequently	3. Moderately Important
2. Occasionally	2. Slightly Important
1. Never	1. Not Important

Survey Deadline

Please complete the survey by March 26, 2007.

You can log in as many times as you need to complete the survey. You can also go back and change any response you have submitted. The survey will remain open until [deadline date].

Technical Support:
If you need technical help please click on the HELP button at the top of Survey pages.

Click the following button to begin:

Start Survey NBCSN Role Delineation Survey

Welcome, username HELP Sign off

NBCSN Role Delineation Survey Spring 2007

I. ASSESSMENT [N = 45]

#	Task Statements Please respond to the task statements based on what you actually do as part of your job.	HOW OFTEN IS THIS TASK PERFORMED AS PART OF THE JOB?	HOW IMPORTANT IS THIS TASK FOR COMPETENT PERFORMANCE?
1.	Screen student for early identification of health problems	Select Frequency	Select Importance
2.	Interview student regarding chief complaint	Select Frequency	Select Importance
3.	Perform triage	Select Frequency	Select Importance
4.	Perform a health history	Select Frequency	Select Importance
5.	Perform an early childhood screening	Select Frequency	Select Importance
6.	Observe student for signs and symptoms related to chief complaint	Select Frequency	Select Importance
7.	Determine if student has permission to visit health office	Select Frequency	Select Importance
8.	Determine if there is a substitute teacher in the student's classroom	Select Frequency	Select Importance
9.	Monitor student while in health office	Select Frequency	Select Importance
10.	Observe student in a classroom	Select Frequency	Select Importance
11.	Ask if student took medications at home	Select Frequency	Select Importance
12.	Ask if student has allergies	Select Frequency	Select Importance
13.	Review student's health record	Select Frequency	Select Importance
14.	Take student's vital signs	Select Frequency	Select Importance
15.	Assess vital signs	Select Frequency	Select Importance
16.	Assess lung sounds	Select Frequency	Select Importance
17.	Assess heart sounds	Select Frequency	Select Importance
18.	Assess a wound	Select Frequency	Select Importance
19.	Evaluate skin integrity	Select Frequency	Select Importance
20.	Perform assessment of ears	Select Frequency	Select Importance
21.	Determine if student has had breakfast	Select Frequency	Select Importance
22.	Determine if student likes school	Select Frequency	Select Importance
23.	Determine if student is hungry	Select Frequency	Select Importance
24.	Determine if student has altered sleep patterns	Select Frequency	Select Importance
25.	Determine if student needs to use the restroom	Select Frequency	Select Importance
26.	Determine if student feels safe	Select Frequency	Select Importance

NBCSN 2007 Role Delineation Survey Page 2 of 2

27. Determine if student has friends at home or at school	Select Frequency	Select Importance
28. Assess hydration of a student	Select Frequency	Select Importance
29. Assess range of motion on a student after injury	Select Frequency	Select Importance
30. Analyze student's attendance history	Select Frequency	Select Importance
31. Document and report truancy patterns	Select Frequency	Select Importance
32. Assess student for suicidal risk	Select Frequency	Select Importance
33. Assess student for signs of depression	Select Frequency	Select Importance
34. Assess student for self-mutilation	Select Frequency	Select Importance
35. Provide surveillance for communicable diseases	Select Frequency	Select Importance
36. Monitor student for medication side effects	Select Frequency	Select Importance
37. Monitor student on supplemental oxygen	Select Frequency	Select Importance
38. Assist student with peak flow monitoring	Select Frequency	Select Importance
39. Analyze a peak flow reading	Select Frequency	Select Importance
40. Perform pulse oximetry	Select Frequency	Select Importance
41. Assist student with blood glucose monitoring	Select Frequency	Select Importance
42. Evaluate student for symptoms of abnormal blood glucose levels	Select Frequency	Select Importance
43. Assist student with carbohydrate/insulin calculation	Select Frequency	Select Importance
44. Assist student with insulin delivery via pump	Select Frequency	Select Importance
45. Determine if a student's immunization status is current	Select Frequency	Select Importance

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Select section from the following dropdown list box and click Go to Section button:

I. ASSESSMENT Go to Section

	Survey Completion Status								
	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
% Completed	0%	0%	0%	0%	0%	0%	0%	0%	0%

Welcome, username HELP Sign off

NBCSN Role Delineation Survey Spring 2007

II. PRACTICE AND TREATMENTS [N = 62]

#	Task Statements Please respond to the task statements based on what you actually do as part of your job.	HOW OFTEN IS THIS TASK PERFORMED AS PART OF THE JOB?	HOW IMPORTANT IS THIS TASK FOR COMPETENT PERFORMANCE?
46.	Screen student for hearing	Select Frequency	Select Importance
47.	Interpret hearing screenings	Select Frequency	Select Importance
48.	Refer student with failed hearing screening for follow-up	Select Frequency	Select Importance
49.	Check ear with tympanometer	Select Frequency	Select Importance
50.	Screen student for vision	Select Frequency	Select Importance
51.	Interpret vision screening	Select Frequency	Select Importance
52.	Refer student with abnormal vision screening for follow-up	Select Frequency	Select Importance
53.	Screen student for spinal irregularities	Select Frequency	Select Importance
54.	Interpret spinal screening	Select Frequency	Select Importance
55.	Refer student with abnormal spinal screening for follow-up	Select Frequency	Select Importance
56.	Screen student for dental problems	Select Frequency	Select Importance
57.	Refer student with dental problems for follow-up	Select Frequency	Select Importance
58.	Take blood pressure of student	Select Frequency	Select Importance
59.	Take blood pressure of staff	Select Frequency	Select Importance
60.	Interpret blood pressure reading	Select Frequency	Select Importance
61.	Refer student with abnormal blood pressure for follow-up	Select Frequency	Select Importance
62.	Perform chest percussion	Select Frequency	Select Importance
63.	Measure student's height and weight	Select Frequency	Select Importance
64.	Interpret height and weight measurements	Select Frequency	Select Importance
65.	Refer student or staff with abnormal height and weight measurements for follow-up	Select Frequency	Select Importance
66.	Check student for head lice	Select Frequency	Select Importance
67.	Check student for scabies	Select Frequency	Select Importance
68.	Prepare equipment for procedures	Select Frequency	Select Importance
69.	Monitor student during procedures	Select Frequency	Select Importance
70.	Monitor student following procedures	Select Frequency	Select Importance
71.	Clarify the health care provider's order	Select Frequency	Select Importance

72. Document procedures and student response	Select Frequency	Select Importance
73. Administer tube feeding	Select Frequency	Select Importance
74. Catheterize student	Select Frequency	Select Importance
75. Provide tracheostomy care	Select Frequency	Select Importance
76. Monitor and document ventilator function regularly	Select Frequency	Select Importance
77. Administer scheduled medications	Select Frequency	Select Importance
78. Administer PRN medications	Select Frequency	Select Importance
79. Administer rescue medications	Select Frequency	Select Importance
80. Calculate insulin dosage	Select Frequency	Select Importance
81. Administer injections (insulin, epi pen, glucose)	Select Frequency	Select Importance
82. Administer a nebulizer treatment	Select Frequency	Select Importance
83. Assist a student with nebulizer use	Select Frequency	Select Importance
84. Assist a student with an inhaler treatment	Select Frequency	Select Importance
85. Assist a student with inhaler use	Select Frequency	Select Importance
86. Administer CPR	Select Frequency	Select Importance
87. Honor Do Not Resuscitate orders	Select Frequency	Select Importance
88. Remove tick with tweezer	Select Frequency	Select Importance
89. Mix topical fluoride rinse	Select Frequency	Select Importance
90. Administer fluoride treatments	Select Frequency	Select Importance
91. Administer immunizations to student	Select Frequency	Select Importance
92. Administer immunizations to staff	Select Frequency	Select Importance
93. Clean a wound	Select Frequency	Select Importance
94. Dress a wound	Select Frequency	Select Importance
95. Rest-Ice-Compress-Elevate injured extremities	Select Frequency	Select Importance
96. Provide an ice pack	Select Frequency	Select Importance
97. Apply an adhesive bandage	Select Frequency	Select Importance
98. Apply a finger splint	Select Frequency	Select Importance
99. Clean up student who has vomited or had an accident	Select Frequency	Select Importance
100. Assist with eye flush	Select Frequency	Select Importance
101. Assist with sliver removal	Select Frequency	Select Importance
102. Counsel students with various concerns	Select Frequency	Select Importance
103. Perform school physicals	Select Frequency	Select Importance
104. Provide health services in accordance with IEP	Select Frequency	Select Importance
105. Conduct home visitation evaluation		

	Select Frequency	Select Importance
106. Refer families to community resources	Select Frequency	Select Importance
107. Provide nursing services before or after duty hours	Select Frequency	Select Importance

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Select section from the following dropdown list box and click Go to Section button:
II. PRACTICE AND TREATMENTS Go to Section

	Survey Completion Status								
	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
% Completed	0%	0%	0%	0%	0%	0%	0%	0%	0%

Welcome, **username** HELP Sign off

NBCSN Role Delineation Survey Spring 2007

III. EDUCATION [N = 22]

#	Task Statements Please respond to the task statements based on what you actually do as part of your job.	HOW OFTEN IS THIS TASK PERFORMED AS PART OF THE JOB?	HOW IMPORTANT IS THIS TASK FOR COMPETENT PERFORMANCE?
108.	Teach breast self-exam to students	Select Frequency	Select Importance
109.	Teach testicular self-exam to students	Select Frequency	Select Importance
110.	Teach wound care to students	Select Frequency	Select Importance
111.	Teach use of Automatic External Defibrillators (AEDs)	Select Frequency	Select Importance
112.	Teach first aid to students	Select Frequency	Select Importance
113.	Teach first aid to staff	Select Frequency	Select Importance
114.	Teach CPR to students	Select Frequency	Select Importance
115.	Teach CPR to staff	Select Frequency	Select Importance
116.	Teach a procedure to an unlicensed person	Select Frequency	Select Importance
117.	Teach a procedure to students	Select Frequency	Select Importance
118.	Train staff to recognize and respond to urgent health problems	Select Frequency	Select Importance
119.	Educate classmates about a student's health disorder (with consent)	Select Frequency	Select Importance
120.	Educate parents on health conditions and treatments	Select Frequency	Select Importance
121.	Support and reassure staff regarding specific health care needs	Select Frequency	Select Importance
122.	Present on health related topics in the classroom	Select Frequency	Select Importance
123.	Present on health related topics to staff	Select Frequency	Select Importance
124.	Present on sex education in the classroom	Select Frequency	Select Importance
125.	Present classroom teaching for healthy lifestyle issues	Select Frequency	Select Importance
126.	Present on issues related to infection control	Select Frequency	Select Importance
127.	Provide and document standard precautions training for staff & others	Select Frequency	Select Importance
128.	Coordinate drug and alcohol awareness programs	Select Frequency	Select Importance
129.	Participate in health promotion activities	Select Frequency	Select Importance

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Welcome, **username** HELP Sign off

NBCSN Role Delineation Survey Spring 2007

IV. PLANNING CARE [N = 18]

#	Task Statements Please respond to the task statements based on what you actually do as part of your job.	HOW OFTEN IS THIS TASK PERFORMED AS PART OF THE JOB?	HOW IMPORTANT IS THIS TASK FOR COMPETENT PERFORMANCE?
130.	Identify a nursing diagnosis for care plan	Select Frequency	Select Importance
131.	Develop an individualized health care plan	Select Frequency	Select Importance
132.	Implement the care plan	Select Frequency	Select Importance
133.	Evaluate and revise the individualized health care plan	Select Frequency	Select Importance
134.	Evaluate the results of intervention	Select Frequency	Select Importance
135.	Determine if follow-up care has occurred	Select Frequency	Select Importance
136.	Communicate with parent/guardian	Select Frequency	Select Importance
137.	Conference with parent/guardian	Select Frequency	Select Importance
138.	Coordinate care	Select Frequency	Select Importance
139.	Case manage students with chronic conditions	Select Frequency	Select Importance
140.	Assist in referrals to children's health insurance programs	Select Frequency	Select Importance
141.	Participate in initial evaluation for special education referrals	Select Frequency	Select Importance
142.	Participate in Section 504 meetings	Select Frequency	Select Importance
143.	Write a Section 504 plan	Select Frequency	Select Importance
144.	Participate in IEP (Individualized Education Plan) meetings	Select Frequency	Select Importance
145.	Develop goals for an IEP	Select Frequency	Select Importance
146.	Write IECPs (Individual Emergency Care Plans)	Select Frequency	Select Importance
147.	Participate in Individual Family Service Plan (IFSP) development	Select Frequency	Select Importance

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Select section from the following dropdown list box and click Go to Section button:
IV. PLANNING CARE Go to Section

Survey Completion Status

Welcome, **username** HELP Sign off

NBCSN Role Delineation Survey Spring 2007

V. COMMUNICATION [N = 25]

#	Task Statements Please respond to the task statements based on what you actually do as part of your job.	HOW OFTEN IS THIS TASK PERFORMED AS PART OF THE JOB?	HOW IMPORTANT IS THIS TASK FOR COMPETENT PERFORMANCE?
148.	Communicate with teacher	Select Frequency	Select Importance
149.	Communicate with student's guardian	Select Frequency	Select Importance
150.	Communicate with health care provider	Select Frequency	Select Importance
151.	Communicate with public health department	Select Frequency	Select Importance
152.	Make presentations to school board	Select Frequency	Select Importance
153.	Advocate for students	Select Frequency	Select Importance
154.	Call 9-1-1/EMS as needed	Select Frequency	Select Importance
155.	Collaborate with local emergency care providers for emergency service during the school day	Select Frequency	Select Importance
156.	Lead a support group	Select Frequency	Select Importance
157.	Participate in development of a crisis/disaster plan	Select Frequency	Select Importance
158.	Participate in crisis/disaster drills	Select Frequency	Select Importance
159.	Participate in campus planning for crisis events	Select Frequency	Select Importance
160.	Listen actively to student concerns	Select Frequency	Select Importance
161.	Participate in health curriculum development	Select Frequency	Select Importance
162.	Provide resources to support classroom teaching on health issues	Select Frequency	Select Importance
163.	Collaborate with school food services staff regarding special dietary needs of students	Select Frequency	Select Importance
164.	Participate on campus teams for at risk students	Select Frequency	Select Importance
165.	Liaison to community agencies	Select Frequency	Select Importance
166.	Write newsletter articles	Select Frequency	Select Importance
167.	Provide healthcare information to parents/guardians	Select Frequency	Select Importance
168.	Serve on school-wide committees	Select Frequency	Select Importance
169.	Network with other school nurses	Select Frequency	Select Importance
170.	Answer school staff member's health questions	Select Frequency	Select Importance
171.	Develop bulletin board materials to promote healthy living	Select Frequency	Select Importance
172.	Participate in planning health office when building new schools	Select Frequency	Select Importance

Welcome, **username** HELP Sign off

NBCSN Role Delineation Survey Spring 2007

VI. MANAGEMENT [N = 59]

#	Task Statements Please respond to the task statements based on what you actually do as part of your job.	HOW OFTEN IS THIS TASK PERFORMED AS PART OF THE JOB?	HOW IMPORTANT IS THIS TASK FOR COMPETENT PERFORMANCE?
173.	Sort, group, and analyze data	Select Frequency	Select Importance
174.	Develop health office forms	Select Frequency	Select Importance
175.	Obtain student immunization records	Select Frequency	Select Importance
176.	Maintain student immunization records	Select Frequency	Select Importance
177.	Create state-mandated immunization report	Select Frequency	Select Importance
178.	Organize immunization clinics	Select Frequency	Select Importance
179.	Participate in school community needs assessment	Select Frequency	Select Importance
180.	Coordinate school physicals	Select Frequency	Select Importance
181.	Recommend exclusion for students lacking state required immunizations	Select Frequency	Select Importance
182.	Serve as advisor/sponsor for student activities (extracurricular activities, sports)	Select Frequency	Select Importance
183.	Count medications	Select Frequency	Select Importance
184.	Calculate correct dosage range	Select Frequency	Select Importance
185.	Report medication errors	Select Frequency	Select Importance
186.	Document medication errors	Select Frequency	Select Importance
187.	Document and report suspected child abuse and/or neglect	Select Frequency	Select Importance
188.	Complete accident reports	Select Frequency	Select Importance
189.	Collect data for reimbursable nursing services	Select Frequency	Select Importance
190.	Document a health history	Select Frequency	Select Importance
191.	Document health office visits	Select Frequency	Select Importance
192.	Document communications with parents	Select Frequency	Select Importance
193.	Document medication administration	Select Frequency	Select Importance
194.	Obtain health care provider's orders for treatment and procedures	Select Frequency	Select Importance
195.	Document results of any screenings	Select Frequency	Select Importance
196.	Facilitate student athletic participation	Select Frequency	Select Importance
197.	Maintain medical and health care supplies	Select Frequency	Select Importance
198.	Monitor performance of delegated task	Select Frequency	Select Importance

199. Order supplies	Select Frequency	Select Importance
200. Monitor environment for safety	Select Frequency	Select Importance
201. Conduct periodic safety checks of campus facilities	Select Frequency	Select Importance
202. Perform recommended checks on AEDs	Select Frequency	Select Importance
203. Perform recommended checks on oxygen equipment	Select Frequency	Select Importance
204. Prepare emergency first aid packets	Select Frequency	Select Importance
205. Prepare first aid/medication packets for field trips	Select Frequency	Select Importance
206. Develop health office website materials	Select Frequency	Select Importance
207. Coordinate staff wellness programs	Select Frequency	Select Importance
208. Establish community partnerships	Select Frequency	Select Importance
209. Compile community resources list	Select Frequency	Select Importance
210. Conduct health fairs	Select Frequency	Select Importance
211. Develop policies and procedures for health care delivery and programs	Select Frequency	Select Importance
212. Obtain release of information forms	Select Frequency	Select Importance
213. Compile data for periodic health office report	Select Frequency	Select Importance
214. Enter data into computer	Select Frequency	Select Importance
215. Use technology for reference	Select Frequency	Select Importance
216. Record health information on school records	Select Frequency	Select Importance
217. Collect statistical data to track trends	Select Frequency	Select Importance
218. Collect statistical data to measure outcomes	Select Frequency	Select Importance
219. Use technology for teaching	Select Frequency	Select Importance
220. Use printed reference materials	Select Frequency	Select Importance
221. Maintain a resource library	Select Frequency	Select Importance
222. Set up an office	Select Frequency	Select Importance
223. Develop a budget	Select Frequency	Select Importance
224. Write grant proposals	Select Frequency	Select Importance
225. Participate in professional development/growth activities	Select Frequency	Select Importance
226. Participate in activities of a professional organization	Select Frequency	Select Importance
227. Interface with legislative process on health issues	Select Frequency	Select Importance
228. Interact and collaborate with subcontractor/agency personnel	Select Frequency	Select Importance
229. Review literature for evidence to support practice	Select Frequency	Select Importance
230. Participate in research activities	Select Frequency	Select Importance

231. Participate in quality improvement audit Select Frequency Select Importance

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Select section from the following dropdown list box and click Go to Section button:
VI. MANAGEMENT Go to Section

	Survey Completion Status								
	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
% Completed	0%	0%	0%	0%	0%	0%	0%	0%	0%

Welcome, **username** HELP Sign off

NBCSN Role Delineation Survey Spring 2007

VII. PERSONNEL [N = 7]

#	Task Statements Please respond to the task statements based on what you actually do as part of your job.	HOW OFTEN IS THIS TASK PERFORMED AS PART OF THE JOB?	HOW IMPORTANT IS THIS TASK FOR COMPETENT PERFORMANCE?
232.	Mentor new school nurses	Select Frequency	Select Importance
233.	Provide inservice training for school nurses	Select Frequency	Select Importance
234.	Facilitate clinical experience for nursing students	Select Frequency	Select Importance
235.	Conduct performance appraisals	Select Frequency	Select Importance
236.	Interview and hire employees	Select Frequency	Select Importance
237.	Discipline employees	Select Frequency	Select Importance
238.	Write job descriptions	Select Frequency	Select Importance

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Select section from the following dropdown list box and click Go to Section button:
VII. PERSONNEL Go to Section

	Survey Completion Status								
	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
% Completed	0%	0%	0%	0%	0%	0%	0%	0%	0%

Welcome, **username** HELP Sign off

NBCSN Role Delineation Survey Spring 2007

KNOWLEDGE AREAS [N = 32]

#	Knowledge Areas Please rate the following knowledge areas using the options to the right of each statement	HOW IMPORTANT IS THIS KNOWLEDGE FOR COMPETENT PERFORMANCE?
1.	Codes and Regulations	
a.	Education	Select Importance
b.	Nursing Practice	Select Importance
c.	Health	Select Importance
d.	Labor	Select Importance
2.	Legislative Process	Select Importance
3.	Physical Assessment	Select Importance
4.	Childhood Growth and Development	Select Importance
5.	Pharmacology	Select Importance
6.	Mental Health	Select Importance
7.	Nutrition	Select Importance
8.	Disease Process	Select Importance
9.	Public Health Issues	Select Importance
10.	Professional Issues	Select Importance
11.	Ethical/Legal Issues	Select Importance
12.	Communicable Diseases	Select Importance
13.	Psychosocial Issues	Select Importance
14.	Learning Theories	Select Importance
15.	Instructional Theories	Select Importance
16.	Change Theory	Select Importance
17.	Anatomy and Physiology	Select Importance
18.	Nursing Practice	Select Importance
19.	Management Skills	Select Importance
20.	Information Management	Select Importance
21.	Leadership Skills	Select Importance
22.	Nursing Process	Select Importance
23.	Cultural Issues	Select Importance
24.	Communication Skills	

a.	Group Dynamics	Select Importance
b.	Counseling	Select Importance
c.	Conflict Resolution	Select Importance
25.	Environmental Health	Select Importance
26.	Evidence-Based Practice	Select Importance
27.	Health Promotion	Select Importance

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Select section from the following dropdown list box and click Go to Section button:
KNOWLEDGE AREAS Go to Section

	Survey Completion Status								
	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
% Completed	0%	0%	0%	0%	0%	0%	0%	0%	0%

Welcome, **username** HELP Sign off

NBCSN Role Delineation Survey Spring 2007

DEMOGRAPHICS [N = 20]

#	Demographics

Gender **(Optional)**

- ○ Male
- ○ Female

Ethnic Background **(Optional)**

- ○ African American
- ○ Asian
- ○ Caucasian
- ○ Hispanic
- ○ Native American
- ○ Other

1. Total years in nursing practice

[ ] **(Minimum 0, maximum 55)**

2. Years in school nursing practice

[ ] **(Minimum 0, maximum 55)**

3. Age

[ ] **(Minimum 20, maximum 80)**

4. Are you employed as a school nurse full-time or part-time?

- ○ Full-Time
- ○ Part-Time

5. Education – Check highest educational level achieved

- ○ Associate Degree
- ○ Diploma
- ○ Bachelor's Degree in Nursing
- ○ Bachelor's Degree in Non-Nursing
- ○ Master's Degree in Nursing
- ○ Master's Degree in Non-Nursing
- ○ Doctoral Degree in Nursing
- ○ Doctoral Degree in Non-Nursing
- ○ Other

[ ]

6. Check all of the following which you have earned

- ☐ LPN
- ☐ Diploma
- ☐ ADN
- ☐ BS
- ☐ BSN
- ☐ MA

- ☐ MPH
- ☐ MS
- ☐ MSN
- ☐ M.Ed.
- ☐ Doctorate
- ☐ Other

7. Are you a Nurse Practitioner?

- ○ Yes
- ○ No

8. Primary place in which you practice as a school nurse

- ○ Pre-K
- ○ K-12
- ○ Elementary School
- ○ Middle School
- ○ High School
- ○ College/University
- ○ Administration
- ○ Consultant
- ○ Public Health
- ○ Retired
- ○ Not Practicing
- ○ Other

9. Do you hold a NCSN credential?

- ○ Yes
- ○ No

10. Are you state certified?

- ○ Yes
- ○ No

11. Primary location in which you practice as a school nurse

- ○ Urban
- ○ Suburban
- ○ Rural

12. Number of students you serve

(Minimum 0, maximum 10000)

13. Number of schools you serve

(Minimum 0, maximum 30)

14. Approximately how many hours of continuing education related to school nursing have you had in the last 12 months?

(Minimum 0, maximum 1000)

15. Are you a member of your state school nursing association?

- ○ Yes

○ No

16. Are you a member of the National Association of School Nurses (NASN)?

○ Yes
○ No

17. On which of the following school committees do you serve? **(Check all that apply)**

☐ Wellness
☐ Safety
☐ Nutrition
☐ Technology
☐ Health Advisory
☐ Drug & Alcohol
☐ PTA
☐ Curriculum
☐ Strategic Planning
☐ Social
☐ Disaster/Crisis Planning
☐ Special Education
☐ Other

18. Additional Comments

Enter Your Comments Here

Save Current Section

Note: You must click the Save Current Section button to save your response data.

Select section from the following dropdown list box and click Go to Section button:
DEMOGRAPHICS Go to Section

	Survey Completion Status								
	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9
% Completed	0%	0%	0%	0%	0%	0%	0%	0%	0%

Appendix D.

Crosswalk Table Comparing Baccalaureate Essentials, NBCSN Knowledge Questions, and Benner's Domains of Nursing Practice

NASN/ANA Standards	**NBCSN Survey Knowledge Questions**	**Patricia Benner's Domains of Nursing Practice**	**AACN Essentials of Baccalaureate Practice**
1. Assessment The school nurse collects comprehensive data pertinent to the healthcare consumer's health and/or the situation.	3. Physical Assessment 5. Pharmacology 6. Mental Health 8. Disease Process 12. Communicable Disease 13. Psychosocial Issues 17. Anatomy and Physiology 22. Nursing Process 23. Cultural Issues	3. Diagnostic and Monitoring Domain 4. Effective management of rapidly changing situations 5. Administering and monitoring therapeutic interventions and regimens	9a. The baccalaureate graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments. b. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients.
2. Diagnosis The school nurse analyzes the assessment data to determine the diagnoses or issues.	5. Pharmacology 6. Mental Health 8. Disease Process 12. Communicable Disease 13. Psychosocial Issues 17. Anatomy and Physiology 22. Nursing Process	3. Diagnostic and Monitoring Domain 4. Effective management of rapidly changing situations	

NASN/ANA Standards	NBCSN Survey Knowledge Questions	Patricia Benner's Domains of Nursing Practice	AACN Essentials of Baccalaureate Practice
3. Outcome Identification The school nurse identifies the expected outcomes for a plan individualized to the healthcare consumer or the situation.	4. Childhood Growth and Development 5. Pharmacology 6. Mental Health 7. Nutrition 8. Disease Process 12. Communicable Disease 13. Psychosocial Issues 17. Anatomy and Physiology 22. Nursing process 23. Cultural issues 26. Evidence-based practice 27. Health promotion	3. Diagnostic and Monitoring Domain 4. Effective management of rapidly changing situations 5. Administering and monitoring therapeutic interventions and regimens 6. Monitoring and ensuring the quality of health care practices	9a. The baccalaureate graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments. b. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients.

NASN/ANA Standards	NBCSN Survey Knowledge Questions	Patricia Benner's Domains of Nursing Practice	AACN Essentials of Baccalaureate Practice
4. Planning The school nurse develops a plan that prescribes strategies and alternatives to attain expected outcomes.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 2. Legislative process 4. Childhood growth and development 9. Public health issues 10. Professional issues 11. Ethical/legal issues 13. Psychosocial issues 14. Learning theories 15. Instructional theories 16 Change theory 18. Nursing practice 19. Management skills 20. Information management 21 Leadership skills 22. Nursing process 23. Cultural issues 24. Communication skills *(a. group dynamics, c. conflict resolution)* 26. Evidence-based practice 27. Health promotion	1.The Helping Role 2. Teaching-Coaching 4. Effective Management of rapidly changing situations 5. Administering and Monitoring therapeutic interventions and regimens 7. Organizational and Work-role Competencies	9a. The baccalaureate graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments. b. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients.

NASN/ANA Standards	NBCSN Survey Knowledge Questions	Patricia Benner's Domains of Nursing Practice	AACN Essentials of Baccalaureate Practice
5. Implementation The school nurse implements the identified plan.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 4. Childhood growth and development 9. Public health issues 10. Professional issues 11. Ethical/legal issues 13. Psychosocial issues 14. Learning theories 15. Instructional theories 16 Change theory 18. Nursing practice 19. Management skills 20. Information management 21 Leadership skills 22. Nursing process 23. Cultural issues 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)* 26. Evidence-based practice 27. Health promotion	3. Diagnostic and Monitoring Domain 4. Effective Management of rapidly changing situations 5. Administering and Monitoring therapeutic interventions and regimens 7. Organizational and Work-role Competencies	9a. The baccalaureate graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments. b. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients.

NASN/ANA Standards	NBCSN Survey Knowledge Questions	Patricia Benner's Domains of Nursing Practice	AACN Essentials of Baccalaureate Practice
5A. Coordination of Care The school nurse coordinates care delivery	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 9. Public health issues 10. Professional issues 11. Ethical/legal issues 16 Change theory 18. Nursing practice 19. Management skills 20. Information management 21 Leadership skills 22. Nursing process 23. Cultural issues 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)* 26. Evidence-based practice 27. Health promotion	1. The Helping Role 2. Teaching-Coaching 3. Diagnostic and Monitoring Domain 3. Effective Management of rapidly changing situations 5. Administering and Monitoring therapeutic interventions and regimens 6. Monitoring and ensuring the quality of health care practices 7. Organizational and Work-role Competencies	9a. The baccalaureate graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments. b. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients.

NASN/ANA Standards	NBCSN Survey Knowledge Questions	Patricia Benner's Domains of Nursing Practice	AACN Essentials of Baccalaureate Practice
5B. Health Teaching and Health Promotion The school nurse employs strategies to promote health and a safe environment, especially regarding health education.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 4. Childhood growth and development 11. Ethical/legal issues 14. Learning theories 15. Instructional theories 18. Nursing practice 21 Leadership skills 22. Nursing process 23. Cultural issues 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)* 26. Evidence-based practice 27. Health promotion	1. The Helping Role 2. Teaching-Coaching 7. Organizational and Work-role Competencies	6. Communication and collaboration among healthcare professionals are critical to delivering high quality and safe patient care.

NASN/ANA Standards	NBCSN Survey Knowledge Questions	Patricia Benner's Domains of Nursing Practice	AACN Essentials of Baccalaureate Practice
5C. Consultation The school nurse provides consultation to influence the identified plan, enhance the abilities of others, and effect change.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 9. Public health issues 10. Professional issues 11. Ethical/legal issues 16 Change theory 18. Nursing practice 19. Management skills 20. Information management 21 Leadership skills 22. Nursing process 23. Cultural issues 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)* 26. Evidence-based practice 27. Health promotion	1. The Helping Role 2. Teaching-Coaching 3. Diagnostic and Monitoring Domain 6. Monitoring and Ensuring the quality of health care practices 7. Organizational and Work-role Competencies	7. Health promotion and disease prevention at the individual and population level are necessary to improve population health and are important components of baccalaureate generalist nursing practice.

NASN/ANA Standards	NBCSN Survey Knowledge Questions	Patricia Benner's Domains of Nursing Practice	AACN Essentials of Baccalaureate Practice
6. Evaluation The school nurse evaluates progress toward attainment of outcomes.	20. Information management 22. Nursing process	3. Diagnostic and Monitoring Domain 5. Administering and monitoring therapeutic interventions and regimens 6. Monitoring and ensuring the quality of health care practices 7. Organizational and Work-role Competencies	6. Communication and collaboration among healthcare professionals are critical to delivering high quality and safe patient care.
7. Ethics The school nurse practices ethically.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 10. Professional issues 11. Ethical/legal issues 23. Cultural issues	6. Monitoring and Ensuring the quality of health care practices 7. Organizational and Work-role Competencies	2. Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care
8. Education The school nurse attains knowledge and competencies that reflect current nursing practice	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 10. Professional issues 18. Nursing practice 21. Leadership skills 26. Evidence-based practice	3. Diagnostic and Monitoring Domain 6. Monitoring and Ensuring the quality of health care practices	8. Professionalism and the inherent values of altruism, autonomy, human dignity, integrity, and social justice are fundamental to the discipline of nursing.

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9. Evidence-based Practice and Research The school nurse integrates evidence and research findings into nursing practice.	10. Professional issues 18. Nursing practice 21. Leadership skills 26. Evidence-based practice	3. Diagnostic and Monitoring Domain 6. Monitoring and Ensuring the quality of health care practices	1.A solid base in liberal education provides the cornerstone for the practice and education of nurses
10. Quality of Practice The school nurse contributes to quality nursing practice.	10. Professional issues 11. Ethical/legal issues 18. Nursing practice 21. Leadership skills 26. Evidence-based practice	3. Diagnostic and Monitoring Domain 6. Monitoring and Ensuring the quality of health care practices 7. Organizational and Work-role Competencies	3. Professional nursing practice is grounded in the translation of current evidence into one's practice.
11. Communication The school nurse communicates effectively in a variety of formats in all areas of nursing practice.	20. Information management 21. Leadership skills 23. Cultural issues 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)*	1. The Helping Role 2. Teaching-Coaching 3. Diagnostic and Monitoring Domain 3. Effective management of rapidly changing situations 6. Monitoring and ensuring the quality of health care practices 7. Organizational and Work-role Competencies	2.Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care

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12. Leadership The school nurse demonstrates leadership in the professional practice setting and the profession.	16. Change theory 19. Management skills 21. Leadership skills 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)*	3. Effective management of rapidly changing situations 6. Monitoring and ensuring the quality of health care practices 7. Organizational and Work-role Competencies	4. Knowledge and skills in information management and patient care technology are critical in the delivery of quality patient care.
13. Collaboration The school nurse collaborates with the healthcare consumer, family, and others in the conduct of nursing practice.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 9. Public health issues 16. Change theory 18. Nursing practice 19. Management skills 21. Leadership skills 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)*	1. The Helping Role 2. Teaching-Coaching 4. Effective management of rapidly changing situations 5. Administering and monitoring therapeutic interventions and regimens 7. Organizational and Work-role Competencies	2. Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care.

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14. Professional Practice Evaluation The school nurse evaluates one's own nursing practice in relation to professional practice standards and guidelines, relevant statutes, rules, and regulations.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 10. Professional issues 11. Ethical/legal issues	6. Monitoring and ensuring the quality of health care practices 7. Organizational and Work-role Competencies	6. Communication and collaboration among healthcare professionals are critical to delivering high quality and safe patient care.
15. Resource Utilization The school nurse utilizes appropriate resources to plan and provide nursing services that are safe, effective, and financially responsible.	11. Ethical/legal issues 18. Nursing practice 19. Management skills 26. Evidence-based practice	5. Administering and monitoring therapeutic interventions and regimens 6. Monitoring and ensuring the quality of health care practices 7. Organizational and Work-role Competencies	2. Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care

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16. Environmental Health The school nurse practices in an environmentally safe and healthy manner.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 18. Nursing practice 19. Management skills 20. Information management 21. Leadership skills 22. Nursing process 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)* 25. Environmental health 26. Evidence-based practice 27. Health promotion	6. Monitoring and ensuring the quality of health care practices	9b. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients.

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17. Program Management The school nurse manages school health services.	1. Codes and regulations *(a. education, b. nursing practice, c. health, & d. labor)* 2. Legislative process 9. Public health issues 10. Professional issues 11. Ethical Legal issues 16. Change theory 18. Nursing practice 19. Management skills 20. Information management 21. Leadership skills 22. Nursing process 23. Cultural issues 24. Communication skills *(a. group dynamics, b. counseling, & c. conflict resolution)* 25. Environmental health 26. Evidence-based practice 27. Health promotion	5. Administering and monitoring therapeutic interventions and regimens 6. Monitoring and ensuring the quality of health care practices 7. Organizational and Work-role Competencies	9a. The baccalaureate graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments. b. The baccalaureate graduate understands and respects the variations of care, the increased complexity, and the increased use of healthcare resources inherent in caring for patients. 5. Healthcare policies, including financial and regulatory, directly and indirectly influence the nature and functioning of the healthcare system and thereby are important considerations in professional nursing practice.

Sources: American Associates of Colleges of Nursing, 2008; Professional Testing Corporation and National Board for Certification of School Nurses, 2007; Benner, P., 1984/2001; National Association of School Nurses and American Nurses Association, 2011